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Address: Economic Research Institute at BAS, 3 “Aksakov” str., Sofia 1000, Bulgaria
Chief Editor / Journal Secretary: (+359-2) 8104019, e-mail: econ.studies@iki.bas.bg

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WILL THE BRICS BE THE LEADERS IN CENTRAL BANK DIGITAL CURRENCIES?

The study discusses the opportunity for the BRICS to implement a common supranational Central Bank Digital Currency (CBDC). Starting from the observation that many CBDC projects are under study all over the world and that the subject is hardly treated in the academic literature, we have sought to propose a general definition of the concept of CBDC. Based on this definition, both technical and monetary opportunities and constraints are studied in the case of the BRICS supranational CBDC project.

JEL: E42; E49; F33; G21

Introduction

At the 11th Annual BRICS Summit held in Brasilia in November 2019, the BRICS Business Council discussed the possibility of creating a common central bank digital currency (CBDC for Central Bank Digital Currency). As national CBDC projects emerge around the world, the BRICS plan to launch a joint supranational CBDC using blockchain technology straight away. Although the project is only at the discussion stage, it rises innumerable questions, both on the technical aspects of its implementation and on the opportunity for the BRICS to implement it. There is little work on CBDC in the academic literature dedicated to cryptocurrencies and blockchain. The purpose of this text is to start from what is known about CBDCs in order to discuss the opportunity for the BRICS to launch their own common supranational CBDC.

After briefly presenting cryptocurrencies and how they work (section 1), we will show how CBDC is an original development (section 2). Finally, we will discuss the opportunity for the BRICS to create a common supranational CBDC (section 3).

¹ Assen Slim, 49 rue Raspail, 92270 Bois-Colombes, France, +33-634233955, e-mail: assen.slim@inalco.fr.

1. Cryptocurrencies and how they work

Bitcoin, the first of cryptocurrencies, was conceived as an alternative to the contemporary monetary order. It is part of a general movement to challenge political and banking powers, deemed unable to implement quality currency and an independent monetary policy. Bitcoin is thus thought of as a means of monetary appropriation by individuals, “a new area of freedom for several years”, a “common good”, a “means of democratizing finance” (Nakamoto 2008). In this system, the traditional trusted third parties (banks, financial intermediaries) are replaced by a technical infrastructure supposed to generate trust without any central authority (De Filippi & Loveluck 2016).

Origin of the cryptocurrencies

In the early 1980s, informal groups self-entitled “Cypherpunks” or “Crypto anarchists” started gathering to find out how to mix cryptography and information technologies. They decided to use the technical capacity of cryptography, for the creation of new systems (Castor, 2017). These groups aimed to conceive a decentralized I.T. protocol that could allow individual collaboration without the identification of the names and legal identities of the people exchanging information. In parallel, they developed a strong discourse against central institutions, starting by those run by the U.S. Government, as they considered their power to rule finance worldwide to be exorbitant. In a direct reference to Marx, May called decentralized I.T. protocol “a technical revolution” that allows the exchange of almost anything (even drogues and illegal products) in perfect and fluid markets: “An anonymous computerized market will even make possible abhorrent markets for assassinations and extortion” (May, 1992).

For these groups, cyberspace is seen as a ground for social interaction: “government is not destroyed, but it simply becomes redundant without any possible intervention” (Dai, 1998). Several projects of decentralized electronic coin emerged from this conceptualization giving out the bases for what would become the architecture of Bitcoin: “Digicash” (Chaum, 1983), “b-money” (Dai, 1998), “Bit gold” (Szabo, 1998 and 2005).

The founding article explaining the concept of Bitcoin was published in 2008. It’s “author”, Satoshi Nakamoto², discusses how he has been working on this conceptualization since 2007 (Nakamoto, 2008). Nakamoto announces his desire to find a solution to the problem caused by “third-party institutions” (banks and other financial institutions, central banks). The aim of these intermediaries is to solve potential conflicts (the reversibility of transactions and the eventual creation of arbitrary currencies), but this mediation also causes an increase in transaction costs and in the frequency and intensity of monetary crises. Nakamoto suggests that it could be possible to create a digital currency without any third-party institutions. A currency based on a collaborative, resilient, and secure Peer-to-Peer (P2P) architecture via the use of specific technology.

² The mystery remains about the identity of the designer(s).

The technical infrastructure of cryptocurrencies

Although each cryptocurrency is based on a specific technical infrastructure, all of them have the same elements in common: a protocol, a blockchain, mining. We will briefly present these elements in the case of Bitcoin.

The Bitcoin protocol is distributed to eliminate single checkpoints and build resilience across the system. By a dual-key cryptographic system, it guarantees the “pseudonymity” of the stakeholders, while making it impossible to falsify the identifiers and amounts of Bitcoins registered in users’ electronic wallets. When making a payment, the issuer signs and authenticates their payment order with their private key. The beneficiary of the settlement will receive the sums sent to his own address if this key matches to the public key sent by the issuer to decrypt the transfer and authenticate the origin without revealing the identity of the actors.

The blockchain contains the history of all the transactions processed and validated by the Bitcoin system since its creation. Any validated transaction is written in a new block (a kind of transaction page) which is integrated into the blockchain. The latter is replicated identically in certain computers in the system, called “complete nodes”. There is, in fact, not one but several thousand copies of the blockchain, built and managed by as many computers all over the planet. Each “full node” keeps a copy of the blockchain up to date, downloads and checks the validity of the new blocks with rules recognized by all, then distributes them on the network.

Mining, finally, by resolution of “proofs of work” (or *PoW* for *Proof of Work*), corresponds to the stage where the new transactions issued are validated and registered in a new block added to the blockchain. It is carried out by “miners”, voluntary users who, in addition to holding complete nodes, are provided with special software enabling the validation of new blocks. The validation process consists of the resolution of several complex mathematical equations that are themselves dependent on an aleatory targeting system that is defined within the rules of the blockchain. This aleatory feature guarantees that it is never the same miner that validates the transaction (Ribeiro, 2016). This “randomness” avoids for a single miner to become more powerful than any other, which is one of the keys to the security of the blockchain. Once a new block is validated by a first miner, then it must be confirmed by at least 51% of the total power of the network, which makes block forgery almost impossible. The miners compete for the resolution of each *PoW*. Their chance of finding the right solution before the others depend directly on the calculation power they dedicate to it, relative to the total calculating power accumulated in the network. Minors are “paid” in new bitcoins issued for their work and for the resources mobilized. Originally, 50 bitcoins were issued every ten minutes, but this issue is halved every 210,000 blocks issued (or approximately every four years). Today, the validation of a block emits 12.5 bitcoins. Of the 21 million bitcoins predicted by the initial algorithm, 85% are already in circulation. At this rate, the emission should continue until 2140. Mining requires three types of hardware. The first is a processor (CPU), which is the most accessible computing system available for mining, but its power is very limited. The second is a graphic card (GPU) which has a more powerful capacity than a CPU. To optimize their processing power, GPUs are assembled in a rig that usually contains a power source, a motherboard, risers or adapters, GPUs and an air-conditioned stand. Thirdly, the Application-Specific Integrated Circuit (ASIC) holds a very high processing

power. It is a specialized type of hardware that can only work with a very limited number of algorithms and it cannot be used for anything else than mining. The ASIC is usually composed of one or more chips that are disposed on a card, jointed by connectors (to allow it to connect to the Internet), a power supply unit, many ventilators, and a container. To increase their benefits, miners have an incentive to join groups of miners that are known as “pools”. These groups allow them to mine together and to share the gains. It is also possible to join a cloud mining system. In this case, one pays other miners to rent out an unused part of their equipment. The renters receive in return for their investment, the gains from the leased equipment. However, people choosing this option take the risk of paying rent in advance without being guaranteed that the equipment will work efficiently, or that it is not a scam.

The technical infrastructure of cryptocurrencies has proven to be efficient, secure, difficult to censor and above all incorruptible. It allows direct interaction between individuals without any use of a third party. It excludes any form of coercion. The transaction costs are almost zero and the delays of payment reduced.

Beyond cryptocurrencies

Today Blockchain technology goes far beyond the reach of cryptocurrencies. As it is drastically reducing transaction costs, intermediaries, and delays, this technology is attracting start-ups, large corporations, and public administrators. It was quickly presented as a “trust machine” capable of “changing the world” (The Economist 2015). The blockchain focuses all the attention because it allows the storage of time-stamped information that can be consulted at any time, a bit like a data centre, secure, incorruptible and inviolable. You can certainly store information relating to bitcoin payments there, but nothing prevents the storage of other data of a very different nature: proof of purchase, deeds of ownership, proof of payment, patents, tickets, etc.

To date, the academic work is mostly concerned with the technical infrastructure necessary for developing cryptocurrency (Rodima-Taylor *et al.*, 2017), the monetary nature of cryptocurrencies (Lakowski-Laguerre and Desmedt, 2015), the interest of States to use them and emerging national regulations (De Filippi, 2014), or the role of cryptocurrencies as a new sociotechnical construct (De Filippi and Loveluck, 2016), (Rolland and Slim, 2017). Some other research has treated blockchain on a more technological approach (Risius and Spohrer, 2017), (Meroni *et al.*, 2019), (Ruoti *et al.*, 2020), speaking about data and information controls (Cappiello *et al.*, 2019), of the rules necessary to treat information (Yeoh, 2017), (Ólmes *et al.*, 2017), (van Rijswijk *et al.*, 2019) and discussing the role of the capitalist economic institution in the deployment of the technology (Davidson *et al.*, 2018). Some rare examples have attempted a classification of applications based on Blockchain technology (Ribeiro, 2016), (Godebargue and Rossat, 2016), (Labazova *et al.*, 2019).

They are different types of blockchain. After the creation of Bitcoin, more than 1,500 cryptocurrencies have been launched. Each of them is based on a specific Blockchain technology (some are faster, while others are more traceable, some are cheaper to trade with, while others have tougher authentication protocols). Blockchains are said to be “public”

because the entirety of its repository (historic of the transaction) is visible to everyone. A way of imagining public blockchain is by thinking about a “big public book, anonymous, impossible to falsify, that everyone can consult and read” (Ribeiro, 2016). They are two main types of public blockchain: the classical Blockchains and the “infrastructure” ones.

Classical Blockchains gather information than can be consulted by everyone. They work as safe datacenters (Kolb *et al.*, 2020). For example, the Blockchain of Bitcoin has all the blocks that trace all the transactions in Bitcoins ever since the first emission of a “block genesis” by Satoshi Nakamoto in 2009. These blocks stock all the electronic signatures as well as other data, including the purchases, the ownership of Bitcoins, the payments, etc.

The “infrastructure” Blockchains are capable of keeping and managing other types of information such as “Smart Contracts”. The first blockchain of this type, called Ethereum, was conceived in 2013 by Vitalik Buterin, a Canadian developer of Russian origin. In his white paper, he defines Smart Contracts as: “cryptographic ‘boxes’ that contain value and only unlock it if certain conditions are met” (Buterin, 2013). Smart contracts are not contracts in the true sense of the term, but more as stand-alone computer applications that have saved the terms of an agreement and that self-execute when the conditions of the agreement are met. They do not have legal authority in themselves. When a legal contract exists, the smart contract is its technical application. They operate on the principle of “if-then” (**if** the condition is verified, **then** the consequence is executed). The originality here lies in the fact that these smart contracts are written on a blockchain and therefore benefit from all the advantages of this technology (time stamping, inviolability, reduced transaction costs, etc.). They avoid the high costs of drafting a contract, legal intervention, opportunistic behaviour and the ambiguities inherent in written language. We are certain that smart contracts will be executed as expected, quickly and without human intervention (a potential source of bias).

Buterin saw three great opportunities for the implementation of Blockchain infrastructures: “In general, there are three types of applications on top of Ethereum. The first category is financial applications, providing users with more powerful ways of managing and entering into contracts using their money. This includes sub-currencies, financial derivatives, hedging contracts, savings wallets, wills, and ultimately even some classes of full-scale employment contracts. The second category is semi-financial applications, where the money is involved, but there is also a heavy non-monetary side to what is being done; a perfect example is self-enforcing bounties for solutions to computational problems. Finally, there are applications such as online voting and decentralized governance that are not financial at all” (Buterin, 2013)

The emergence of private (or “permissible”) Blockchains (Blockchains that contain information that is only accessible by specific predetermined entities) and “consortium Blockchain” (a mix between public and private ones) helped to expand the diffusion of Blockchain technology to other economic activities.

Since then, countless outlets have opened up for these technologies: financial applications, insurance, traceability, content storage, control and certification, authentication, Internet of Things, collaborative activities, fund-raising by Initial Coin Offering (ICO)... Companies highlight seven main factors of attractiveness of the blockchain: non-falsifiable data, security by cryptography, significant drop in transaction costs, authentication of data by consensus,

community organization, public account register and speed of transactions. (Arreola *and all*. 2020). For instance, Wyman believes that blockchain could result in transaction cost economies of about 15 to 20 billion a year (Wyman, 2016).

ICOs are probably the best illustration of the use of the blockchain without cryptocurrencies. As opposed to an IPO (*Initial Public Offering*), which implies the launch of new stock in the trading market, the ICO is a “mechanism to raise external funding through the emission of tokens” (Momtaz, 2018). An ICO is a fund-raising exercise under the crowdfunding model, that is collected in cryptocurrencies. Concretely, a firm emits tokens that it sells as cryptocurrencies for launching a new project, and people (and firms) can buy these tokens. The ICO allows firms to overcome the very complex and difficult access to the venture capital system, which tends to only finance projects that are at a very early stage. Also, the tokens can be given many other uses, including buying the product at the origin of the ICO, be resold as a financial title, or be reconverted into fiat currency. Platforms such as *Waves* in Russia or *Trade.io* in Hong Kong allow firms to get started in a few clicks. In 2019, USD 2.83 billion was raised in ICOs worldwide, after peaking at USD 13.54 billion in 2018 (Perreau, 2020). The ten largest ICOs to date: EOS (USD 4000 million), Telegram (1700), Bitfinex (1000), TaTaTu (575), Dragon Coin (320), HDAC (258), Filecoin (257), Tezos (233), Sirin Labs (157) and Bancor (153). The ICOs are more frequently used to finance the launch of decentralized applications. Nevertheless, there is no guarantee for investors and some ICO can be real scams.

Therefore, there is a rapid evolution of the juridical and regulatory standards for launching ICOs. In France, the PACTE law (22 May 2019) has a section dedicated to ICOs in its article 26. The law stipulates that the French Financial Market Authority (AMF) could deliver a pre-approval to ICO projects that provide guarantees of protection to investors, such as the provision of the funds raised. Moreover, the creators of tokens will have to be registered to operate in France and the ICOs will have minimum standards for the number of people necessary to validate the projects (at least 150 people). Finally, ICOs will be required to provide a white paper presenting the project’s potential risks.

More than a technical revolution, blockchain could also become a vector for profound social change. It is in this context that central banks began to take an interest in this technology and to consider the issue of central bank digital money (MDBC).

2. National CBDC or supranational CBDC for the BRICS?

We are witnessing a profusion of CBDC projects: China, Cambodia, Dubai, Estonia, France, Iran, Kazakhstan, Turkey, South Korea, Russia, Switzerland, Sweden, Uzbekistan... Some projects are in the test phase (test-launched in South Korea on 7 April 2020), but for the moment, only the Venezuelan CBDC project (the petro) was completed in 2018. Despite their differences, all these MDBC projects are nationwide. National CBDCs are an unexpected and original evolution of cryptocurrencies. Recall that cryptocurrencies were designed to reject any form of the central monetary authority. However, with the CBDCs, it is the central banks that are taking the lead and are now seizing on these technologies.

Definition of national CBDCs

A domestic CBDC can be defined as a digital asset issued and destroyed by the central bank alone, exchanged with banknotes and reserves, permanently available and for peer-to-peer transactions and circulating on digital media. The motive for issuing a CBDC commonly put forward by central banks is to offer a payment instrument that is perfectly liquid, secure and adapted to technological developments.

A distinction is made between wholesale CBDCs, i.e. accessible to all or some of the financial institutions in a country, and retail CBDCs, i.e. accessible to everyone (financial institutions, administrations, companies, individuals).

With wholesale CBDCs, it is thus possible to perform end-to-end transactions, including final settlement, in so-called “tokenized” assets on the blockchain. This will boost the capacity for innovation and the productivity of the financial sector. Retail CBDCs, on the other hand, reduce the transaction costs of retail payments while ensuring access to central bank money for all, in a dematerialized form complementary to fiat money.

The BRICS: supranational CBDC or network of national CBDCs?

The BRICS are immediately involved in the process of creating a common supranational CBDC. Several options exist for the creation of a common CBDC without the BRICS having yet expressed a clear strategy in this area.

The optimal option would be to create a common supranational CBDC managed collectively by the central banks of the five countries of the group. Each central bank should issue a determined volume of this supranational CBDC. All transactions in this common cryptocurrency would be recorded in a single private blockchain where only institutions chosen by the BRICS could “mine” the transactions to authenticate them. We can imagine in this option that the supranational CBDC issued can be wholesale or retail.

A second option would be to first create a network of national CBDCs within the BRICS and then define a supranational CBDC designed as a basket of national CBDCs, a bit like the ECU in the 1979 EMS.

A third option would be to create a common supranational CBDC guaranteed to be 100% on deposits in national currencies (*fiat currencies*) of the BRICS with an international monetary authority set up for the occasion.

A fourth option would be to let one of the countries in the group (China or Russia for example) create its own national CBDC and then have it adopted by the other BRICS.

For now, although the BRICS say they are in favour of a joint supranational CBDC project, none of these options has yet been discussed. To date, only China and Russia seem to have embarked on plans to create national CBDCs. Brazil, India and South Africa have yet to announce any such plans.

The Chinese Central Bank (PBoC for *People’s Bank of China*) announces on its site the upcoming launch (without giving any date) of a digital currency, called DCEP (for *Digital*

Currency Electronic Payment) on which it has been working since 2015. The stated objective of the PBoC is to provide an alternative to cash for retail payments. The DCEP would be issued on the basis of a private blockchain and its distribution would be based on commercial banks and Chinese web giants: Alipay (owned by e-commerce giant Alibaba), WeChat pay (owned by Tencent messaging), Industrial and Commercial Bank of China, Bank of China, Agricultural Bank of China, China Construction Bank and Union Pay. These institutions would have direct access to the DCEP and would oversee opening and managing the DCEP portfolios of the general public (individuals and businesses). Finally, the PBoC announces that there will be a cap per transaction in order to limit the use of the DCEP to retail payments and that a mobile application will be developed for easy access. It was the metropolis of Shenzhen (13 million inhabitants) that was selected for the first DCEP test. Shenzhen Financial Technology Co. Ltd (a company specializing in blockchain and 100% owned by the PBoC Digital Currency Institute) was established there in 2018.

Since May 2016, Russia has been considering introducing a CryptoRuble. However, the question of the legality of cryptocurrencies remained unresolved in the country, due to strong dissensions between Russian institutions. In October 2017, Russian President V. Putin called for the establishment of a balanced regulatory environment for cryptocurrencies. Indeed, according to him, “the use of cryptocurrencies carries serious risks such as money laundering, tax evasion and terrorist financing” (De 2017). This shift has resulted in massive investments in mining infrastructure, particularly in eastern Siberia (Estecahandy & Limonier 2020). At the same time, a bill On Digital Financial Assets (DFA) was tabled by the Russian Ministry of Finance (following the request of the President; List of instructions Pr-2132 of 21 October 2017) in the Duma on 25 January 2018. Eventually, Duma passed the DFA law on Wednesday, 22 July 2020. The new law, which will come into force from 1 January 2020, gives legal status to cryptocurrencies in the country, but it prohibits their use for paying for goods and services. The cryptocurrencies are being recognized as an aggregate of electronic data capable of being accepted as the payment means. The DFA law states that “possession of digital currency, its acquisition and transfer by legal means are allowed only if declared”. It institutes the Central Bank of the Russian Federation (CBR) as the authority to issue digital currencies inside Russian jurisdiction as well as oversee the activities on the authorized platforms.

Brazil has yet to announce any plans for a national CBDC. With the most bitcoin transactions in Latin America, the country officially recognized cryptocurrencies as legal currencies in August 2019. In the process, the Mile Unity Foundation, issuer of XDR (a stablecoin anchored on a basket of five currencies: dollar, euro, yen, Chinese yuan and pound sterling), was received at the Brazilian Ministry of Industry and Trade in the prospect of using XDR on a large scale for international remittances from the country.

India has not announced any plans for a national CBDC. However, the Indian central bank (RBI for *Reserve Bank of India*) has declared itself in favour of the introduction of such a currency based on a private blockchain. RBI hopes in this way to alleviate the corruption which exists in the country and reduce the dependence of Indians working abroad on financial intermediaries when they make their remittances. The Indian government, meanwhile, recently declared itself in favour of issuing a CBDC to reduce the population’s dependence on other cryptocurrencies.

South Africa has also not announced any official plans for CBDC. The country’s Central Bank (SARB for *South African Reserve Bank*) has declared itself in favour of a CBDC based on a private retail blockchain open directly to the population, without going through the intermediary of banks. The objective would be the financial inclusion of the 11 million unbanked people and, in doing so, the stimulation of economic development.

3. The interest of a common supranational CBDC for the BRICS

The BRICS represent 41.6% of the world population (*i.e.* 3.16 billion people), 23.6% of world GDP, 27.4% of inward FDI flows, 16.2% of world exports, 15, 9% of world imports, 11% of the current world transfers. With such weight in the global economy, the joint CBDC project initiated by the BRICS is likely to have repercussions around the world. We will limit ourselves here to discussing the interest for the BRICS alone, retaining the hypothesis of the issuance of a common retail CBDC, open to all.

The advent of an international blockchain-based payment system

The issuance of a joint retail CBDC by the BRICS would offer an unprecedented international payment system to all economic players in these countries (banks and financial institutions, businesses, administrations, individuals). According to the common CBDC model retained, the possibilities for users would not be the same. One can imagine four major models of common retail CBDC (Figure 1).

Figure 1

The four models of common retail CBDC for the BRICS

	Direct	Intermediated
With tokens	Token-based model without intermediation	Token-based model with intermediation
With accounts	Account-based model without intermediation	Account-based models with intermediation

The token-based model means that the CBDC is accessible to the public on dedicated wallets, which are opened and managed either by intermediaries (token-based model with intermediation) or directly by the supranational monetary authority responsible for the common CBDC common (disintermediated token-based model). In the case of the BRICS, this would mean that users could use the common CBDC to settle international as well as national transactions, placing orders directly from their wallets (via a computer, mobile phone, etc.). The transfer of units would be done electronically from wallet to wallet.

The account-based model means that the common CBDC is stored on an account, accessible online, associated with its holder. This account can be opened and managed either by banks (account-based model with intermediation) or directly by the supranational monetary authority responsible for the CBDC (disintermediated account-based model). In the case of the BRICS, this means that users could make their national and international account-to-account payments.

Regardless of the CBDC model adopted by the BRICS, the resulting international payment system will benefit from all the advantages of blockchain technology: speed of payments, reduced transaction costs, security, time-stamping and archiving of all transactions. Models without intermediaries (whether token-based or account-based) in which the central monetary authority responsible for the common CBDC directly ensures the availability to users of monetary units are those which would make it possible to reduce the most sharply transaction costs and delays. However, adopting this type of model would be particularly restrictive for central banks, which are not used to dealing with so many counterparties and are not intended to ensure such granularity of the transactions carried out by all economic agents. Moreover, these models would call into question the very existence of financial intermediaries. It is, therefore, likely that the BRICS will choose a common CBDC model with intermediaries: banks, other payment service providers, insurers, agents/brokers, exchange offices, post offices, etc.

The BRICS have raised the idea of a mobile phone-based electronic payment system for the general public called BRICS Pay. The platform would use a mobile application linked either to wallets (token-based model) or to accounts (account-based model) that would allow users from any BRICS country to settle their transactions with users in other BRICS countries.

Such an undertaking requires the BRICS to engage in an approach aimed at ensuring the interoperability of their already existing infrastructures in the field of international payments. The efforts, already undertaken to bring together the Russian (SPFS) and Chinese (CIPS) payment systems, show a willingness to move in this direction. India plans to connect to the Russian central bank system through a service currently under development. Finally, the effort of international standardization of infrastructures based on a blockchain which has just been undertaken by the International Standard Organization within the framework of its ISO / TC 307 Technical Committee will constitute an essential tool to make the MDDB project common to the BRICS operational.

Overcome the dollar and the constraints imposed by the United States

Kirill Dmitriev, director of the Russian Direct Investment Funds (RDIF), said in November 2019 that “an efficient and functioning BRICS payment system could stimulate settlements between national currencies and ensure the stability of settlements and investments between our countries, which form more than 20% of the global inflow of foreign direct investment. Cryptocurrency payments will be made through the BRICS payment system, the creation of which is under discussion”. In other words, the existence of a common supranational CBDC would overcome the dollar’s hegemony in currency settlements between the BRICS. In 2019, the dollar represented nearly 50% of settlements within the group (against 14% for the ruble, for example). Beyond the dollar, the advent of a stand-alone payment system between BRICS would bypass the US SWIFT network for international payments, which would be particularly useful for countries targeted by U.S. economic sanctions.

Stimulate economic activity and support growth

There are several indications that a CBDC is likely to boost economic growth in the BRICS. Economists at the Bank of England have attempted to assess the potential impact of a CBDC that would be issued as a new monetary policy instrument and circulate alongside fiat money. The positive impact on the level of GDP would come in part from the purchase of assets that it would finance. The authors estimate that a CBDC issue of up to 30 points of GDP (the equivalent of the average Q.E. effort made by central banks after the subprime crisis) would generate a permanent increase in the level of GDP of 3% “due to the fall in real interest rates” and “a reduction in transaction costs” (Barrdear and Kumhof, 2016). In addition, the authors consider that adopting a countercyclical rule in the setting of interest rates would improve the transmission of monetary policy and better stabilize the economic cycle. It is also likely that the issuance of a CBDC will lead to the creation of an intra-day money market, i.e. exchanges of CBDCs between financial institutions for durations of less than a day. This would raise the question of switching to real-time monetary policy implementation.

It can be added that a common retail CBDC would offer users greater manoeuvrability than coins and banknotes. In addition, if the BRICS CBDC were to be based on an “infrastructure” blockchain, it could then integrate smart contracts, which would automate payments, simplify invoicing and accounting monitoring, further reduce delays and even carry out fund-raising (such as Initial Coin Offering - ICO type).

In addition, the CBDC would offer an alternative to traditional electronic payments (transfer, bank cards), which would help reduce the rents of established operators and stimulate consumption, trade and activity accordingly (Hasan et al. 2013).

Reduce the use of historical cryptocurrencies

A supranational CBDC for the BRICS would work like a stablecoin. It could thus be backed either by national CBDCs (which do not yet exist) or by a basket of national fiat currencies. In the event that it is not backed by any collateral, the stability of its value could still be ensured by smart contracts, which will automatically buy back the CBDC in circulation when its price is too low and sell it when it is too high. This last option obviously assumes that the common CBDC chosen by the BRICS is based on an “infrastructure” blockchain.

In any case, the issuance of a common supranational retail CBDC would offer greater guarantees of stability than historical cryptocurrencies issued on public blockchains and which present numerous risks: high volatility, high operational risk, liquidity risk, etc. (Agur 2018). The CBDC chosen by the BRICS, appearing as a stable, operational, liquid payment instrument, should therefore logically be preferred by users to historical cryptocurrencies for the settlement of transactions. At the same time, it will help preserve the monetary sovereignty of the BRICS against historical cryptocurrencies using public blockchains and private stablecoins with global reach (such as Libra).

Extend the BRICS area of influence

A common retail CBDC, because of the strengths discussed above, could attract many more participants. Its adoption by other countries outside the group would *de facto* extend BRICS

hegemony. One can imagine, for example, that the African countries of the former CFA franc zone are interested in the BRICS CBDC, especially since China is already very present economically in Africa. If such a scenario were to happen, we would witness an unprecedented development of economic relations (trade, FDI, loans, current transfers, remittances) between Africa and the BRICS. We can therefore understand the reasons which push the Banque de France to speed up the schedule for developing a European CBDC so as not to give way to China! Moreover, it is not excluded that a local CBDC initiative emerges directly from the countries of UEMOA (West African countries) or CEMAC (Central African countries) or from both groups combined. Such an initiative would constitute a real mode of emancipation for these countries, while the eco (replacement currency for the CFA franc) is contested even before its entry into force.

Conclusion

This foresight exercise made it possible to define the notion of CBDC and to establish a typology of possible models. It appeared that the desire of the BRICS to create a common CBDC is part of a more general movement which can be explained by the intensification of competition between international payment systems: historical cryptocurrencies which nibble at the monetary sovereignty of States, new Private stablecoins with global pretension carried by the digital giants (Facebook, Telegram, etc.)... CBDCs finally are constrained choice for States in order not to fall too far behind in the blockchain race and to try to preserve a form of minimal monetary sovereignty.

Despite their common will displayed in November 2019, the BRICS are running in dispersed order with a very clear lead for China. It is a safe bet that the future supranational payment system that will emerge within the group will be largely based on a Chinese CBDC.

References

- Agur, I. (2018). Central bank digital currencies: An overview of pros and cons. – In: Gnan, E., Masciandaro, D. (eds.) *Do We Need Central Bank Digital Currency? Economics, Technology and Institutions*. Vienna: Suerf, pp. 116-117.
- Arreola, F., Slim A., Magnin E. (2020). *Technologie Blockchain: au-delà des cryptomonnaies*. – World Economic Forum and Gouvernance Think Tank Magazine [online]. [Viewed 31 July 2020]. Available from: <https://fr.weforum.org/agenda/2020/06/technologie-blockchain-au-dela-des-cryptomonnaies/>.
- Barrdear, J., Kumhof, M. (2016). *The macroeconomics of central bank issued digital currencies*. – Working Paper 605, London: Bank of England.
- Buterin, V. (2013). *Ethereum White Paper: A next generation smart contract & decentralized application platform*. [online]. [Viewed 9 August 2020]. Permanent link: https://blockchainlab.com/pdf/Ethereum_white_paper-a_next_generation_smart_contract_and_decentralized_application_platform-vitalik-buterin.pdf.
- Cappiello, C., Commuzzi, M., Daniel, F., Meroni, G. (2019). *Data Quality Control in Blockchain Applications*. – In: Di Ciccio, C., Gabryelczyk, R., Garcia-Banuelos, L., Hernaus, T., Hull, R., Indihar Stemberger, M., Kö, A., Staples, M. (eds.). *Business Process Management: Blockchain and Central and Easter Europe Forum*. Cham: Springer pp. 166-181.

- Castor, A. (2017). In Santa Barbara, An Annual Event Brings Together Those Closest to Bitcoin's Roots. – Forbes [online]. [Viewed 9 August 2020]. Available from: <https://www.forbes.com/sites/amycastor/2017/08/30/in-santa-barbara-an-annual-event-brings-together-those-central-to-bitcoins-roots/#7c6665437b60>.
- Central Bank of Brazil (BCB), <https://www.bcb.gov.br/en>.
- Central Bank of China (PBoC), <https://www.centralbanking.com/organisations/peoples-bank-of-china-pboc>.
- Central Bank of India (RBI), <https://www.rbi.org.in/>.
- Central Bank of Russia (CBR), <https://www.cbr.ru/eng/>.
- Central Bank of South Africa (SARB), <https://www.resbank.co.za/Pages/default.aspx>.
- Chaum, D. (1983). Blind signatures for untraceable payments. – In: Chaum, D., Sherman, A., Rivest, R. (eds.). Proceedings of Crypto 82. New York: Plenum, pp. 199-203.
- Davidson, S., De Filippi, P., Potts, J. (2018). Blockchains and the economic institutions of capitalism. – Journal of Institutional Economics, 14(4), p. 639-658.
- De Filippi, P. (2014). Bitcoin: a regulatory nightmare to a libertarian dream. – Internet Policy Review [online]. 3(2). [Viewed 9 August 2020]. Available from: doi: 10.14763/2014.2.286.
- De Filippi, P., Loveluck, B. (2016). The invisible politics of Bitcoin: governance crisis of a decentralized infrastructure. – Internet Policy Review [online]. 5(4). [Viewed 31 July 2020]. Available from: doi: 10.14763/2016.3.427.
- De, N. (2017). Vladimir Putin: Cryptocurrency Poses 'Serious Risks'. Coindesk.com [online]. [Viewed 31 July 2020]. Available from: <https://www.coindesk.com/vladimir-putin-cryptocurrency-poses-serious-risks>.
- Desmedt, L., Lakomski-Laguerre, O. (2015). L'alternative monétaire Bitcoin: une perspective institutionnaliste. – Revue de la régulation [online]. 18(2). [Viewed 9 August 2020]. Available from: doi: 10.4000/regulation.11489.
- Estecahandy, H., Limonier, K. (2020). Cryptomonnaies et puissance dans le calcul : la Sibérie orientale, nouveau territoire stratégique pour la Russie. – Hérodote – La Découverte, p. 177-178, 253-266.
- Godefarge, F., Rossat, R. (2006). Principes clés d'une application Blockchain. Lyon: EM Lyon.
- Hasan, I., De Renzis, T., Schmiedel, H. (2013). Retail payments and the real economy. – Working Paper 1572, Frankfurt: European Central Bank .
- Kolb, J., Abdelbaky, M., Katz, R., Culler, D. (2020). Core Concepts, Challenges, and Future Directions in Blockchain: A centralized Tutorial. – ACM Comput. Surv. [online], 53(1). [Viewed 9 August 2020]. Available from: doi: 10.1145/3366370.
- Labazova, O., Ehling, T., Sunyaev, A. (2019). From Hype to Reality: A Taxonomy of Blockchain Applications. Proceedings of the 52nd Hawaii International Conference on System Sciences [online]. [Viewed 9 August 2020]. Available from: doi: 10.24251/HICSS.2019.552.
- May, T. (1992), The Crypto Anarchist Manifesto. November. [online]. [Viewed 9 August 2020]. Available from: <https://www.activism.net/cypherpunk/crypto-anarchy.html>.
- Meroni, G., Plebani, P., Vona, F. (2019). Trusted Artifact-Driven Process Monitoring of Multi-party Business Processes with Blockchain. – In: Di Ciccio, C., Gabryelczyk, R., Garcia-Banuelos, L., Hernaus, T., Hull, R., Indihar Stemberger, M., Kö, A., Staples, M. (eds.). Business Process Management: Blockchain and Central and Easter Europe Forum. Cham: Springer, pp. 50-70.
- Momtaz, P. (2018). Initial Coin Offering. Available from: doi: 10.2139/ssrn.3166709.
- Nakamoto, S. (2008). Bitcoin: A Peer-to-Peer Electronic Cash System. [online]. [Viewed 9 August 2020]. Available from: <https://bitcoin.org/bitcoin.pdf>.
- Ólnes, S., Ubacht, J., Janssen, M. (2017). Blockchain in Government: Benefits and implications of distributed ledger technology for information sharing. – Government Information Quarterly [online], 34(3), p. 355-364. [Viewed 9 August 2020]. Available from: doi: 10.1016/j.giq.2017.09.007.

- Perreau, C. (2020). ICO: définition, liste, la situation en France... – Journal du Net [online], mars. [Viewed 9 August 2020]. Available from: <https://www.journaldunet.com/economie/finance/1195462-ico-definition-liste-la-situation-en-france-decembre-2019/>.
- Ribeiro, A. (2016). La Blockchain et ses potentielles applications. Université de Genève [online]. [Viewed 9 August 2020]. Available from: <https://archive-ouverte.unige.ch/unige:89544>.
- Rijswijk van, L., Hermsen, F., Arendsen, R. (2019). Exploring the future of Taxation: A Blockchain Scenario Study. – Journal of Internet Law, 22(9), p. 639-658.
- Risius, M., Spohrer, K. (2017), A Blockchain Research Framework. – Business & Information Systems Engineering, 59(6), p. 385-409.
- Rodima-Taylor, D., Grimes, W. (2017). Bitcoin and Beyond. – In: Campbell-Verduyn, M. (ed.) Cryptocurrencies and Digital Payments rails in networked global governance: perspective on inclusion and development, London: Routledge, pp. 109-132.
- Rolland, M., Slim, A. (2017). Economie politique du Bitcoin: l'institutionnalisation d'une monnaie sans institutions. – Economie et Institutions [online], 26, [Viewed 9 August 2020]. Available from: doi: 10.4000/ei.6023.
- Ruoti, S., Kaiser, B., Yerukhimovich, A., Clark, J., Cunningham, R. (2020). Blockchain Technology: What Is It Good For?. – Communication of the ACM, 63(1), p. 46-53. [Viewed 9 August 2020]. Available from: doi: 10.1145/3369752.
- Szabo, N. (1998). Secure Property Titles with Owner Authority. [online]. [Viewed 9 August 2020]. Available from: <http://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinterschool2006/szabo.best.vwh.net/securetitle.html>.
- Szabo, N. (2005). Bit Gold. [online]. [Viewed 9 August 2020]. Available from: <http://unenumerated.blogspot.com/2005/12/bit-gold.html>.
- The Economist. (2015). The trust Machine: how the technology beyond bitcoin could change the world. 31 October – 6 November.
- Wyman, O. (2016). The Fintech 2.0 Paper. Rebooting Financial Services, Santander: InnoVenture.
- Yeoh, P. (2017). Regulatory issues in blockchain technology. – Journal of Financial Regulation and Compliance, 25(2), p. 196-208. [Viewed 9 August 2020]. Available from: doi: 10.1108/JFRC-08-2016-0068.

MEASURING THE BUSINESS CYCLE IN BULGARIA²

The aim of this paper is to estimate the phases of the business cycle in Bulgaria and its degree of synchronisation with the business cycle in the euro area. Applying a structural unobserved components model, consisting of an IS curve, Phillips curve, Okun's law and a monetary policy response function, consistent with the functioning currency board arrangement in Bulgaria, we find that in the period 1999-2004 the Bulgarian economy was operating below its optimal production capacity. The peak of the economic cycle was reached in the middle of 2008, followed by a period of a decline, corresponding to the period of the global financial and economic crisis and a second downturn corresponding to the period of the European debt crisis. Since mid-2016, the Bulgarian economy has operated above potential and this phase continues up to Q3 2019. Another conclusion of our study is that the business cycle in Bulgaria is to a large extent synchronised with the business cycle in the euro area, with the degree of synchronisation increasing after the accession of Bulgaria to the European Union.

JEL: E32; C13

Introduction

The aim of this study is to estimate the phases of the business cycle in Bulgaria, defined as the percentage deviation of real GDP from its potential, and the degree of synchronisation between the business cycles in Bulgaria and in the euro area. The knowledge of the phase of the cycle in which the economy is at any point in time is essential for taking timely macroeconomic policy measures that can help limit the accumulation of risks during the upside phase of the cycle and thus mitigate the effects of the accumulated risks during the recession. As business cycles are virtually an unobservable phenomenon, the assessment of whether an economy is overheating or operating below its potential level is made on the basis of observing and analysing a set of macroeconomic indicators such as GDP, inflation, unemployment, housing prices, stock prices, credit growth etc. The upward phase of the business cycle is usually characterised by a favourable macroeconomic environment and positive expectations of economic agents, rising asset prices, increasing household income and corporate profits, widening trade deficits, accelerating growth of credit and excessive risk-taking by banks through lending to not particularly creditworthy borrowers at relatively

¹ Tania Karamisheva, Bulgarian National Bank, Economic Research and Forecasting Directorate, e-mail: karamisheva.t@bnbank.org.

² The views expressed in the paper are those of the author and do not necessarily reflect the BNB policy.

low-interest rates. An unexpected shock to economic activity or the natural end of an economic expansion leads to the materialisation of the risks accumulated during the upside phase of the cycle and, accordingly, to opposite developments during the downward phase. In this regard, the study of the phases of the economic cycle is of particular interest in the academic and empirical literature. A variety of models are used to measure cyclical fluctuations in the economy, ranging from univariate frequency filters to complex general equilibrium models, based on the extraction of deep structural parameters by optimising the behavioural functions of a set of economic agents.

A structural unobserved components model is used to estimate the phases of the business cycle in Bulgaria, including an aggregate demand curve, a Phillips curve, an Okun's law and a monetary policy response function, consistent with the functioning of a currency board arrangement in Bulgaria. The model is estimated using the maximum likelihood method, while the unobservable cyclical and trend components of the set of observable variables are extracted using the Kalman filter.

The results of the study show that in the period 1999-2004 the Bulgarian economy operated below its optimal production capacity, the peak of the economic cycle was reached at the end of 2008, followed by a period of a decline corresponding to the period of the global financial and economic crisis and a second downturn corresponding to the period of the European debt crisis. Since mid-2016, the Bulgarian economy has operated above potential and this phase continues up to the third quarter of 2019. Another conclusion of our study is that the business cycle in Bulgaria is to a large extent synchronised with the business cycle in the euro area, with the degree of synchronisation between the two cycles increasing after the accession of Bulgaria to the European Union.

1. The Business Cycle and Theoretical Foundations

Economic expansions and recessions are inherent to economic systems. The study of the drivers of the cyclical deviations of the real economic activity from the long-term trend, the turning points, the amplitude and frequency of these cyclical deviations underlies the study of the business cycle. One of the first scientific papers devoted to the empirical study of the business cycle are the works of Mitchell (1927) and Burns and Mitchell (1946), who formalised the idea that the market economy functions in successive periods of growth and decline the following way:

“Business cycles are a type of fluctuation or instability in the aggregate economic activity of nations: the cycle consists of expansions occurring at about the same time in many fields of economic activity, followed by recessions, contractions and revival, which merge with the phase of expansion of the next cycle; this sequence of changes is repetitive but not periodic; the duration of business cycles ranges from more than one year to ten or twelve years.”

In general, the business cycle can be defined as a deviation of real GDP from its long-term trend. The basis for the theory of long-term economic growth is the Cobb-Douglas production function, which links the production in an economy to the factors of production – physical capital (K) and human labour (L):

$$Y = K^\alpha L^{1-\alpha}, \quad 0 < \alpha < 1$$

Where α is the elasticity of production to invested capital and $1-\alpha$ is the elasticity of production to human labour. The main features of the Cobb-Douglas production function are decreasing marginal productivity of the factors of production and constant returns to scale. Keeping the labour input in production unchanged, each additional unit of capital leads to an increase in production, but at a declining rate. This property of decreasing marginal productivity of capital can be deduced by the first derivative of Y with respect to K . Similarly, keeping the capital invested in production unchanged, each additional unit of labour leads to an increase in production, but at a declining rate. This property of decreasing marginal productivity of labour can be deduced by the first derivative of Y with respect to L . Constant returns to scale means that if labour and capital invested increase at the same time by a certain percentage t , then production will increase by the same percentage.

The Solow's long-term growth model (1957) adds an additional variable in the production function, namely the technological progress (A):

$$Y = AK^\alpha L^{1-\alpha}$$

As A grows, Y also increases, even when production factors remain unchanged, which is why A is called total factor productivity. According to Solow, the total factor productivity is exogenously set and is increasing at a constant rate. It is the part of economic growth, that cannot be explained by changes in the invested human or physical capital. A change in the resources used (factors of production) leads to a movement along the production function itself, and only technological progress can cause its shift, i.e. increase in long-term growth. A widely held view in the earlier academic literature by Solow's followers is that changes in long-term growth are due almost entirely to changes in technology (e.g. Cass, 1965; Koopmans, 1965).

One of the major criticisms of the Solow model is the assumption of exogenous technological change. Romer (1989) eases this assumption by arguing that technological change is at the heart of long-term economic growth, but that it is the result of deliberate actions by economic agents in response to market incentives. In other words, technological change is due to the investment decisions of agents who aim to maximise their profits, and in this sense, they are an endogenous factor that affects long-term growth. In another study, Romer (1986) also alleviates the assumption of constant returns to scale and diminishing returns on factors of production. According to him, the return on production factors is increasing, and long-term growth rates can accelerate over time and be differentiated across countries.

In practice, the Solow model fails to explain why there are differences in living standards across countries. According to the model's assumptions, in the short term, each country is moving towards its sustainable level of growth, with the speed of reaching that sustainable level dependent on the initially accumulated human and physical capital. Thus, due to the assumption of diminishing returns on production factors, in the absence of shocks, less developed countries will grow at a faster rate due to the low initial level of accumulated capital and the correspondingly higher return on capital. This is valid until these countries reach a sustainable level of growth. In turn, long-term growth is only affected by changes in technology. Since, according to the model's assumptions, technological progress is

exogenously set, in the long run, all countries should have a similar level of technological progress and, accordingly, converge to the same level of sustainable growth. However, the convergence hypothesis is not empirically confirmed.

Many countries are trapped in poverty and economic recession. The reason for the lack of convergence lies in the different production functions in different countries, as a result of which they reach different steady states. The idea that convergence occurs but depends on the specific characteristics of each country is known in the literature as the conditional convergence hypothesis.

The unexplained part of economic growth, also referred to as the Solow residual, is applied in the classical theory of real business cycles as a measure of productivity growth. Kydland and Prescott (1982), who are one of the founders of the theory of real business cycles, find that fluctuations in the Solow residual explain more than half of the fluctuations in real GDP, leading them to conclude that a business cycle theory can be built in which technology takes a central place. According to this theory, economic agents (households and companies) have rational expectations and maximise the expected utility of using labour and capital, subject to budgetary and technological constraints. The classical theory of real business cycles is based on the assumption that in the background of perfect competition, the real wages and the rental price of capital, which represent the cost of using the two factors of production – labour and capital, immediately respond to technology shocks. Thus, unexpected changes in technology are seen as supply shocks that cause a shift in the production function, which ultimately determines the supply function in the economy. Supporters of this theory claim that most changes in actual production are permanent, not a temporary deviation from the long-run equilibrium due to shocks.

The classical real business cycle models cannot fully explain the cyclical fluctuations in the real economy, since they proceed from the assumption that changes in growth are driven by exogenously set technological changes and monetary policy and interest rate movements do not affect real economic activity.

The new Keynesian theory, unlike the classical theory of real business cycles, proceeds from the assumption that prices do not immediately respond to unexpected shocks, but are determined by firms operating under monopolistic competition. Like the classical school, the new Keynesian approach assumes that economic agents have rational expectations, but it differs in assuming perfect competition. According to the supporters of the new Keynesian school, there is imperfect competition in pricing and wages, which explains why they do not immediately adjust to changes in economic conditions. The lack of flexible prices suggests that the economy may not be able to reach full employment. In this regard, new Keynesians argue that macroeconomic stabilisation by the government (using fiscal policy) and by the central bank (using monetary policy) can produce a more effective macroeconomic outcome than the policy of non-intervention.

The new Keynesian dynamic stochastic general equilibrium models (DSGE) are an extended version of the classical general equilibrium models based on the theory of real business cycles (RBC) (Plosser, 2012). The approach taken in the new Keynesian DSGE models is to include both real and nominal frictions within the RBC models. In this way, real economic activity can respond to changes in monetary policy, at least in short to medium term. A common

friction in DSGE models is that in the presence of shocks, firms and households have to wait a fixed period of time before they can recover their prices and wages in a way that is optimal for the future. The interaction between nominal and real frictions enables the transmission of monetary policy to the real economy. Under the new Keynesian DSGE models, monetary policy is represented by an interest rate or Taylor-type rule that monetary policymakers are committed to follow. This element of the new Keynesian DSGE models obliges the central bank to increase the interest rate when inflation rises above the target set by the central bank.

Achieving macroeconomic stabilisation by pursuing a countercyclical monetary or fiscal policy depends to a large extent on the exchange rate regime in a country, a fixed or floating exchange rate regime.

In a fixed exchange rate environment, the central bank cannot pursue an independent monetary policy and target inflation and the price level in the economy is determined by international prices. Therefore, under a fixed exchange rate regime, monetary policy is ineffective in achieving macroeconomic stabilisation. At the same time, in the event of shocks, an expansionary fiscal policy can shift the aggregate demand curve and help stabilise the economy more quickly in the short term.

In a floating exchange rate environment, expansionary fiscal policy does not change aggregate demand, as the exchange rate offsets the shift in the IS curve (which describes the equilibrium in the market for goods and services) and affects the competitiveness of the economy. As a result, aggregate demand remains unchanged. At the same time, with a floating exchange rate, an expansionary monetary policy can lead to an increase in production and employment in the short term.

Despite the differences in the views of different theories of economic growth, there are several basic understandings that are shared by all. Two are that the existence of shocks in the economy causes deviations from the long-run equilibrium in the short term due to price and wage stickiness, but in the long run, the economy returns to its equilibrium level.

2. Approaches for Measuring Cyclical Fluctuations in the Real Economy

Different approaches are used in the academic literature to study and evaluate the cyclical fluctuations in economic activity. In general, they can be classified as follows:

- 1) *Methods, based on the use of a production function approach.* Within these methods, potential GDP is estimated using a Cobb-Douglas-type production function and is determined by three factors of production: labour, capital and total factor productivity (Solow, 1956; Solow, 1957; Cass, 1965; Koopmans, 1965; Romer, 1986; Barro, 1989; Romer, 1989; Lucas, 1990; King, Rebello, 1990; Mankiw, Romer, Weil, 1992; McCallum, 1996; Lee, Pesaran, Smith, 1997; Hansen, Prescott, 2002). Accordingly, the estimate of the business cycle represents the deviation of real GDP from its potential.

The methods based on the use of a production function approach are mainly used to evaluate potential growth and to analyse the economy in the long run and rarely to estimate cyclical fluctuations, i.e. the deviations from the long-run equilibrium.

- 2) *Vector Autoregressive Models (VAR Models)*. Within these models, potential GDP growth and the deviation from it are represented by a linear combination of a set of observable variables. VAR models represent an extended version of univariate autoregressive models, allowing dependent variables to be represented as a linear combination of their own lagged values, lags of a set of explanatory variables, and an error term. The results of this type of models are presented in the form of impulse responses of the dependent variables to shocks in the economy, as well as in the form of variance decomposition. The variance decomposition makes it possible to evaluate the impact of different shocks on the fluctuations in the dependent variables. These types of models are less commonly used in the empirical literature to estimate business cycles (Rotemberg, Woodford, 1996; Claus, 1999; Chari, Kehoe, McGrattan, 2008; Cavallo, Ribba, 2015).
- 3) *Methods, based on the use of univariate frequency filters (HP filter, band-pass filter)*. The most commonly used statistical filter to derive an estimate of the trend and cycle of real GDP is the Hodrick and Prescott filter (HP filter) (Hodrick, Prescott, 1997). Although it suffers from some drawbacks, most notably the likelihood that the estimate does not reflect real economic developments at the beginning and end of the observed period, it serves as a good starting point for gaining an initial idea of cycle and trend information contained in the data (Baxter, King, 1995; Stock, Watson, 1998).

When using univariate filters, trend and cycle information is only extracted from the real GDP series. In this framework, the only consideration to be made is how smooth the trend should be, in other words, whether the trend is to follow the data actually observed or to allow for larger cyclical deviations. When using the HP filter, this estimate is made by setting a specific value to the smoothing parameter λ . The assessment of the degree of smoothing of the trend is directly related to the question of the nature of economic shocks. For example, if the shocks in the economy are predominantly demand-side while supply conditions are unaffected, then it can be expected that potential GDP does not follow the data actually observed and in this case, it is appropriate to use a high value of the smoothing parameter. Conversely, if the economy is primarily affected by supply shocks, the value of the smoothing parameter should be relatively low because it can be expected that the potential product moves close to the real trends observed in real economic activity. This example illustrates the importance of the smoothing parameter whose mechanical imposition can distort estimates of both the potential product and the business cycle.

The HP filter extracts from the time series the trend information in the series. Using this filter, the cyclical component is obtained as a residual by subtracting the trend from the observed series. As a result, the cyclical component not only contains information about the actual cycle, but also includes noise (the error), and for this reason, in many cases, the cyclical components extracted with the HP filter are characterised by considerable volatility. Unlike the HP filter, the band-pass filter directly extracts from the time series information about the cyclical component by setting a predetermined range for the cycle length, and therefore the extracted cyclical component is noise-free.

- 4) *Structural unobserved components models and general equilibrium models*. Within the structural unobserved components models, a system of equations is defined that

characterise the cyclical and trend components of a set of observable variables (most often GDP, inflation and unemployment). The estimation of these models is based on the use of the maximum likelihood method or Bayesian methods, and the dynamics of the unobservable variables are extracted using the Kalman filter (Kalman, 1960; Laxton, Tetlow, 1992; Kuttner, 1994; Coe, McDermott, 1996; Conway, Hunt, 1997; Laubach, Williams, 2003; Benes, N'Diaye, 2004; Benes et al., 2010; Blagrove et al., 2015; Melolinná, Tóth, 2016). The equations within the structural models with unobservable components often resemble a logarithmically linearised version of micro-based model equations. Micro-based models, in turn, are based on extracting deep structural parameters obtained by optimising the behavioural functions of a set of economic agents (households, companies, banks, central bank, government, etc.)³ (Dixit, Stiglitz, 1977; Singleton, 1988; King, Plosser, Rebelo, 1988; Christiano, Eichenbaum, 1992; Evans, 1992; Cogley, Nason, 1995; Greenwood, Hercowitz, Krusell, 2000; King, Rebelo, 2000; Gali, Lopez-Salido, Valles, 2003; Christiano, Eichenbaum, Evans, 2005; Andrle et al., 2009; Araújo, 2015; Guo, Sirbu, Weder, 2015).

The simplest dynamic stochastic general equilibrium (DSGE) models consist of three blocks: aggregate demand, aggregate supply and a Taylor-type rule. Formally, the equations that define these blocks are micro-oriented and based on a set of assumptions about the behaviour of economic agents. Within these models, households typically maximise the expected utility of consuming goods and services, seeking to maximise utility with as little labour input as possible. Accordingly, companies maximise the expected profit from the production of goods and the provision of services. Dynamic stochastic models of general equilibrium rely largely on theoretical assumptions and are based on the idea that the economy is populated by identical economic agents, with the result that one household or one firm is representative of everyone else.

The use of structural unobserved components models is a validated and tested approach to assess and measure cyclical fluctuations in the real economy. They combine the benefits of using filters to extract information about the trend and cycle of the observed variables, while allowing the existing theoretical dependencies and structural relationships in the economy to be taken into account.

3. Assessment of the Business Cycle in Bulgaria Using a Structural Unobserved Components Model

In order to estimate the business cycle in Bulgaria, a structural unobserved components model is applied, based on the use of the maximum likelihood and a Kalman filter to decompose a set of observable variables into the trend and cyclical component. Unlike univariate frequency filters, the multivariate approach allows to derive a business cycle measure whose assessment includes information on the relationship between the trend and cycle components of all series within the model. Thus, the assessment of the business cycle is based on solving

³ For a more detailed review of the most commonly used methods for estimating the business cycle see Andrle (2013), Ganey (2015).

a system of equations characterising the individual trend and cyclical components of a set of variables and taking into account the relationship between them. The equations within the structural unobserved components models often resemble a logarithmically linearised version of micro-based equations (DSGE), except that the coefficients in the equations are not based on “deep parameters” obtained through optimisation, but are calibrated or estimated using the maximum likelihood method or Bayesian methods. The long-run equilibrium in this type of models converges to an exogenously set steady-state, and the cyclical components represent deviations of the observed variables from the long-run equilibrium.

The model used for the estimation of the business cycle in Bulgaria is similar to the structural unobserved components models (also known as gap models) used in other papers⁴ and consists of four main blocks: aggregate demand (IS curve), aggregate supply and price-setting (New Keynesian Phillips curve), monetary policy response function and Okun’s law. The main difference is that due to the functioning currency board in Bulgaria, the monetary policy response function is reduced to reflect only changes in euro area interest rates and a certain risk premium.

Aggregate demand – IS curve

$$\hat{y}_t = b_1 \hat{y}_{t-1} - b_2 mci_t + b_3 \hat{y}_t^* + \varepsilon_t^y \quad (1)$$

\hat{y} – output gap

mci – monetary conditions index

\hat{y}^* – output gap in the euro area

Within the model, the business cycle (the deviation from potential GDP) is represented as a function of the output gap in the previous period, of a monetary conditions index and of the output gap in the euro area. The reason for choosing the euro-area output gap instead of the output gap in the EU as a whole is related to the striving of Bulgaria towards nominal and real convergence towards the euro area. Being already a part of the EU, it is more appropriate to compare the business cycle in Bulgaria with that in the euro area, to which Bulgaria is seeking to join. Moreover, as of the end of 2019, nearly 70% of Bulgaria’s trade with the EU is trade with euro area member states, which is why it should be sufficiently representative for the trade with the EU.

The monetary conditions index is a combination of the cyclical component of the real interest rate (the deviation of the real interest rate from its long-term trend) and the cyclical component of the real exchange rate (the deviation of the real exchange rate from its long-term trend)

$$mci_t = b_4 (\hat{r}_t + cr_prem_t) + (1 - b_4)(-\hat{z}_t) \quad (2)$$

mci – monetary conditions index

⁴ See for example Melolinna and Tóth (2016), CNB (2003), Gavura and Reřovský (2005), Bokan and Ravnik (2018).

\hat{r} – real interest rate gap

cr_prem – risk premium

\hat{z} – real exchange rate gap

where the real interest rate is defined as the difference between the nominal interest rate and the expected inflation,

$$r_t = i_t - E_t \{ \pi_{t+1} \} \quad (2.1)$$

r – real interest rate

i – nominal interest rate

$E\{\pi\}$ – inflation expectations

while the real exchange rate takes into account the relationship between the nominal exchange rate, the country's price level and the euro area price level.

$$z_t = s_t + p_t^* - p_t \quad (2.2)$$

z – real exchange rate

s – nominal exchange rate

p – domestic price level

p^* – euro area price level

A positive deviation of the real interest rate from its long-term trend is equivalent to tightening monetary conditions, which has a negative impact on aggregate demand. At the same time, a positive deviation of the real exchange rate (interpreted as a depreciation of the local currency) from its long-term trend is equivalent to a relaxation of monetary conditions, since the real depreciation of the currency makes local goods and services more competitive, thus stimulating exports and thus having a positive impact on economic growth.

The aggregate demand equation in the structural unobserved components model represents a logarithmically linearised version of the Euler equation obtained from the optimisation of household consumption in micro-based models with added elements (external demand). The monetary conditions index, in turn, accounts for two of the most important transmission channels - through interest rates and through the real exchange rate. The real interest rate influences the attitudes of economic agents to replace consumption today with consumption in the future, as well as their investment decisions. At the same time, the real exchange rate influences the attitudes of economic agents for the consumption of domestic or foreign goods. Demand in the euro area, in turn, affects exports of goods and services, and thus economic activity in the country.

Aggregate supply and price-setting – New Keynesian Phillips curve

The use of a new Keynesian type of the Phillips curve is a standard approach in the academic literature to represent the price setting and, thus, the supply side of the economy. In this set

up the Phillips curve is augmented with one quarter ahead inflation expectations. Expected inflation is defined in the model as a weighted combination of a backward-looking component (the one-quarter lag of the four-quarter rate of change of the overall CPI) and a forward-looking component (the predicted value of overall CPI inflation over the next quarter). Due to the importance of price stickiness an additional element of lagged inflation is included in the Phillips curve. Real activity i.e. output gap enters the Phillips curve via overall real marginal cost.

$$\pi_t = a_1\pi_{t-1} + (1 - a_1)E\{\pi_{t+1}\} + a_2rmc_t + \varepsilon_t^\pi \quad (3)$$

π - domestic inflation

$E\{\pi\}$ – inflation expectations

rmc – real marginal cost

The real marginal cost is presented as a function of the output gap and the real exchange rate gap.

$$rmc_t = a_3\hat{y}_t + (1 - a_3)\hat{z}_t \quad (4)$$

rmc – real marginal cost

\hat{y} – output gap

\hat{z} – real exchange rate gap

The inflation equation is a logarithmically linearised version of the Phillips curve with incorporated expectations resulting from the maximisation of firms' profits under the assumption of monopoly competition and price stickiness.

The domestic output gap is used as an approximation of the marginal cost of production of local producers, since increasing demand is a prerequisite for local firms to increase the use of spare production capacity, which leads to an increase in production costs (due to additional hours worked subject to additional payment, depreciation of equipment, etc.) and higher costs are partly carried over into final prices. At the same time, the real exchange rate gap approximates the marginal costs of importers of goods and services. An appreciation of the exchange rate, resulting in a positive deviation from the equilibrium level, leads to an increase in marginal costs for importers, which, in order to recover their profit margins, carry some of the higher costs into final consumer prices.

The general consumer price index is decomposed into three subcomponents: core inflation (π^{core}), food prices (π^{food}), and energy product prices (π^{energy}), with equations for the three subcomponents being similar to that for total inflation. After the decomposition, the overall CPI inflation is estimated as a weighted average of the three subcomponents. The reason for having a more detailed price block is to be able to distinguish between different price pressures and when estimating the output gap to give more weight on the price component that is of greater importance.

$$\pi_t^{core} = a_1\pi_{t-1}^{core} + (1 - a_1)E_t\pi_{t+1}^{core} + a_2rmc_t + \varepsilon_t^{core} \quad (3.1)$$

$$\pi_t^{food} = a_{21}\pi_{t-1}^{food} + (1 - a_{21})E_t\pi_{t+1}^{food} + a_{22}rmc_t^{food} + \varepsilon_t^{food} \quad (3.2)$$

$$\pi_t^{energy} = a_{31}\pi_{t-1}^{energy} + (1 - a_{31})E_t\pi_{t+1}^{energy} + a_{32}rmc_t^{energy} + \varepsilon_t^{energy} \quad (3.3)$$

$$rmc_t = a_3\hat{y}_t + (1 - a_3)\hat{z}_t^{core} \quad (4.1)$$

$$rmc_t^{food} = a_{23}\hat{z}_t^{food} + (1 - a_{23})\hat{y}_t \quad (4.2)$$

$$rmc_t^{energy} = rwoil_t\hat{l}_t + \hat{z}_t^{energy} \quad (4.3)$$

Monetary policy response function

Due to the operating in Bulgaria regime of a fixed exchange rate of the Bulgarian lev to the euro, the Bulgarian National Bank is not able to conduct an independent monetary policy and to set the level of the short-term interest rate. In a currency board arrangement, the monetary policy transmission mechanism reflects the effects of ECB monetary policy on the local market. Thus, interest rates on the interbank money market in Bulgaria reflect the dynamics of euro area money market interest rates. Due to the low volume of transactions on the interbank money market in Bulgaria, the transmission from interest rates on the interbank market to interest rates on deposits and loans is relatively weak. One of the characteristics of the Bulgarian banking system is related to the fact that most of the banks are financed mainly through deposits from residents. For this reason, interest rates on deposits depend to a large extent on the availability of sufficient liquidity in the banking system and the need of credit institutions to attract funds from residents. On their part, interest rates on loans in Bulgaria reflect in addition to the dynamics of interest rates in the euro area (as a large part of the interest rates on loans, especially those in euro, are tied to EURIBOR), the cost of financing and a specific risk premium. The size of the risk premium is determined by various factors such as the amount of attracted funds in the banking system and the availability of sufficient liquidity, the general state of the macroeconomic environment, fiscal sustainability indicators and other macro indicators that influence investors' perceptions of the degree of risk in the economy.

In order to take into account the specific characteristics of the Bulgarian economy, the interest rate policy of the central bank is reduced to the following relationship:

$$i_t = E_t\Delta s_{t+1} + i_t^* + prem_t + \varepsilon_t^i \quad (5)$$

i – domestic nominal interest rate

i^* – euro area nominal interest rate

prem – risk premium

This relationship reflects the fact that the central bank does not pursue an independent monetary policy and does not determine the level of the short-term interest rate. Interest rates

in Bulgaria are influenced by the level and dynamics of euro area interest rates and the risk premium. Due to the currency board arrangement, the change in the nominal exchange rate in period $t + 1$ relative to period t equals zero ($E_t \Delta s_{t+1} = 0$).

Theoretically, the interest rate equation follows from the uncovered interest rate parity (UIP) condition, which is a non-arbitrage condition. According to this condition, the spread between the nominal interest rates in the two countries should be equal to the expected change in the nominal exchange rate between the two countries. The condition for uncovered interest parity implies the existence of perfect capital mobility and is based on the assumption that the rate of return on a foreign currency interest rate investment must be equal to the return on the same amount of the national currency investment despite the difference in nominal interest rates.

$$s_t - E_t \{s_{t+1}\} = i_t^* - i_t \quad (5.1)$$

s – nominal exchange rate

$E\{s\}$ – exchange rate expectations

i – domestic nominal interest rate

i^* – euro area nominal interest rate

If domestic and foreign assets are perfect substitutes, investors would respond to the differentiated interest rate by moving funds from local to foreign currency and vice versa, which would result in a reconciliation of the return on both investments. In practice, the condition for uncovered interest rate parity is not valid due to the presence of different degrees of risk across economies, as a result of which investors require a certain risk premium.

$$s_t - E_t \{s_{t+1}\} = i_t^* - i_t + prem_t \quad (5.2)$$

Okun's Law

The Okun's law takes into account the relationship between the output gap and the unemployment gap. The inclusion of this relationship in the model can be justified by the fact that the period after the financial crisis of 1996-1997 and the introduction of the currency board in Bulgaria was characterised by both high inflation and very high unemployment, which had a negative impact on potential output.

$$\hat{u}_t = c_1 \hat{u}_{t-1} - c_2 \hat{y}_{t-1} + \mathcal{E}_t^i \quad (6)$$

\hat{u} - unemployment gap

\hat{y} – output gap

The structural unobserved components model is based on the assumption that in the long run, all deviations from the long-run equilibrium are closed, inflation is close to target inflation (in the case of Bulgaria, close to long-term inflation), interest rates are at neutral levels, and the level of the unemployment rate is close to its natural level.

$$\hat{y} = 0, \hat{r} = 0, \hat{z} = 0, \hat{y}^* = 0, \hat{u} = 0 \quad (7)$$

$$\pi = \pi^T \quad (8)$$

$$\pi^* = \bar{\pi}^* \quad (9)$$

$$\bar{i} = \bar{r} + \pi^T \quad (10)$$

$$\bar{i}^* = \bar{r}^* + \bar{\pi}^* \quad (11)$$

$$\bar{u} = \text{NAIRU} \quad (12)$$

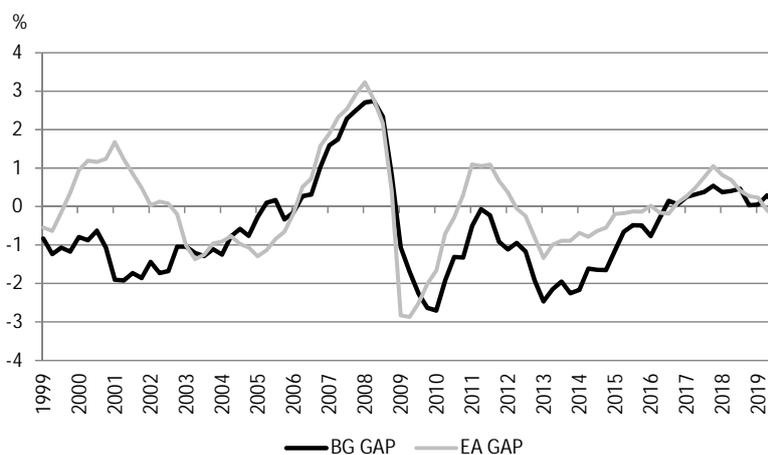
π^T – long-term inflation

NAIRU – natural rate of unemployment

The presented structural unobserved components model is estimated with data from the first quarter of 1999 to the third quarter of 2019. The data used for Bulgaria include seasonally adjusted real GDP (at 2015 prices), nominal exchange rate and nominal interest rates on loans, the harmonised index of consumer prices, data on core inflation, food and energy inflation, as well as data on the unemployment rate (NSI). Data for the euro area include real seasonally adjusted GDP, the harmonised index of consumer prices, the 3-month Euribor and the price of oil in USD (ECB, Eurostat). The estimated business cycles in Bulgaria and in the euro area are presented on Figure 1.

Figure 1

Business cycles in Bulgaria (BG GAP) and in the euro area (EA GAP)



According to the results of the assessment of the business cycle, several periods in the economic development of Bulgaria can be distinguished.

After the hyperinflation and the financial and economic crisis of 1996-1997 and the introduction of the currency board in Bulgaria, in the period 1999-2004, the economy was

still operating below its optimal production capacity. This period was characterised by high unemployment ranging between 12% and 20% and relatively high inflation, which was partly a legacy of the hyperinflationary period in the late 1990s. During this period, the Bulgarian economy was still characterised by a high share of state-owned enterprises and banks, with no or limited access to foreign financing and know-how from parent companies and a low share of foreign direct investment in the country. At the same time, the share of non-performing loans in banks' balance sheets was relatively high, which made them cautious when lending to the private sector. The limited access to bank lending and financing from foreign companies and the low share of foreign direct investment suppressed consumption and investment activity in the country and thus negatively affected the overall macroeconomic environment during this period.

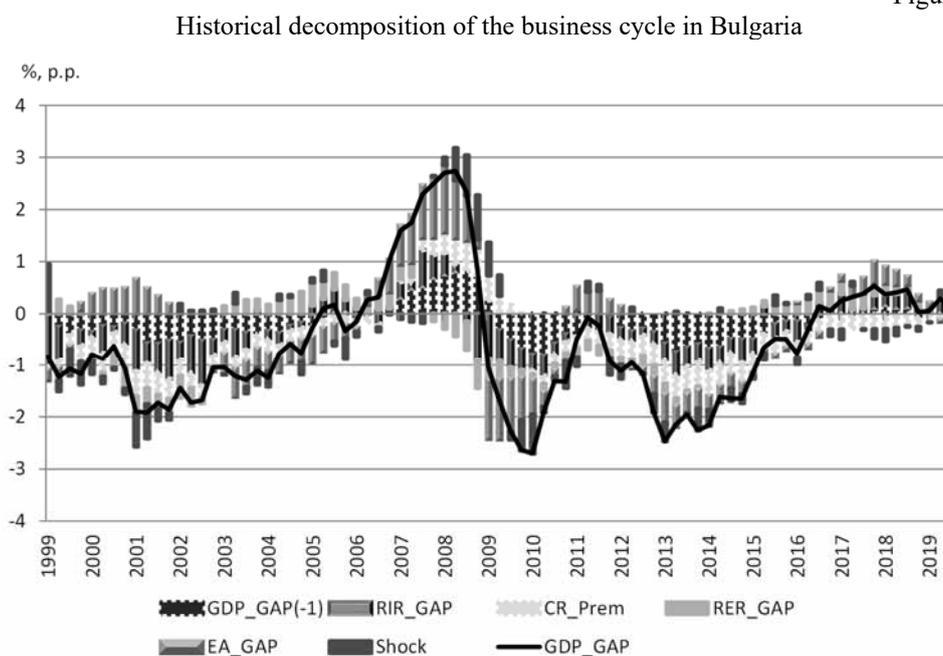
The signing of the Treaty of Accession of Bulgaria to the European Union in 2005 had a positive impact on investors' perceptions of the country's future prospects. In the meantime, the process of structural reforms and privatisation of many local banks by foreign financial institutions contributed to the deepening of financial intermediation in the country. Parent banks were beginning to provide their subsidiary banks and branches in Bulgaria with capital, liquidity and know-how, intending to increase their market share in a region where the return on capital was very high. These processes stimulated strong competition between banks and contributed to the gradual acceleration of credit growth. The high expected return on investment and positive expectations for income convergence related to the process of a gradual transition to a market economy, as well as the favourable internal macroeconomic environment and the global upswing in the business cycle, stimulated consumption, investment and FDI inflows. Increasing revenues and profits, on the other hand, contributed to the increase in attracted funds in the banking system. By financing its lending activities mainly with deposits from residents and funds from its parent banks, credit institutions in Bulgaria were expanding their operations and activities in the country, which contributed to further acceleration of credit growth. The period from 2005 to 2008 was characterised by declining spreads between interest rates on loans in Bulgaria and the euro area, reflecting a lower risk perception. At the same time, high credit growth contributed to increasing bank profits and, among other factors, also contributed to higher house prices. The current account deficit widened as a percentage of GDP during the period under review, as a result of high levels of investment in the economy and strong domestic demand (in particular investment demand stimulated by FDI inflows), which translated into higher growth in imports compared to that of exports.

The positive deviation from potential output peaked in the second quarter of 2008. With the spreading of the aftermaths of the global financial and economic crisis in late 2008 and early 2009, the business cycle in Bulgaria entered its downward phase, turning into a negative territory (the output gap became negative) in the first quarter of 2009 and reached its bottom at the beginning of 2010. A gradual recovery had been observed since mid-2010, with the negative output gap gradually closing, but with the deepening of the European debt crisis, the Bulgarian economy plummeted again and reached another trough in mid-2013. With the gradual recovery of the European economy, Bulgaria's economy has started to operate above its potential level since mid-2016. In 2019 the output gap is still positive, but it is gradually closing, and by the third quarter of the year, the deviation from potential is close to 0, i.e. it can be stated that the economy is working close to its potential level.

Figure 2 shows the historical decomposition of the business cycle in Bulgaria, which makes it possible to highlight the contribution of the individual variables included in the model to deviations from potential output. As can be seen from Figure 2, in the period 1999-2004 the main factors contributing to the negative deviation of real GDP from the potential level were the monetary conditions in the country and the high-risk premium. At the same time, during the period 2000-2002, the business cycle in the euro area was positive, but due to the still insufficient integration of Bulgaria into the European Union, the business cycles in Bulgaria and the euro area were poorly synchronised in that period.

After 2005, the business cycle in Bulgaria followed closely that in the euro area, moving at a slight lag. Between 2006 and 2009, both the upswing in the European and global business cycles contributed to the high growth of Bulgaria's real GDP. During this period, monetary conditions in the country also supported the business cycle, with spreads between interest rates on new loans to households and non-financial corporations with the 3-month EURIBOR significantly declining, which was indicative of a decrease in the risk premium.

Figure 2



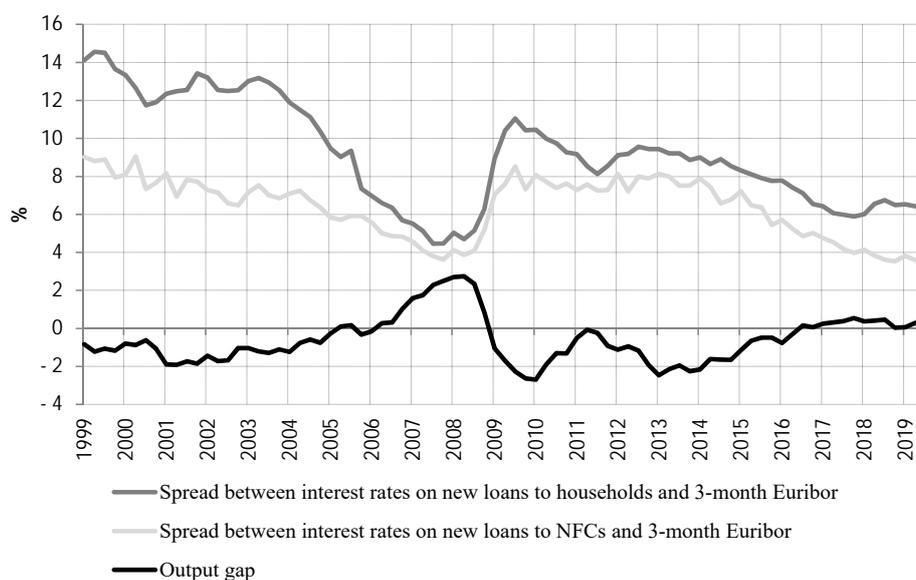
Legend:

- GDP_GAP – output gap
- GDP_GAP (-1) – output gap in t-1
- RIR_GAP – real interest rate gap
- CR_Prem – risk premium
- RER_GAP – real exchange rate gap
- EA_GAP – output gap in the euro area
- Shock – external shocks

The main driving force behind the significant negative deviation from the potential output in 2009-2011 was the cycle in the euro area and globally, as a consequence of the spread of the effects of the global financial and economic crisis. This period was also characterised by a significant increase in interest spreads and risk premiums in a number of countries, with similar developments observed in Bulgaria (see Figure 3).

Figure 3

Interest rate spreads between new loans to households and non-financial corporations (NFCs) with the 3-month EURIBOR and the business cycle



Although the negative output gap almost closed in mid-2011, with the intensification of the European debt crisis, the Bulgarian economy started operating again below its potential level and this period continued until mid-2016. Both the euro area business cycle and the relatively high-interest rate spreads and the higher risk premium of the country contributed to these developments. From mid-2016, with the gradual recovery of the European economy, the output gap in Bulgaria turned to positive and remained positive till the third quarter of 2019.

A notion for the degree of synchronisation between the business cycles in Bulgaria and the euro area can be obtained through the calculation of the so-called concordance index, proposed by Harding and Pagan (2002). Essentially, the concordance index measures the periods in which two or more variables are in the same phase – of expansion or contraction with respect to all periods for which observations are available. If the variables are in the same phase in all observed periods, the synchronisation index will be 100%. At the same time, if the variables are characterised by divergent dynamics, i.e. in the periods in which one of the variables is in the expansion phase, the other is in the contraction phase and this is valid for all observed periods, the synchronisation index will be 0%. Harding and Pagan (2002) define the concordance index as follows:

“We suggest that co-movement be measured by the degree of synchronisation between the specific cycle of y_{jt} and the reference cycle (based on (say the) variable y_{rt}), and that it be quantified by the fraction of time in which the two series are simultaneously in the phase of increase ($S_t = 1$) or decrease ($S_t = 0$)” (Harding, Pagan, 2002, p. 370).

$$I_{jr} = n^{-1} [\sum S_{jt} S_{rt} + (1 - S_{jt}) (1 - S_{rt})]$$

The calculated concordance index between the business cycles in Bulgaria and the euro area over the whole observed period – 1999-2019 shows that the two cycles are synchronised in 56% of the time. At the same time, if we calculate the synchronisation indices between the two cycles separately for the years 1999-2006 and 2007-2019, it can be seen that the synchronisation rate has increased significantly since 2007, reaching 61% in the period 2007-2019 compared to 48% for the period 1999-2006 (see Table 1). This is indicative that the degree of synchronisation between the business cycles in Bulgaria and in the euro area has increased after the accession of Bulgaria to the European Union.

Table 1
Synchronisation between the business cycles in Bulgaria and in the euro area

Period	Concordance index
1999 - 2019	56%
1999 - 2006	48%
2007 - 2019	61%

Subject of study in the empirical literature are not only the phases of the business cycle and the degree of synchronisation between business cycles in different countries, but also the length of these cycles. There is a widely accepted view in the literature that the business cycle is a relatively short-term phenomenon with a duration between 3 and 8 years. An approach that can be applied to measure the length of cycles in the economy is the so-called turning point analysis. In general, turning points occur when the deviation of a variable from its long-term trend reaches a local maximum (peak) or a local minimum (trough). The cycle length is measured from peak to peak or from trough to trough, respectively. Tables 2 and 3 present the results of the turning point analysis. Table 2 shows the timings of the troughs in the business cycles in Bulgaria and in the euro area and the average length of the cycle, when measured from trough to trough. According to the results, the average length of the business cycle in Bulgaria from trough to trough is approximately 6 years, while the average length of the business cycle in the euro area is estimated at around 5 years.

Table 3 shows the timings of the peaks in the business cycles in Bulgaria and in the euro area and the average length of the cycle, when measured from peak to peak. The results show that the average length of the business cycle in Bulgaria from peak to peak is approximately 9 years, while that of the euro area is around 6 years. When measured from peak to peak, the estimated length of the business cycle in Bulgaria exceeds the generally assumed in the literature maximal length for business cycles of 8 years. However, this result is consistent

with another estimate of the length of the Bulgarian business cycle (Karamisheva et al., 2019).

Table 2

Length of the business cycle in Bulgaria and in the euro area measured from trough to trough

	BG GAP	EA GAP
1. Trough	-1.92	-1.37
Timing	2001 Q2	2003 Q2
2. Trough	-2.70	-2.87
Timing	2010 Q1	2009 Q2
3. Trough	-2.47	-1.34
Timing	2013 Q1	2013 Q1
Average length in years	6	5

Table 3

Length of the business cycle in Bulgaria and in the euro area measured from peak to peak

	BG GAP	EA GAP
1. Peak	2.74	1.67
Timing	2008 Q2	2001 Q1
2. Peak	0.54	3.24
Timing	2017 Q4	2008 Q1
3. Peak		1.10
Timing		2011 Q1
4. Peak		1.05
Timing		2017 Q4
Average length in years	9	6

In the period under consideration (1999-2019) the business cycle in the euro area reached local minima three times and local maxima four times, respectively. At the same time, the business cycle in Bulgaria reached only two peaks and three troughs.

To see how the estimated business cycle compares with other estimates for Bulgaria, we undertake a comparison with a business cycle, derived using a production function approach, as well as with an estimated financial cycle for the Bulgarian economy.⁵ The comparison reveals a very similar dynamics of both the business cycle, estimated using the structural unobserved components model and that, derived using a production function (Figure 4). The degree of synchronisation between both estimates of the business cycle and the financial cycle can be calculated with the help of the respective concordance index. The results are presented in Table 4.

⁵ For more details concerning the estimate of the business cycle, using a production function approach and the estimate of the financial cycle see Karamisheva et. al. (2019).

Figure 4
Comparison between the estimated business cycle, an alternative estimation using a production function approach and the financial cycle

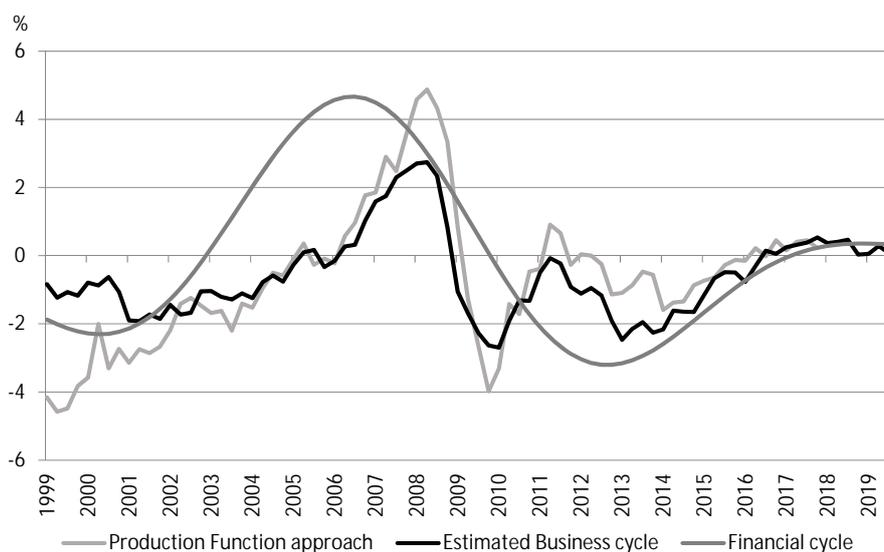


Table 4
Synchronisation between the estimated business cycle, an alternative estimation using a production function approach and the financial cycle

	Concordance index
Estimated business cycle vs. production function approach	61%
Estimated business cycle vs. financial cycle	57%

The calculated concordance index between the estimated business cycles in Bulgaria, using the unobserved components model, presented in this section and an alternative business cycle, derived using a production function approach is comparatively high – 61%. At the same time, the estimated business cycle is synchronised with the estimated financial cycle for the Bulgarian economy in 57% of the time.

Conclusion

The aim of this study was to measure the business cycle in Bulgaria, to estimate its phases and to investigate the extent to which the Bulgarian business cycle is synchronised with the business cycle in the euro area. A wide range of models for measuring the business cycle are

used in the academic literature. Some of them are based to a large extent on theoretical assumptions about the behaviour of economic agents. Others rely almost entirely on obtaining information from the data available. An example of models, which rely predominantly on theoretical assumptions, are real business cycle models (RBC) and dynamic stochastic general equilibrium models (DSGE). At the same time, univariate frequency filters like the HP filter or band-pass filter are used to derive trend and cycle information from observable time series, namely from the series for real GDP in the case of estimating the business cycle. A compromise between theoretical and empirical techniques for measuring the output gap are structural unobserved components models, which combine the benefits of using filters to extract information about the trend and cycle of the observed variables, while allowing the existing theoretical dependencies and structural relationships in the economy to be taken into account.

Using data for Bulgaria and the euro area for the 1999-2019 period and applying a structural unobserved components model, consisting of an aggregate demand curve, Phillips curve, Okun's law and monetary policy response function, consistent with the operating currency board arrangement in Bulgaria, we extract a measure of the business cycle in Bulgaria and in the euro area. Our results show that in the period 1999-2004 the Bulgarian economy was operating below its potential level, which was to a large extent related to high unemployment, unfavourable monetary conditions and a high-risk premium in the country. This period also reflected the gradual transition of Bulgaria towards a market economy with all the structural changes accompanying this process. In that period, the business cycles in Bulgaria and the euro-area were poorly synchronised. The signing of the Treaty of Accession of Bulgaria to the European Union in 2005 had a positive impact on investors' perceptions of the country's future prospects. The favourable macroeconomic environment, declining interest rate spreads and the global upswing in the business cycle supported economic growth, resulting in a peak of the business cycle in Bulgaria in the second quarter of 2008. With the intensification of the global financial and economic crisis and later on with the spreading of the effects of the European debt crisis, Bulgaria suffered a double-dip recession. The entire period from 2009 to 2015 was characterised by a negative output gap. From mid-2016, with the gradual recovery of the European economy, the output gap in Bulgaria turned to positive and remained positive till the third quarter of 2019. However, the positive gap is gradually closing and moving towards zero, so it can be stated that in 2019 the Bulgarian economy is working close to its potential level.

Concerning the degree of synchronisation between the business cycles in Bulgaria and the euro-area, we find that both cycles are to a large extent synchronised, especially in the period after the accession of Bulgaria to the European Union, when the estimated concordance index between both cycles reaches 61%. Our results point that the length of the business cycle in Bulgaria, when measured from trough to trough, fits well into the largely accepted in the literature range for the business cycle length from 2 to 8 years. However, when measured from peak to peak, the estimated length of the Bulgarian business cycle is 9 years and basically exceeds both the length of the cycle in the euro area and the generally assumed in the literature maximal length for business cycles of 8 years.

References

- Andrle, M., T. Hlédik, Kameník, O., Vlček, J. (2009). Implementing the New Structural Model of the Czech National Bank. – Working paper N 2, Czech National Bank.
- Araújo, E. (2015). Monetary policy objectives and Money's role in U.S. business cycles. – *Journal of Macroeconomics*, 45, pp. 85-107.
- Barro, R. J. (1989). Economic Growth in a Cross Section of Countries. – NBER Working Paper N 3120.
- Baxter, M., King, R. G. (1995). Measuring Business Cycles: Approximate Band-Pass Filters for Economic Time Series. – NBER Working Paper N 5022.
- Benes, J., Clinton, K., Garcia-Saltos, R., Johnson, M., Laxton, D., Manchev, P., Matheson, T. (2010). Estimating Potential Output with a Multivariate Filter. – IMF Working Paper N 285.
- Benes, J., N'Diaye, P. (2004). A Multivariate Filter for Measuring Potential Output and the Nairu. – IMF Working Paper 04/45.
- Blagrove, P., Garcia-Saltos, R., Laxton, D., Zhang, F. (2015). A Simple Multivariate Filter for Estimating Potential Output. – IMF Working Paper 15/79.
- Bokan, N., Ravnik, R. (2018). Quarterly Projection Model for Croatia. – Croatian National Bank, Surveys S-34.
- Burns, A., Mitchell, W. C. (1946). *Measuring Business Cycles*. (Vol. 2). New York, NY: National Bureau of Economic Research.
- Cass, D. (1965). Optimum Growth in an Aggregative Model of Capital Accumulation. – *The Review of Economic Studies*, Vol. 32, N 3, pp. 233-240.
- Cavallo, A., Ribba, A. (2015). Common Macroeconomic Shocks and Business Cycle Fluctuations in Euro Area Countries. – *International Review of Economics & Finance*, 38, pp. 377-392.
- Chari, V., Kehoe, P., McGrattan, E. (2008). Are Structural VARs with long-run Restrictions Useful in Developing Business Cycle Theory?. – NBER Working Paper 14430.
- Christiano, L. J., Eichenbaum, M. (1992). Current Real Business-Cycle Theories and Aggregate Labor-Market Fluctuations. – *The American Economic Review*, 82 (3), pp. 430-450.
- Christiano, L. J., Eichenbaum, M., Evans, C. (2005). Nominal Rigidities and the Dynamic Effects of a Shock to Monetary Policy. – *Journal of Political Economy*, Vol. 113, N 1.
- Claus, I. (1999). Estimating Potential Output for New Zealand: A Structural VAR Approach. – Discussion Paper 2000/03, Reserve Bank of New Zealand.
- Coe, D. T., McDermott, C. J. (1996). Does the Gap Model Work in Asia?. – IMF Working Paper WP/96/69.
- Cogley, T., Nason, J. (1995). Output Dynamics in Real Business Cycle Models. – *American Economic Review*, 85 (3), pp. 492-511.
- Conway, P., Hunt, B. (1997). Estimating Potential Output: A Semi-Structural Approach. – Discussion Paper G97/9, Reserve Bank of New Zealand.
- Czech National Bank. (2003). *The Czech National Bank's Forecasting and Policy Analysis System*.
- Dixit, A., Stiglitz, J. (1977). Monopolistic Competition and Optimum Product Diversity. – *American Economic Review*, 67 (3), pp. 298-308.
- Evans, L. (1992). Productivity Shocks and Real Business Cycles. – *Journal of Monetary Economics*, 29 (2), pp. 191-208.
- Gali, J., Lopez-Salido, J. D., Valles, J. (2003). Technology Shocks and Monetary Policy: Assessing the Fed's Performance. – *Journal of Monetary Economics*, 50 (4), pp. 723-743.
- Ganev, K. (2015). *Business cycles. Theories and models*. Sofia: Sofia University "St. Kliment Ohridski", Faculty of Economics. [Ганев, К. (2015). Бизнес цикли. Теории и модели. София: Софийски университет "Св. Климент Охридски", Стопански факултет.].
- Gavura, M., Reľovský, B. (2005). A Simple Model of the Transmission Mechanism of Slovakia's Economy, its Structure and Properties. – *BIATEC*, Vol. XIII, N 4, National Bank of Slovakia.
- Greenwood, J., Hercowitz, Z., Krusell, P. (2000). The Role of Investment-Specific Technological Change in the Business Cycle. – *European Economic Review*, 44 (1), pp. 91-115.
- Guo, J. T., Sirbu, A. I., Weder, M. (2015). News About Aggregate Demand and the Business Cycle. – *Journal of Monetary Economics*, 72, pp. 83-96.
- Hansen, G. D., Prescott, E. C. (2002). Malthus to Solow. – *The American Economic Review*, Vol. 92, N 4, pp. 1205-1217.

- Harding, D., Pagan, A. (2002). Dissecting the cycle: A Methodological Investigation. – *Journal of Monetary Economics*, Vol. 49, N 2, pp. 365-381.
- Hodrick, R., Prescott, E. C. (1997). Postwar U.S. Business Cycles: An Empirical Investigation. – *Journal of Money, Credit, and Banking*, 29 (1), pp. 1-16.
- Kalman, R. (1960). A New Approach to Linear Filtering and Prediction Problems. – *Journal of Basic Engineering*, Vol. 82 (1), pp. 35-45.
- Karamisheva, T., Markova, G., Zahariev, B., Pachedzhiev, S. (2019). Financial Cycle in the Bulgarian Economy and Its Interaction with the Business Cycle. – *BNB Discussion Papers*, DP/113/2019.
- King, R. G., Plosser, C. I., Rebelo, S. T. (1988). Production, Growth, and Business Cycles I. The Basic Neoclassical Model. – *Journal of Monetary Economics* 21 (2-3), pp. 195-232.
- King, R. G., Rebelo, S. T. (1990). Public Policy and Economic Growth: Developing Neoclassical Implications. – *NBER Working Paper*, No. 3338.
- King, R. G., Rebelo, S. T. (2000). Resuscitating Real Business Cycles. – *NBER Working Paper* N 7534.
- Koopmans, T. C. (1965). On the Concept of Optimal Economic Growth. *The Econometric Approach to Development Planning*, Amsterdam, North Holland.
- Kuttner, K. (1994). Estimating Potential Output as a Latent Variable. – *Journal of Business and Economic Statistics*, Vol. 12, N 3, pp. 361–368.
- Kydland, F. E., Prescott, E. C. (1982). Time to Build and Aggregate Fluctuations. – *Econometrica*, Vol. 50, N 6, pp. 1345-1370.
- Laubach, T., Williams, J. C. (2003). Measuring the Natural Rate of Interest. – *The Review of Economics and Statistics*, Vol. 85, pp. 1063-1070.
- Laxton, D., Tetlow, R. (1992). A Simple Multivariate Filter for the Measurement of the Potential Output. – *Technical Report 59* (June), Bank of Canada.
- Lee, K., Pesaran, M. H., Smith, R. (1997). Growth and Convergence in a Multi-country Empirical Stochastic Solow Model. – *Journal of Applied Econometrics*, Vol. 12, pp. 357-392.
- Lucas, R. E. (1990). Why Doesn't Capital Flow from Rich to Poor Countries?. – *The American Economic Review* Vol. 80, N 2, *Papers and Proceedings of the Hundred and Second Annual Meeting of the American Economic Association*, pp. 92-96.
- Mankiw, N. G., Romer, D., Weil, D. N. (1992). A contribution to the empirics of economic growth. – *Quarterly Journal of Economics*, pp. 407-437.
- McCallum, B. (1996). Neoclassical vs. Endogenous Growth Analysis: An Overview. – *Economic Quarterly*, Federal Reserve Bank of Richmond, issue Fall, pp. 41-71.
- Melolinna, M., Tóth, M. (2016). Output gaps, inflation and financial cycles in the United Kingdom. – *Bank of England, Staff Working Paper* N 585.
- Mitchell, W. C. (1927). *Business Cycles: The Problem and Its Setting*. New York, NY: National Bureau of Economic Research.
- Plosser, C. I. (2012). *Macro Models and Monetary Policy Analysis*. Bundesbank – Federal Reserve Bank of Philadelphia Spring 2012 Research Conference, Eltville, Germany, May 25, 2012.
- Romer, P. M. (1986). Increasing Returns and Long-Run Growth. – *Journal of Political Economy*, Vol. 94, N 5, pp. 1002-1037.
- Romer, P. M. (1989). Endogenous Technological Change. – *Journal of Political Economy*, Vol. 98, N 2, pp. 71-102.
- Rotemberg, J., Woodford, M. (1996). Real-Business-Cycle Models and the Forecastable Movements in Output, Hours, and Consumption. – *The American Economic Review*, 86 (1), pp. 71-89.
- Singleton, K. (1988). Econometric Issues in the Analysis of Equilibrium Business Cycle Models. – *Journal of Monetary Economics*, 21 (2-3), pp. 361-386.
- Solow, R. M. (1956). A Contribution to the Theory of Economic Growth. – *The Quarterly Journal of Economics*, Vol. 70, N 1, pp. 65-94.
- Solow, R. M. (1957). Technical Change and the Aggregate Production Function. – *Review of Economics and Statistics*, 39(3), pp. 312-320.
- Stock, J. H., Watson, M. W. (1998). *Business Cycle Fluctuations in U.S. Macroeconomic Time Series*. – *NBER Working Paper* 6528.

Kateryna Anufriieva¹
Svitlana Brus²
Yevhen Bublyk³
Yuliia Shapoval⁴

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UKRAINIAN FINANCIAL SYSTEM DEVELOPMENT: THE PATH TO EU

The paper is based on the comparative analysis of the main characteristics and features of the financial system of Ukraine and Bulgaria, and discusses the issues and prospects of building a modern institutional environment to meet the requirements for European integration, to support economic development and to prevent crisis shocks. The study includes an analysis of the characteristics of financial liberalisation, the dynamics of international investment flows, the requirements of the budget process, in particular the formation of the structure of domestic and foreign debt, the peculiarities of monetary and exchange rate policy.

The article determines the characteristic feature of small open economies, that is, the limited development of the institutional environment of the country's financial sector and a dominant banking sector. The article emphasises that in such terms, the public policy is focused on the development of the banking sector with a gradual increase in its internationalisation. A natural consequence is the large share of state and foreign capital in the financial sector of the economies in transition with the limited development of non-banking and stock market segments. Another feature is the reliance of financial stability on the external financing and inflow of foreign currency, including in the form of external and internal government borrowing and international private transfers.

¹ Kateryna Anufriieva, Ph.D (Economics), senior research fellow of the Department for Monetary Relations, Institute for Economics and Forecasting, National Academy of Sciences of Ukraine, Ukraine, phone: (+38044) 2545203, (+38066) 7447225, e-mail: kateryna.anufriieva@gmail.com, orcid.org/0000-0002-3179-8655, Scopus Author ID: 57209208795.

² Svitlana Brus, Ph.D (Economics), senior research fellow of the Department for Monetary Relations, Institute for Economics and Forecasting, National Academy of Sciences of Ukraine, Ukraine, phone: (+38044) 2545203, (+38096) 2006543, e-mail: brus_svitlana@ukr.net, orcid.org/0000-0001-5373-273X, Scopus Author ID: 57209213766.

³ Yevhen Bublyk, Ph.D (Economics), senior research fellow of the Department for Monetary Relations, Institute for Economics and Forecasting, National Academy of Sciences of Ukraine, Ukraine, phone: (+38044) 2545203, (+38050) 5453633, e-mail: bubl13@gmail.com, orcid.org/0000-0002-6080-9341, Scopus Author ID: 57209207983.

⁴ Yuliia Shapoval, Ph.D (Economics), junior research fellow of the Department for Monetary Relations, Institute for Economics and Forecasting, National Academy of Sciences of Ukraine, Ukraine, phone: (+38044) 2545203, (+38098) 0067650, e-mail: shapoval@nas.gov.ua, <https://orcid.org/0000-0001-9965-5522>, ResearcherID: S-5145-2017, Scopus Author ID: 57209218282.

The mentioned peculiarities of the development of the financial systems of Ukraine and Bulgaria show that the institutional weakness of the financial system is due not only to the negative consequences of several financial and economic crises but also to errors in financial system reform policy. Attempts to build the financial system based on accelerated financial liberalisation, focusing on the banking sector separation of the latter from the real sector of the economy, laid the ground for the institutional weakness of the financial system. The authors stress that the elimination of these fundamental imbalances, supported by modernised approaches to monetary and macroprudential regulation, should strengthen the institutional capacity of Ukraine's financial system, bringing it closer to the requirements of the EU integration.

JEL: E52; E63; F21; G21; G28

Introduction

The formation of a fully functioning financial system is a prerequisite for the productive development of the national economy in the current globalisation trends. The growth of international capital flows, the internationalisation of trade and the integration of economic relations require adequate development of financial institutions, instruments and regulatory policies. Matching of the development level of the Ukrainian financial system to the EU's level along with meeting the requirements of integration has always been significantly determining the nature of financial system development.

There were attempts to introduce a free-floating exchange rate, liberalise the capital account, manage the budget deficit and introduce modern approaches to monetary regulation and recommendations of international financial institutions under conditions of macroeconomic growth in Ukraine. At the same time, periodic financial shocks of domestic and exogenous origin offset the results of the reforms.

This nature of the development of the Ukrainian financial sector was largely determined by the specifics of economic transition and dominant economic policy. At first glance, Bulgaria (taking into account its EU membership) is not a relevantly comparing country to Ukraine in terms of size, population, economic structure. Nevertheless, the similarity of the process of economic transition based on liberalisation views in anticipation of the EU membership has led to similar consequences despite different starting conditions. Having compared the characteristics of the development of the financial sector of Ukraine and Bulgaria, we demonstrated the absence of a consistent economic policy determined by national interests in conditions of international competition. Other CEE countries, including Hungary, can be used for comparison, and the result is likely to be very similar with few exceptions.

Analysis of the preconditions and consequences of the crisis shocks that affected Ukraine's financial system showed a lack of institutional capacity. In result, the reason lies in the incomplete reforms of the financial system in favourable periods of economic cycles. However, the analysis showed that obvious reasons for low institutional capacity might also be in errors of the pre-crisis approaches to the development of the national financial system. This is confirmed by the data presented in the article on the similarity of some trends of the development of the financial systems of Ukraine and Bulgaria. Meanwhile, Bulgaria has gone through the path of financial integration with the EU, but has also suffered in result of the

global financial crisis (GFC). As such, the strengthened influence of financial crises, especially noticeable after the crisis of 2008 formed structural and functional preconditions defined in the article.

Hence, measures of financial liberalisation, foreign capital attraction, the pursuit of recommendations of post-crisis recovery and modernisation of monetary management in the form of inflation targeting, were carried out without coordination with the national economic development policy. This created similar conditions and led to similar results for the somewhat different economies as Ukraine and Bulgaria.

The lack of defined structural and functional goals of the financial system development, as well as lack of subordinating the goals of reforms in the financial sector to national interests and the needs of long-term macroeconomic policy, led to financial institutions' weaknesses and increased vulnerability of Ukraine's or Bulgaria's financial system to external shocks. At the same time, the experience was gained, both positive and negative, and generalisation of knowledge on the steep path gave grounds for confidence in the possibility of overcoming the current difficult situation and developing more rational approaches to building a financial system adequate to modern challenges of further globalisation, digitalisation and expected prolonged recession. This publication in the framework of a joint international research project presents merely a certain study of the peculiarities of financial system development in Ukraine on the path to the European integration and their comparison with the peculiarities of Bulgaria.

Financial Openness and Economic Development

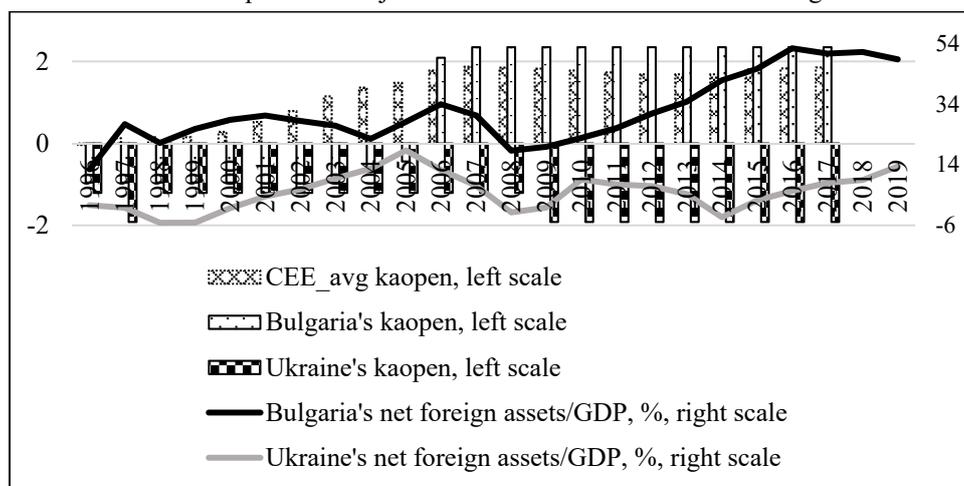
According to the neoliberal theory of economic development and the requirements of the European integration, financial openness is a crucial element of the economic reforms that the national economy must pursue on the path to the EU and to sustainable economic growth. The movement of transit countries in Central and Eastern Europe and the Commonwealth of Independent States towards financial openness was initially characterised by similar trends, determined by the processes of internal market liberalisation and privatisation. Subsequently, the process of the European integration became a decisive factor in the enhancing openness for the Eastern European countries. It was the implementation of the requirements of the European legislation on the path to the EU that led to a rapid increase in the level of financial openness (the "de jure" indicator according to the degree of capital account openness, known as the KAOPEN index by Chinn and Ito) of Bulgaria at the beginning of 2000 (Figure 1).

An approximately identical trend of the nominal financial openness of the countries up to 2000 has since then taken different directions and significantly diverged by 2006. Therefore, the level of restrictions on the capital flows in Bulgaria is much higher than the Ukrainian one and exceeds the average in the Central and Eastern European countries. Whereas, after the GFC, Ukraine's level of financial openness has decreased. Despite the relatively low financial openness of Ukraine's and Bulgaria's economies by the de jure parameter, the global capital flows moved to the markets of Ukraine and Bulgaria almost in parallel until 2006, when the boom in volatile capital movements erupted these countries (according to the measure of "de facto" financial openness proposed by Lane and Milesi-Ferretti (Lane, Milesi-

Ferretti, 2007)). Such a sudden increase in global financial flows laid the foundations for the systemic risk of financial instability and, at the same time, significantly influenced the economic development of these countries. However, the impact was not entirely as predicted by the neoliberal theory. Instead of accelerating economic growth, diversification and higher efficiency of the financial system, the inflow of foreign capital primarily financed the growth of the current account balance deficit (Figure 2).

Figure 1

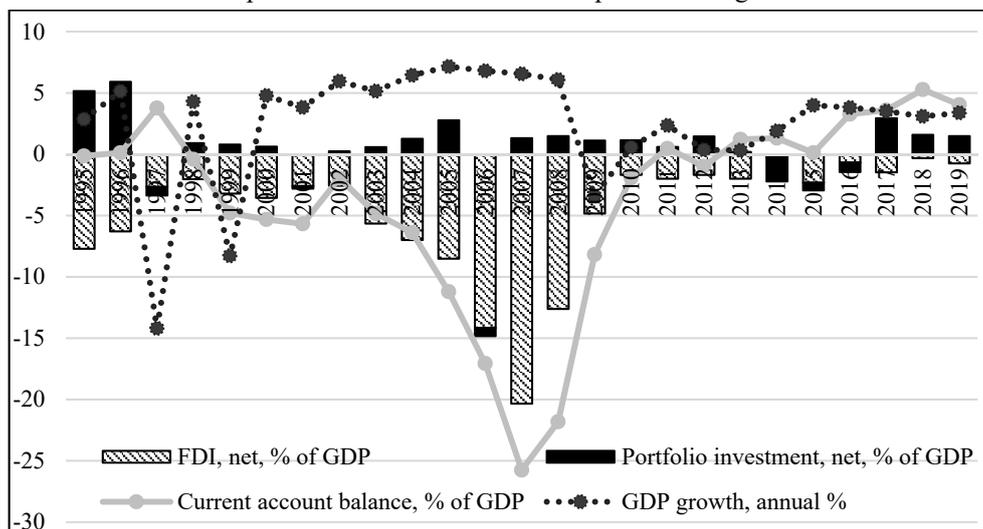
Financial openness “de jure” and “de facto” of Ukraine and Bulgaria



Source: Chinn-Ito Index, World Bank.

Figure 2

Capital flows and economic development in Bulgaria



Source: World Bank.

Inflows of FDI to Ukraine were mainly directed to the most profitable industries of mining and agriculture and high-yield financial instruments concentrated in the banking market. After the acceleration of economic growth in the early 2000s. Overall, the implications of financial openness for Bulgaria and Ukraine are entirely consistent with the findings of the paper M. Fratzscher and M. Bussiere (Fratzscher & Bussiere, 2004). Such impact of financial openness has led to an increase in the share of foreign capital at the Bulgarian banking market. In turn, financial openness increased the dependence of the financial system on a stable inflow of foreign capital and led to the adverse effects of the infestation during GFC.

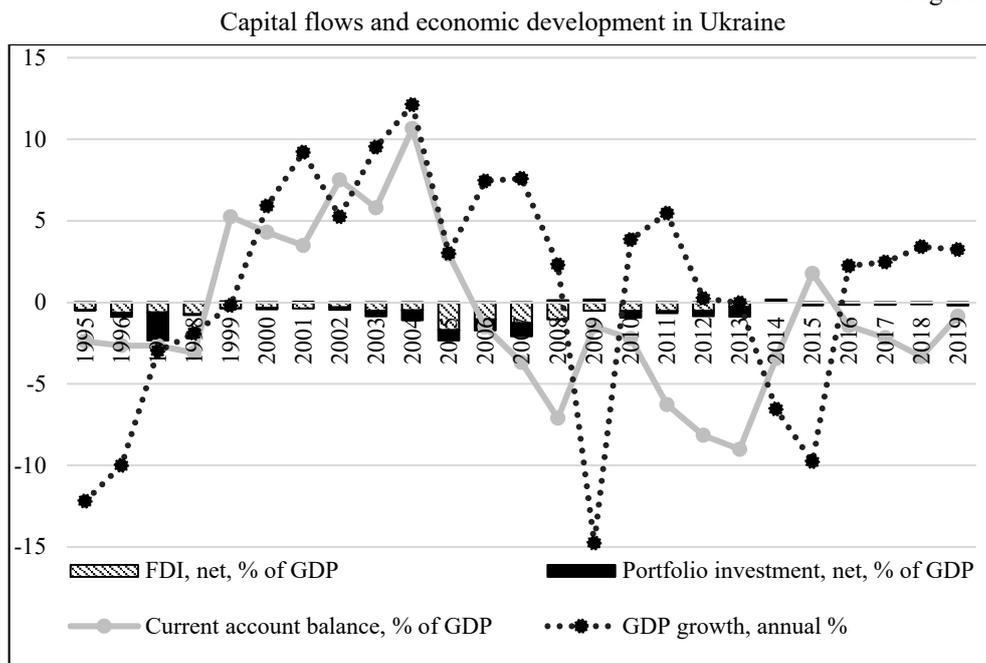
Despite the excellent level of financial openness “de jure” and less potential for financial integration, Ukraine also experienced a sudden influx of large amounts of foreign capital before GFC. FDI inflows to Ukraine began to grow in 2005 after the economic development intensification, the financial sector strengthened, and confidence in its markets increased. The main stage of privatisation had been completed by this period. Similar to Bulgaria, capital flows have had an impact on the Ukrainian economy through the financing of energy, agriculture and the acquisition of banking institutions. But part of FDI has its specifics in Ukraine, namely, return to the country in the form of investment of previous capital outflow (round-tripping) along with transforming of debt into equity capital (recapitalisation of banks). During the 2003–2007, the growth of FDI and portfolio investments in Ukraine were 2–4 times faster than the GDP growth. The increase of FDI inflows in 2005–2008 was characterised by a boom in foreign currency lending and the growth of banks with foreign capital. After the GFC, the decline of FDI in 2013–2014 was the consequence of the political crisis of early 2014, the occupation of Crimea and some districts of the Donetsk and Luhansk regions, and as a result, outflow of the Russian banking capital. The resumption of FDI inflows in 2015 was due to the requirements set for the recapitalisation of the Ukrainian banks, also since 2016, the ban on the repatriation of dividends for foreign investors/non-residents was cancelled. After a large-scale outflow of capital in 2014–2015, the inflow of capital to Ukraine resumed, but narrowed significantly compared to the pre-crisis period. It is important to note that, just as in Bulgaria, the FDI influx in Ukraine has primarily financed the negative current account balance (Figure 3). In turn, portfolio investments are directed almost to debt securities, namely to the general government sector (government securities) rather than to the real sector of the economy.

Although today investors prefer debt rather than share instruments, the only alternative becomes the financing from international organisations due to the sluggish interest of investors in risky assets in the Ukrainian financial market and high competition for financing between small open economies (all without exception, budget deficits are growing). Meanwhile, external borrowing is not supported by a reduction in the budget deficit, and therefore the current account deteriorates in Ukraine’s small commodity economy. In turn, significant payments of the public sector against the background of restrained growth of capital inflows affect the reserves, which in fact exhausted and were turned into the IMF credit resources⁵. At the same time, the size of the current Ukrainian account is affected by the increase in GDP, which causes a current account deficit (in 2006–2014). In a small commodity economy, the expansion of the current account deficit is a consequence of rising

⁵ The Ukrainian government has not borrowed funds from the IMF in 1992–1993, 2002–2007, 2011–2013 and 2019 throughout the history of its independence.

energy prices, namely the excess of imports of goods over exports (peak periods in 2008 and 2013). Nonetheless, in 2019, the current account deficit narrowed due to the increased net inflow of funds on the financial account despite hryvnia appreciation caused by plunging imported energy prices.

Figure 3



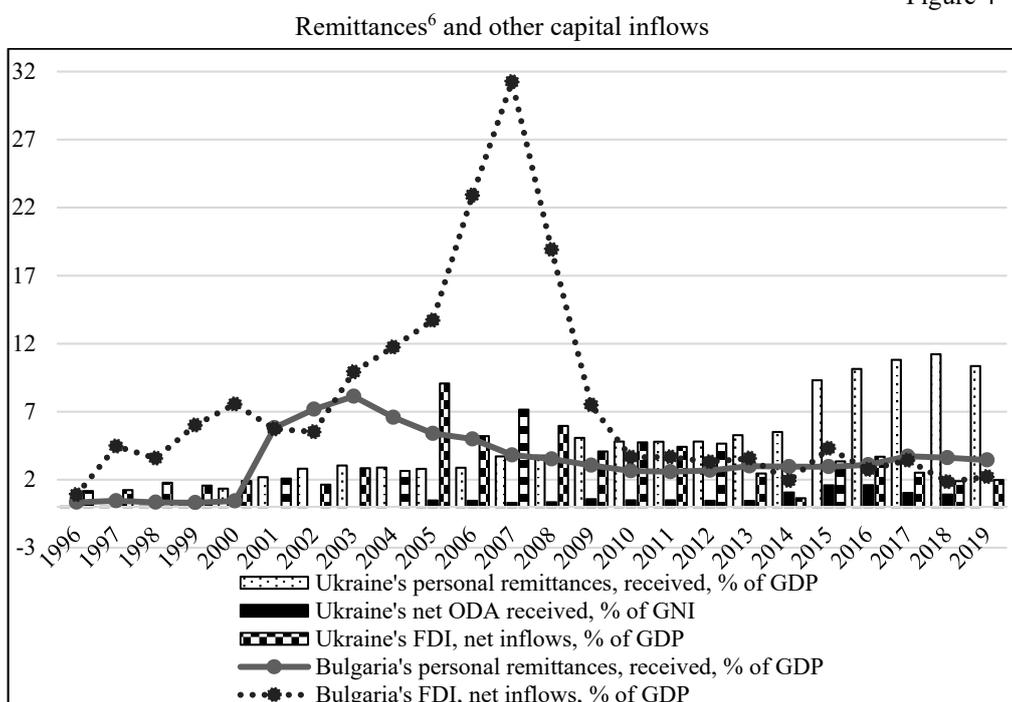
Source: World Bank.

Furthermore, remittance flows are an essential source of external financing for Ukraine, which remains a recipient country for cross-border remittances. Although since 2014, the geographical structure of the countries of destination of the Ukrainian workers changed significantly (the share of the Russian Federation decreased, and the number of EU countries increased), the volume of remittances of the Ukrainian migrants has increased substantially. This inflow was due to the explosive growth of migration itself and because of a significant expansion of the possibilities for carrying out such operations. The value of remittances for Ukraine is also confirmed by comparison with other financial flows from abroad, in particular, with FDI and official development assistance (Figure 4).

As remittances are more resilient than private borrowings or portfolio equity investments, these migrant's flows supported the hryvnia during the period when foreign investors lost interest in the Ukrainian economy. Although this source of funds can be seasonal and volatile, remittances reach those sectors of the economy where it is difficult to set standards for FDI and bank loans. In general, remittances have a positive effect on the balance of payments and are a source of foreign exchange inflows to Ukraine. Moreover, significant amounts of migration capital revenues contribute to the growth of the financial potential of the budget

system of Ukraine. That is indirectly due to a substantial increase in the level of income of Ukrainians and their solvency. Therefore, migrants' transfers are the hefty source of external financing of the Ukrainian economy, which reinforce the importance of remittances as a stabilising economic factor and as a means of increasing a recipient country's credit-worthiness. Though remittances improve the balance of payments of the state, and this supports the hryvnia exchange rate, they do not guarantee the automatic development of the national economy. Remittances are not an alternative to the sources of endogenous economic growth.

Figure 4



Source: World Bank.

Summing up, the low level of “de jure” financial openness in Ukraine did not particularly impede the capital movement through its jurisdiction. In Bulgaria, the liberalisation was conducted, while in Ukraine, the restrictions were introduced. Despite the differences in regulation, the intensification of the capital flow movement was almost synchronous. Herewith, the most productive period of economic growth in 2000–2004 was characterised by moderate capital flows to Ukraine. At the same time, the inflow of significant amounts of capital in the period 2005-2008 in both Ukraine and Bulgaria was due not to policies but to attractive signs of economic growth. However, the lack of a developed structure of the economy and financial markets has led to the same consequences – the exogenization of the

⁶ Remittances include net compensation for employees and personal transfers.

banking market and limited lending to national enterprises. Thus, without a proper international capital flows regulatory policy, even large inflows of FDI did not have significant productive consequences. With this regard, the upsurge of the most developed segment, namely the banking market – was distinctive.

Banking Sector Development

In spite of the number of differences in terms of the formation of the financial systems of the countries, defined primarily by the more powerful euro integration vector of Bulgaria's development, a similar process of economic transition, privatisation and financial liberalisation with the advent of foreign financial institutions caused the similarity of many parameters of the financial markets. The GFC was particularly decisive for both countries in 2008, when the financial sectors of these countries drowned under quite similar conditions.

Characteristic features of the financial systems of Ukraine and Bulgaria include the formation of a bank-centric model with a limited level of development of the non-banking sector. Thus, in Ukraine, banking sector assets amounted to 52,7% of GDP in 2017, while insurance companies' assets accounted for 2–3% of GDP, other financial institutions – 6,5%, as well as limited capital stock markets less than 1% of GDP. At the same time, the main instrument in the stock market is government securities – an instrument that provides budget financing (Bublyk, 2018). It should be noted that by 2008 these indicators of both banking and non-banking sectors in Ukraine were 2–4 times higher, especially in the non-banking sector.

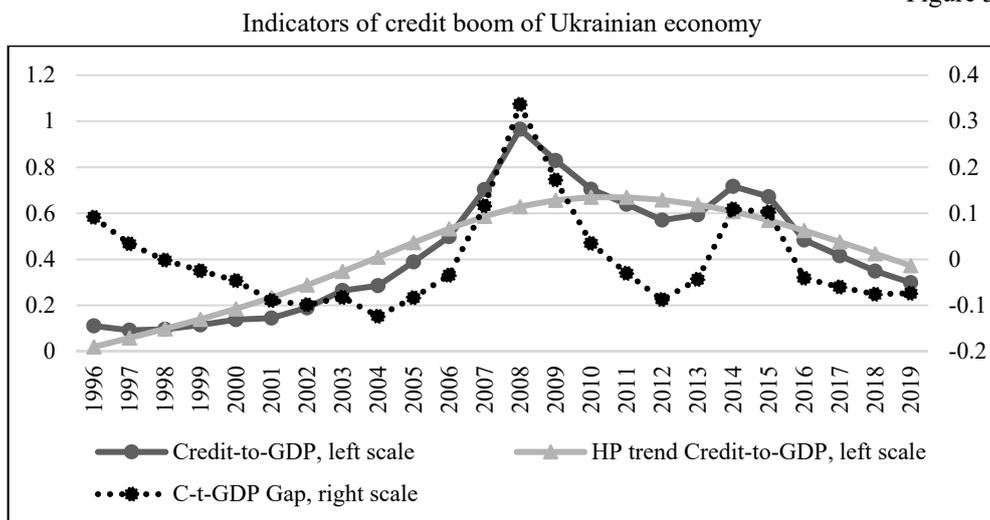
Limited development of the non-banking sector was also achieved in Bulgaria, although its indicators are more significant: the stock market capitalisation is about 10% of GDP, by the end of 2015, it is significantly higher than in Ukraine, but the absolute is pension fund assets – at 9,4% to GDP (Bulgaria: financial system stability assessment, May 2017). In other words, the banking sector, which accounts for about 85% of financial assets, is the primary source of financial security for investments and savings in both countries (Bulgaria: financial sector assessment program, July 2017). Meanwhile, a considerable part of the financial sector is represented by institutions with foreign capital, which is especially pronounced in Bulgaria – up to 80% of banks and insurance companies (Minassian, 2013). More than half of the assets in both countries are represented in foreign currencies.

Such a large proportion of foreign capital reflects the specific structural problem of banking sector development inherent in Bulgaria and Ukraine. Under the conditions of the competitive pressure of large foreign financial institutions and the effects of several banking crises (2008 and 2014 in Ukraine, 1997 and 2008 in Bulgaria) national private banks, without state support, could not compete and gave way to market share (Mirchev, 2009). Herewith, if in Bulgaria national banks gave way to large foreign banks, in Ukraine this process has so far embodied the nationalisation of 60% of the banking market, which now accounts for the assets of the four largest state-owned banks. It is likely that in the future, in the process of privatisation, this share will also go to large foreign banks.

The consequence of such a structural feature of the financial sector was the restriction on lending to the economy. During 2005–2008, the surge of bank credit to the private sector of

Ukraine widened macroeconomic imbalances by financing the credit boom (Mendoza & Terrones, 2008) in the mortgage and consumer lending markets, which was accompanied by a rapid rise in price bubbles in the real estate markets (Figure 5).

Figure 5



Source: State Statistics Service of Ukraine, National Bank of Ukraine.

Over the five years from 2004 to 2008, the banks' loan portfolio increased from 73,4 to 565,9 billion UAH in total (until the beginning of the next devaluation). This portfolio grew annually by 20–40%, and exceeded 60% of GDP by the beginning of the 2008 crisis (Bublyk, 2020, p. 144). Over this period, the significant growth rate of loans to households no longer supported economic activity in the real sector. But it mainly produced a price “bubble” in the real estate market. The same period was characterised by the most active inflow of foreign investment, which largely financed the development of the credit boom in the consumer lending market of Ukraine, which fueled the formation of “bubbles” in the real estate market (Bublyk, 2020, p. 145). Subsequently, the overheating of these markets caused a severe crisis in the banking markets as foreign capital inflows declined during the spread of GFC in the EU. Since 2015, the indicator of the credit boom reflects the long-term under-lending of the Ukrainian economy, among other things, due to the lack of foreign investment (Bublyk, 2020, p. 257). During 2014 and 2015, the decline in real GDP by 6,6% and 9,8% was accompanied and exacerbated by several waves of significant hryvnia devaluation and the banking crisis, which resulted in, in particular, a massive outflow of deposits from the banking system and bank failures.

Under such circumstances, banks adhere to conservative policies, preferring to invest in government securities or lend to affiliated or large for-profit enterprises. At the same time, lending to opening a new business by small and medium-sized enterprises (SMEs) seems to be highly risky for them and, therefore, unjustified due to the presence of more reliable tools and increased regulatory requirements for financial stability.

Bulgaria has also experienced a series of credit booms caused by sudden inflows of large amounts of foreign capital, which went to the consumer lending segment and led to excessive increases in real estate prices. In particular, such cases occurred in 1996–1997, 2004–2008 and 2012. It was possible to avoid the banking crisis for a long time until 2014 due to the “currency board” of Bulgaria.

Over the recent decade, the banking system regulations defined the state of the whole regulatory environment in Ukraine, which impacted the flows of both long-term and short-term capital. From the over-regulated, the banking system is slowly passing to liberalisation, removing constraints to the movement of capital, including procedural, maximum borrowing cost, reservation, withdrawal and currency control constraints. Also, on a positive side, the system of financial monitoring has been notably improved. Considering the share of the banking sector in the financial industry and the influence of the banking-related legislation, lately, the consolidated model of supervision of the non-bank financial market⁷ oversight is discussed. As of the beginning of 2020 there are three financial regulators: the NBU, the National Securities and Stock Market Commission (NSSMC), and the National Commission for State Regulation of Financial Services Markets (NFSC). After the split will have been implemented, there will be two regulators left: the NBU, and the NSSMC⁸. Such a move, which means unified rules for all financial institutions, detection of financial system risks, quality regulation and monitoring, can be deemed positive by foreign investors (National Bank of Ukraine).

Thus, the nature of the financial sector development policy, due to the requirements of financial liberalisation, formal according to Bulgaria’s EU membership and voluntary in Ukraine’s pursuit of it, had similar consequences for them. The trends of exogenization of the banking market became noticeable as a result of discoordination with the state policy of economic development and the needs of financial support of domestic producers. The dominance of powerful foreign banking institutions has determined the limited development of lending to producers in favour of consumer lending with a natural consequence of the credit boom. In the context of subsequent economic stagnation, the low profitability of domestic producers demotivates banks to provide them with loans without government guarantees.

Monetary and Fiscal Sector Policies

To achieve and ensure price stability, the National Bank of Ukraine (NBU) uses the monetary regime of inflation targeting. In August 2015, the NBU Board proclaimed the target for

⁷ The partly integrated model of financial sector regulation is laid out as an-IMF supported draft “Split” law, which literally determines the split of the existing National Commission for Regulation of Financial Services Markets and a pass to a “Two Agency” model, where one of the regulators is responsible for banks and insurance activities, and the other for market conduct. The model has been implemented in Italy, France, Greece, Serbia and is planned in China.

⁸ The NBU will regulate insurance, leasing and factoring companies, credit unions, pawnshops and other financial institutions. Private pension funds, pension fund administrators and construction financing funds will be regulated and supervised by the NSSMC (National Bank of Ukraine).

inflation and in December 2016, the newly established NBU Council officially adopted inflation targeting. For 2019, a medium-term inflation target of 5% (year-over-year CPI growth) was fixed. For each year, intermediate targets were announced to establish a benchmark for the NBU, which in turn would arrive at the optimum 5%. The target of 12% was set in 2016, and as a result, inflation dropped from 43,3% to 12,4%. Nevertheless, during the 2017–2018, inflation targets were not reached. In December 2017, under the target of 8 %, inflation rose to 13,7%. In December 2018, under the target of 6 %, inflation dropped to 9,8%. Therefore, inflation expectations, in general, tend to decrease but exceed the inflation target of the NBU. However, as of the end of 2019, consumer inflation slowed down to NBU's target of 5%. It reached 4,1% partly owing to the hryvnia revaluation despite significant pressure from consumer demand (National Bank of Ukraine).

The NBU pursues its policy of inflation targeting within the flexible exchange rate regime. Generally, during most of its history, Ukraine operated under the fixed exchange rate, and only in 2014 the NBU adopted a flexible exchange rate as its monetary policy framework.⁹ By changing the discount policy rate, the NBU determines the level of short-term interest rates on the interbank market that influence aggregate inflation.

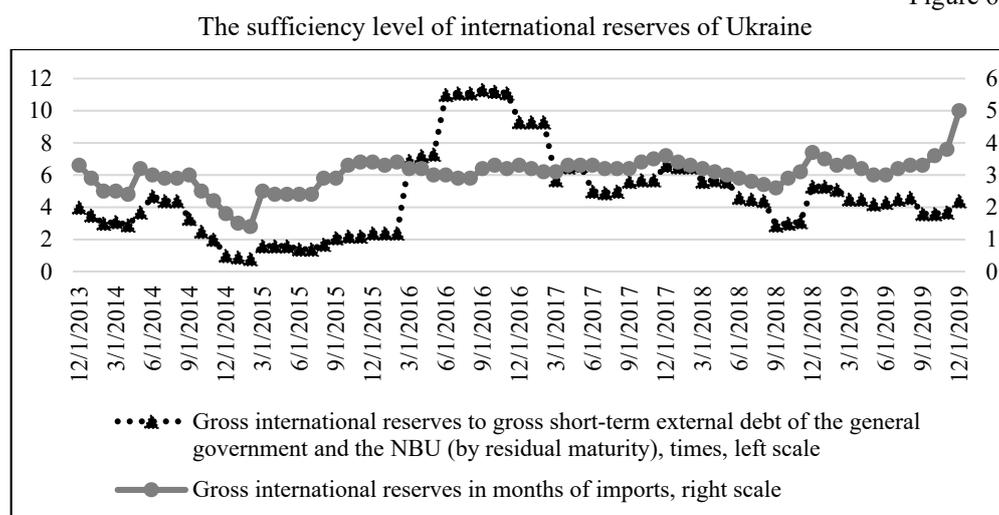
During 2019, high real interest rates and simplified access to government securities due to new currency regulation system (launched in February 2019 and characterised by deregulation of investment procedures, broadening the list of authorised FX operations) contributed to a further capital inflow, namely into domestic government bonds (OVDPs). Foreign investments in hryvnia domestic bonds increased by around 4,3 billion USD (National Bank of Ukraine). Despite this fact, those significant investments, held by non-residents, form the largest share in long-term government bonds. This inflow of foreign investment is considered as a “hot” capital because of its character of abruptness. In turn, this capital enables financing of the state budget deficit: significant issues of government securities are directed not to fund the implementation of reforms, but to cover debts. On the other hand, due to the excess of placement of OVDPs over their repayment amounts, debt formed by government domestic securities is on the rise. The influx of foreign currency for the purchase of government bonds became a significant reason for large-scale NBU interventions in the FX market. Thus, during 2019 there was an increase in OVDPs issuing against the background of higher foreign exchange redemption, which contributed to the replenishment of international reserves.

In general, after the GFC, the dynamics of the Ukraine's international foreign exchange reserves were volatile. Downward trends in reserves coincided with the hryvnia devaluation jumps. Over 2010–2013, the foreign exchange market stabilised. Starting from 2015, the NBU began to increase international reserves through Ukraine's cooperation with the IMF and other international creditors as well as foreign exchange interventions. At the end of 2019, a ratio of reserves to short-term debt was 4,4 (Figure 6). However, despite the reserves rise within the declining (but positive) dynamics, this ratio indicates the potential risk of

⁹ Since 2014, Ukraine has been classified as a floating currency country according to the IMF's report AREAER. Before that, the exchange rate regime in Ukraine (according to the IMF classification) envisaged a conventional peg during 2005–2007, later another managed arrangement during 2008–2010, and stabilized arrangement during 2011-2013.

unstable Ukraine's foreign debt position. It also demonstrates the lack of official foreign exchange reserves to absorb financial account shocks if the current account and access to capital markets are limited for a year. Nevertheless, the increase of international reserves (since 2015) provided financing for imports for the future period over five months (as of the end of 2019) and reached the required level (>3). This is sufficient for the adequacy of Ukraine's obligations and the current operations of the NBU and the government, which are a condition for maintaining macroeconomic stability in Ukraine.

Figure 6



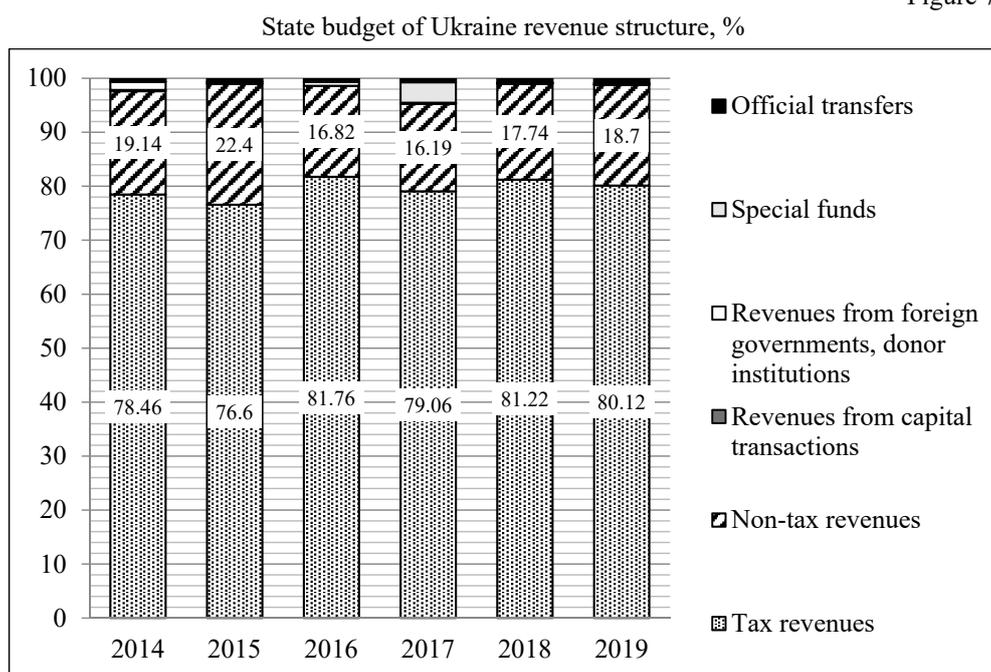
Source: National bank of Ukraine.

The primary fiscal levers of influence on the stability of the Ukrainian financial system are revenues and expenditures of the state budget. During the last five years, they have been increasing, that reflects both the instability of tax legislation and the peculiarities of the small open economy, which is highly dependent on world commodity prices. Revenues of the state budget of Ukraine in 2019 compared to revenues in 2014 increased almost three times (from 357,1 billion UAH in 2013 to 998,3 billion UAH in 2019). At that, nearly three times hryvnia devaluation has levelled this rise in dollar terms. The main item of the revenues of the state budget is formed through taxes. The share of tax revenues in recent years has been in the range of 75–82% (Figure 7). The percentage of internal taxes on goods and services (indirect taxes) fluctuates within 50% of all tax revenues. Direct taxes make up about 20% of all tax revenue.

The share of non-tax revenues in the structure of revenues of the state budget of Ukraine ranged from 15% to 23% of total revenues in different years. Other revenues occupy a relatively small place in the structure (less than 3% in total). Increasing budget revenues, which balances the budget and reduces the share of taxes, can be due to the expansion of non-tax revenues (capital operations, financial sanctions and administrative fees). The experience of the European countries shows that the share of non-tax revenues in total budget revenues varies from 9% in Belgium and 9,5% in Italy to 20% in Finland and 24% in Bulgaria. In

terms of GDP, the highest non-tax revenues were in Finland and Hungary (11 and 9% respectively). The lowest non-tax revenues, less than 4,5% of GDP, were in the UK, Spain, and Ireland. Such heterogeneity arises from the attitude of governments of different countries to the various state ownership structures (revenues from state-owned enterprises), and differences in state rights with regard to the EU structural funds (Mourre & Reut, 2019).

Figure 7



Source: Ministry of Finance of Ukraine, World Bank.

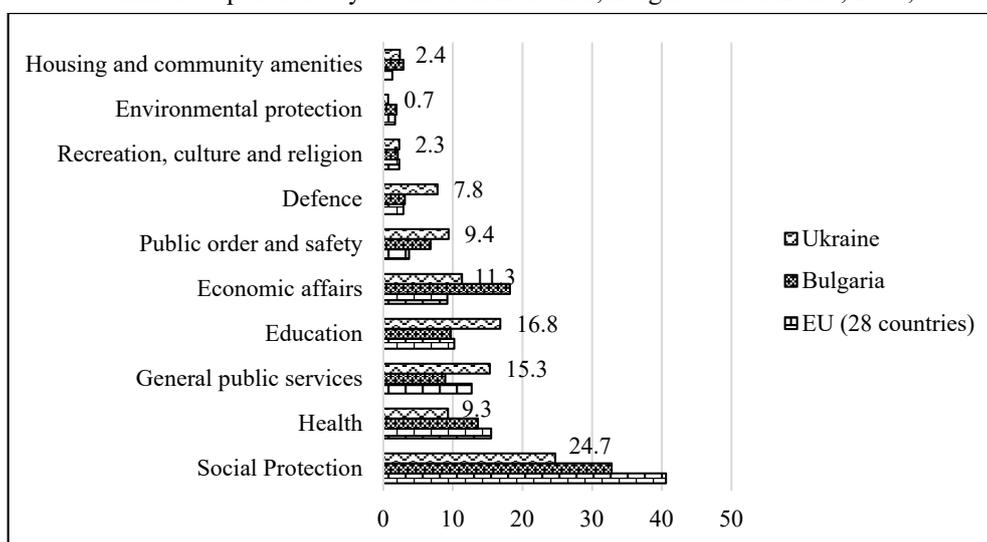
Despite several tax reforms (the fifth tax reform was carried out from the second half of 2010 till 2014), the efficiency of the tax system has not improved. Ukraine has mostly a tax burden lower than the global average, so proposals to reduce it by diminishing tax rates are not rational. The optimisation should include the broadening of the tax base and increasing taxpayers' number by reducing the shadow sector. During the last decade, the peak of the tax burden was in 2016, when the unified tax rate, at which employers pay to pension and social funds, was reduced (Figure 7). In 2019, the TTCR increased by 3,5% due to the rise in the minimum wage, which in turn hiked the single social contribution paid by employers. Payroll taxes have the most significant impact on the overall tax burden. Profit taxes have had a slight upward trend over the years due to a reduction in the share of labour taxes.

The main expenditures of the state budget of Ukraine are made to the destinations of the general public services; public order, security and judiciary; defence, social protection and social security; intergovernmental transfers. In total, the expenditures on these items in 2019 amounted to about 95%. Over the last five years, the share of spending on items such as

public order (2,69%) and defence (3,58%) has increased. The percentage of intergovernmental transfers fell significantly from 30,36% in 2014 to 24,26% in 2019. That is a consequence of the financial decentralisation reform. Many of the financial resources have been transferred to local budgets. The general fund of local budgets has increased fourfold (from 68,6 in 2014 to 275,9 billion UAH in 2018). Comparing budget expenditures in Ukraine and the EU, the most significant percentage of the EU spending is social protection (Figure 8). A considerable percentage of the total expenditures in Ukraine compared to other EU countries is spent on defence, general public services, public order and education. At the same time, spending on health, housing and utilities, culture and environment are lower than European spending.

Figure 8

Government expenditure by destination in the EU, Bulgaria and Ukraine, 2018, %



Source: Ministry of Finance of Ukraine, Eurostat.

Under the conditions of unbalanced budgetary policy, Ukrainian financial system development is characterised by a deficit not only within the economic downturn, but also when the economy recovers. Ukraine, in terms of the ratio of the state budget deficit to GDP, exceeded the maximum – the allowable volume during 1995–1997 and 2012–2014. Meanwhile, the main problem with the formation of the state budget remains high debt load tendency, which has been rising during the last decade (Figure 9). At the same time, since 2016, the public debt to GDP ratio is falling owing also to debt restructuring in 2015 and fiscal policy, primarily supported by the IMF programs and other international institutions. In 2019, external government debt decreased (not least because of the hryvnia revaluation), while domestic debt increased due to the issuance of government securities. The debt burden in 2020 is about 62% of GDP (the threshold should not be higher than 60%).

Figure 9



Overall, In Ukraine, the imbalance of the state budget is linked to the accumulation of significant public debt, which can lead to a debt crisis and default. Debt management should be a strategic priority for the Ukrainian government. The development of a government debt reduction scenario should include actions to mitigate currency risk, since the significant portion of the debt is denominated in foreign currency. Moreover, it should contain reorienting borrowing from external to domestic, gradually reducing the debt and loan load through preferential financing in cooperation with rating agencies, and active operations with public debt. Another problem is the high shadowing of the Ukrainian economy and the uneven fiscal burden on taxpayers, which affects budget revenues. Concerning the expenditures of the state budget, their formation must be consistent with the strategic economic goals, the development and the implementation of budget programs focused on achieving observable results.

The GFC harmed the Bulgarian as well as the Ukrainian economies and the formation of the budget deficit. During 2009–2015, the state budget of Bulgaria was formed with a deficit. The most massive deficit was in 2014 and amounted to 5,5% of GDP. During this period, Bulgaria’s public debt was growing. Also, during 1999–2020, public debt averaged 26,6% of GDP, highest in 2015, and since 2017, on a downward trend. In 2016, public debt was 27,4%, then in 2017, it decreased to 23.3%. In 2018, it amounted to 20,5% of GDP. The decrease is related to the payment of debt under foreign bonds and the surplus of the Bulgarian state budget. Since 2016, the state budget surplus has grown from 0,1% to 2,1%, which enabled to skip issuing new foreign bonds and pay off debts of the previous period. The external debt-to-GDP ratio increased by about 7 % between 2009 and 2016.

Conclusion

Today, Ukraine is still in a transitional period, characterised by controlled exchange rate floating, inflation targeting and free movement of capital. We must note that currency regulation in small economies with local currencies circulation like Ukraine is re-directed at smooth movements of foreign funds. But at the same time, regulation should be accompanied by rapid actions to renew exchange rate stability, and by the introduction of instruments to hedge currency risk and enhance foreign investors' confidence.

The Ukrainian practice confirms the thesis about the ineffectiveness of restrictions on the capital flows in terms of institutional weakness of state regulators, as well as the fact that a small, open-to-trade economy without specific policies has insufficient capacity to resist the unproductive effects of foreign capital. In such conditions, despite the low level of de jure financial openness, the de-facto financial openness of Ukraine in some periods exceeded the average level of the region.

Still, onerous business regulations, unconfident political situation and the on-going reformation process raise the question of domestic stability and influences the terms of attraction of capital to Ukraine. These issues also have continuously moved the Ukrainian capital off-shore in search of more reliable investors and property rights protection, absence of sanctions effects (restricting smooth international settlements) and returned this capital in the form and status of foreign investment.

Generally, institutional development of the financial system, the consistent legal framework (including investment withdrawal and dividends, collateral and accounting procedures) as well as the trustworthy state monetary authorities, could give a spur to local savings as one of the sources of the investment money.

All in all, the comparative analysis of the parameters of the financial development in Bulgaria and Ukraine made it possible to distinguish several characteristics inherent in these countries. Such features include high volatility of capital flows, structural distortions of the financial sector with the predominance of banking institutions, and limited development of the stock and insurance markets. Also, a substantial fall in the activity of the financial markets after the unfolding crisis events with limited signs of the recovery process should be considered. In our opinion, the presence of some similar features of the financial development of the two countries, where one of them is more integrated in the EU financial market, reflects the natural consequence of extensive financial sector formation without adequate institutional infrastructure and tools.

One of the vital problems of the Ukrainian economy is that it has been mostly credited with short-term debt or has limited refinance possibilities at favourable terms, suffering from lack of term savings as well as capital flight in case macroeconomic or political conditions alter. The question of short-term hard-currency funding is in its burdensome character, which leads to the risk of default in case of insufficient foreign currency inflows (including from exports and remittances). Term financing, as a rule, comes from the institutional investors of the advanced economies, including insurance companies, pension and mutual funds. Foreign direct and portfolio investments as well as inflows within the current account, continue to represent one of the factors of the currency market and, in particular, exchange rate

stabilisation for the national currency, considering that the export-import balance has been negative in recent periods. Proper and transparent regulation of the domestic market could create investor incentives and ultimately foster the economic development of Ukraine's small open economy.

There is a global demand for endogenisation of the effects of globalisation after a long period of its expansion. In our opinion, the solution to the identified problem of suboptimal development of the national financial sector of small open economies is to form a current targeted public policy. It does not mean a breach of the EU's commitment. The implementation of such an approach can also take place within an acceptable regulatory field. In particular, such prospects are possible due to macroprudential regulation, the measures of which are subject to financial stabilisation. These measures are recognised at this stage at the EU level. They open up the probability for the use of monetary, fiscal and prudential instruments to optimise the structure of financial markets. Current global trends suggest that in the future, the regulatory potential of macroprudential tools may be expanded in the interests of the structural development of the national economy.

References

- Bublyk, Y. (2018). Structural-functional deformation of the financial sector in the Ukrainian economy. – *Economy and forecasting*, 2, p. 48-61. doi: <https://doi.org/10.15407/eip2018.02.048>.
- Bublyk, Y. (2020). Financial openness of transition economies. – *Institute of the Economy and Forecasting of the National Academy of Sciences of Ukraine*, 324.
- Bulgaria: financial system stability assessment. (2017, May). IMF Country Report, 17/132, 50. Retrieved from: <https://www.imf.org/en/Publications/CR/Issues/2017/05/24/Bulgaria-Financial-System-Stability-Assessment-Press-Release-Staff-Report-and-Statement-by-44937>.
- Bulgaria: financial sector assessment program. (2017, July). IMF Country Report, 17/200, 41. Retrieved from: <https://www.imf.org/en/Publications/CR/Issues/2017/07/11/Bulgaria-Financial-Sector-Assessment-Program-Technical-Note-Financial-Safety-Net-and-Crisis-45060>.
- Chinn-Ito Index. (2019). Retrieved from http://web.pdx.edu/~ito/Chinn-Ito_website.htm.
- Eurostat. (2019). Retrieved from <https://ec.europa.eu/eurostat>.
- Fratzscher, M., Bussiere, M. (2004, April). Financial openness and growth: short-run gain, long-run pain?. – *ECB Working paper series*, 348, p. 41. Retrieved from <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp348.pdf>.
- Lane, P., Milesi-Ferretti, G. M. (2007). The external wealth of nations mark II: Revised and extended estimates of foreign assets and liabilities, 1970-2004. – *Journal of International Economics*, 73 (2), p. 223-250.
- Mendoza, E. G., Terrones, M. E. (2008, May). An anatomy of credit booms: evidence from macro aggregates and micro data. – *NBER Working paper series*, 14049, 59. doi: 10.3386/w14049.
- Minassian, G. (2013). Bulgarian banking: looking for sustainability. – *Economy and forecasting*, 4, 104-129.
- Ministry of Finance of Ukraine. (2019). Retrieved from <https://mof.gov.ua>.
- Mirchev, L. (2009). The Bulgarian banking system and the EU single financial market: measuring the level of integration using DEA. The 26th Symposium on Money, Banking and Finance, University of Orleans, 24. Retrieved from: <https://www.univ-orleans.fr/gdre09/articles/MIRCHEV-v.2.1.pdf>.
- Mourre, G., Reut, A. (2019, February). Non-tax revenue in the European Union: a source of fiscal risk?. – *International Tax and Public Finance*, Springer; *International Institute of Public Finance*, Vol. 26(1), p. 198-223. doi: 10.1007/s10797-018-9498-z.
- National Bank of Ukraine. (2019). Retrieved from <https://www.bank.gov.ua>.
- State Statistics Service of Ukraine. (2019). Retrieved from <http://www.ukrstat.gov.ua>.
- World Bank. (2019). Retrieved from <https://data.worldbank.org>.

RETURN MIGRATION AND REMITTANCES: RECENT EMPIRICAL EVIDENCE FOR BULGARIA³

The article presents a review of recent empirical evidence on a range of issues related to the transfers of funds from Bulgarian migrants, known as migrant remittances. Data for the official indicators as compensation of employees and workers' remittances is utilized from the Bulgarian National Bank, providing these items in the Balance of Payments financial statistics. Furthermore, on the basis of information from a questionnaire survey carried out in 2017, the socio-demographic profile of return migrants supporting their relatives staying in the home country is explored. Possible answers are provided to the question on what drives the active remittance behaviour of returnees during their stay abroad. An outline is suggested regarding the purposes for which remittances are utilized and the main types of businesses they support. Using the method of binary logistic regression, several main determinants of the inclination of the migrant to support those left in the home country are identified and discussed.

JEL: F22; F24; O15

1. Introduction

The workers' remittances of emigrants are implicitly incidental to the modern global economy. There are a total of over 272 million migrants worldwide and in 2019 they have transferred a total of 706 billion USD, 78% of which have been channelled into lower-income economies (WBG, 2019). The financial transfers are performed in "corridors" among the main "sender" and "recipient" countries. According to World Bank data for 2018, the top 5 sender countries are respectively the USA (with over 68 billion USD of transfers and compensation of employees remitted on average per year), the United Arab Emirates, Saudi Arabia, Switzerland, and Germany. The top 5 positions for the recipient countries are occupied by India (with about 80 billion USD in transfers from abroad), China, Mexico, the Philippines, and Egypt. From Eastern Europe, among the top 10 sender countries is Russia

¹ *Economic Research Institute at BAS and International Business School – Botevgrad, e-mail: v.mintchev@abv.bg.*

² *University of National and World Economy – Sofia, e-mail: venelinb@unwe.bg.*

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(with slightly over 20 billion USD), and among the recipients – Ukraine (with 14.4 billion USD) (WBG, 2019).

Europe is diverse in terms of “dependence” on workers’ remittances by migrants. The states of Western Europe are not dependent on them. Those countries have a positive migration balance. The situation in Eastern Europe and in the Balkans is different. Dependence on the remittances by migrants is great and the risk of the so-called “Dutch disease” in this connection – quite real. The migration balance in most of those countries remains negative.

This article focuses on selected issues of return migration related to the remittance behaviour of Bulgarian migrants in the years after the EU integration of the country. It suggests a short macroeconomic evaluation of the importance of the financial inflows originating from the compensation of the Bulgarian employees abroad, as well as the Bulgarian workers’ remittances. More comprehensively, the analysis is further based on data obtained during a questionnaire survey conducted among return migrants at the end of 2017, executed in the framework of the project “*Returning Migrants: Segmentation and Stratification of Economic Mobility*”. In particular, issues concerning the transfers of monetary resources and their usage for the development of businesses in Bulgaria – as a home country of the migrants – are explored in light of detailed survey data. The analysis reflects a variety of evidences and postulates, which have been suggested in a theoretical and/or empirical aspect during the last two decades by various authors (e.g. Bakalova, Misheva, 2018; Boshnakov, 2019; Boshnakov et al., 2016; Christova-Balkanska, Mintchev, 2012; Ivanova, 2012; Mintchev, Boshnakov, 2006, 2018; Mintchev, 2009; Mintchev et al., 2016a, 2016b; Nonchev, Hristova, 2018; Zareva, 2018a, 2018b, 2019; 2021; etc.).

2. Macroeconomic Assessments of the Migrants’ Remittances

The economic impact of the financial transfers from abroad can be traced in two ways. At macro-level – using data from the balance of payments of the respective country (primary and secondary income), and at micro-level – using data from sample surveys. The international institutions and national statistics provide information regarding the transfers received from abroad regarding to two items – “compensation of employees” and “workers’ remittances of emigrants”. This approach reflects the universally accepted methodology of the International Monetary Fund (IMF, 2013), according to which the first item includes funds remitted by individuals residing in the host country for less than 1 year to households residents in the country of origin. The second item captures the transfers from individuals staying abroad for more than 1 year.

In 2018 Bulgaria has received about 2.4 billion USD, which places it on 8th position in terms of the volume of funds received from abroad among the countries of Eastern Europe and the post-Soviet area. In comparison, the remittances from migration received by Romania have amounted to 5.2 billion USD, and by Serbia – to 4.3 billion USD (WBG, 2019). At the same time, more than 220 million USD have been transferred out of Bulgaria. The funds transferred out of Romania and Serbia have reached respectively 435 million USD and 297 million USD (WBG, 2019). In itself, this shows that for many households – not just in Bulgaria but also

in the Balkans as a whole – the transfers from abroad are of primary importance, not just for maintaining an acceptable way of life by the local standards, but for their very survival.

As for the sample studies, they have been conducted mainly with the purpose to make an assessment of how and where specifically the remittances from abroad are used in Bulgaria (Mintchev, et al., 2016). They also allow to assess the amount of the remittances received from abroad (Mintchev, Boshnakov, 2006; Mintchev, 2009; Mihailov, et al., 2007; Mintchev, et al., 2012), based on an assessment of the number of the so-called “current” and “returning” migrants on average per household and the share of costs, and, respectively, of the workers’ remittances and the savings in the income received by Bulgarian citizens staying abroad. Based on this methodology, the amount of savings and the workers’ remittances by Bulgarian migrants from abroad are estimated at about 800 million EUR in 2007 (the year of Bulgaria’s accession to the EU), at 1.3 billion EUE in 2011, and at about 1.7 billion EUR in 2013.

Table 1
Estimated amounts of remittances by Bulgarian emigrants from abroad

	2007	2011	2013
Average monthly income (EUR)	810.3	896.6	1606.1
Average duration of the stay abroad (months)	13.8	18.2	14.8
Relative share of the current expenses abroad (%)	45.4	42.4	–
Relative share of the money remittances (%)	44.3	31.2	37.2
Average annual amount of the savings abroad (total) (EUR)	157 825 386	586 620 923	–
Average annual amount of the remittances from abroad (total) (EUR)	657 791 954	694 102 266	–
Savings and transfers by current and returning migrants (total) (EUR)	815 617 340	1 280 723 189	1 741 796 358

Source: Authors’ calculations using data from Mihailov et al., 2007; Mintchev, 2009; Mintchev, et al., 2016.

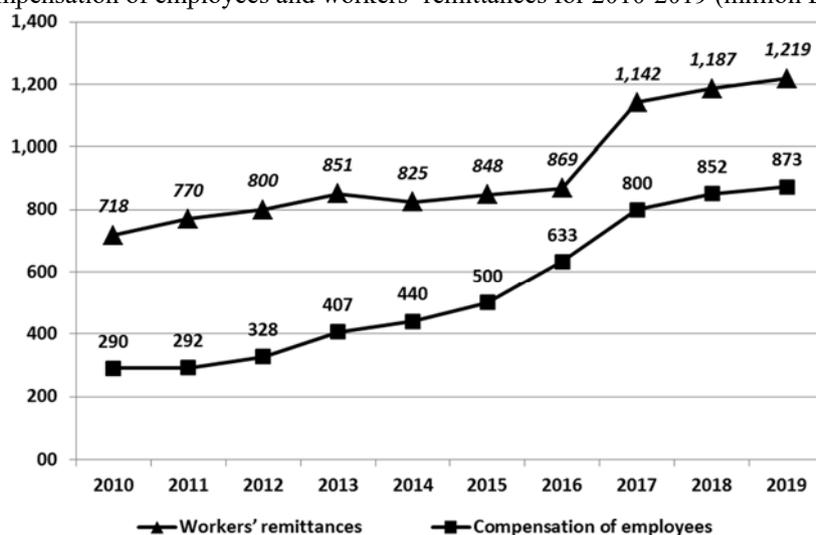
As to the geographic distribution of the remittances among the groups of regions based on the development level⁴, according to assessments from 2013, nearly 1/2 of the remittances (48%) are made to the regions of group III. Those are the regions at risk of relegation into the depression-prone group IV. They include, for example, Blagoevgrad region, Dobrich, Shumen, etc., i.e. regions, which in terms of their development level are situated, tentatively speaking, between Veliko Tarnovo and Pleven, on the one hand, and Razgrad and Montana – on the other hand. They lag behind the leaders Sofia, Varna, Stara Zagora, and Plovdiv (group I). The group of well-developed regions attracts 31% of the remittances, while the group of the so-called depression-prone regions has the lowest share of remittances from abroad (7%) (Mintchev, et al., 2016).

⁴ The development levels of the regions are assessed using the so-called “Helvig method”, also known as the “Wroclaw taxonomic method”. Zdzislaw Helvig, the author of the method, devised it for the purposes of international comparisons. The method is also suitable for measurement of the intra-territorial differences in individual countries (Boshnakov, et al., 2017, p. 94).

Workers' remittances by Bulgarian emigrants and the compensation of employees are accounted for in the balance of payments of the country after 1996. Despite the potential issues, which the methodology for measuring the workers' remittances and the compensation of employees applied by BNB (BNB, 2015) could raise in itself, the stable growth in both items is worth noting. Workers' remittances of emigrants have increased from about 718 million EUR in 2010 to about 1.2 billion EUR in 2019, and the compensation of employees (the so-called short-term emigrants) – from 290 million EUR to more than 870 million EUR (Figure 1).

Figure 1

Compensation of employees and workers' remittances for 2010-2019 (million EUR)

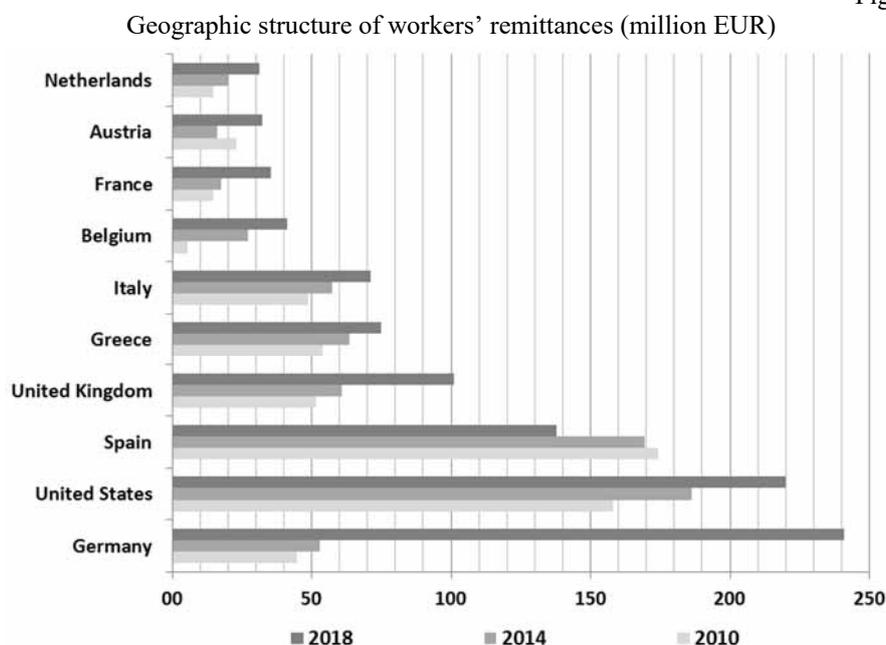


Source: Bulgarian National Bank (www.bnb.bg), retrieved on 20/11/2020.

The monetary remittances, received from the top 10 countries from where transfers to Bulgaria are being made, amount to 82-83% of the monetary funds received in the country from emigrants (Figure 2). Based on BNB data, in 2018 about 20% of the workers' remittances are wired from Germany, 18.6% – from the USA, nearly 12% – from Spain, and 8.6% – from Great Britain. The data show that the remittances from Spain have declined dramatically after 2010, and those from Germany have increased a few fold.

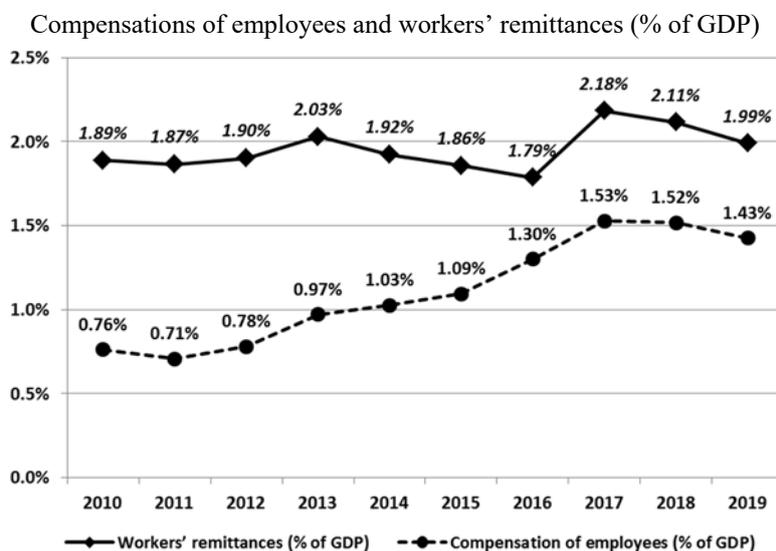
As a share in GDP, the total relative weight of both items of the balance of payments is within the range of 2.6% and 3.7% (Figure 3). This is higher than in countries like Greece (0.9%) and Romania (1.9%) but significantly lower than in Kosovo (15.1%), Bosnia and Herzegovina (10.5%), or even Croatia (4.6%). Despite their serious amounts and importance for many households, both items have no serious weight as a relative share in Bulgaria's GDP and exports. Nevertheless, it can be noted that according to BNB estimates in 2002-2006 (i.e. immediately prior to Bulgaria's accession to the EU), only the compensations of employees have reached about 5% of GDP and 10% of exports. At the same time, over the last decade, both items in total remain within the range of 4-6% of the national exports (Figure 4).

Figure 2



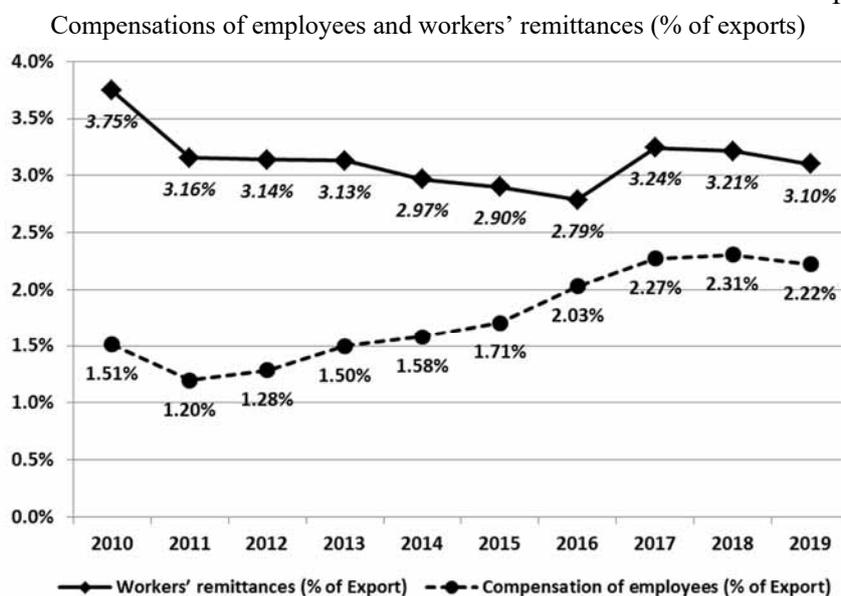
Source: Bulgarian National Bank (www.bnb.bg), retrieved on 20/02/2020.

Figure 3



Source: Bulgarian National Bank (www.bnb.bg), National Statistical Institute (www.nsi.bg), retrieved on 20/11/2020.

Figure 4

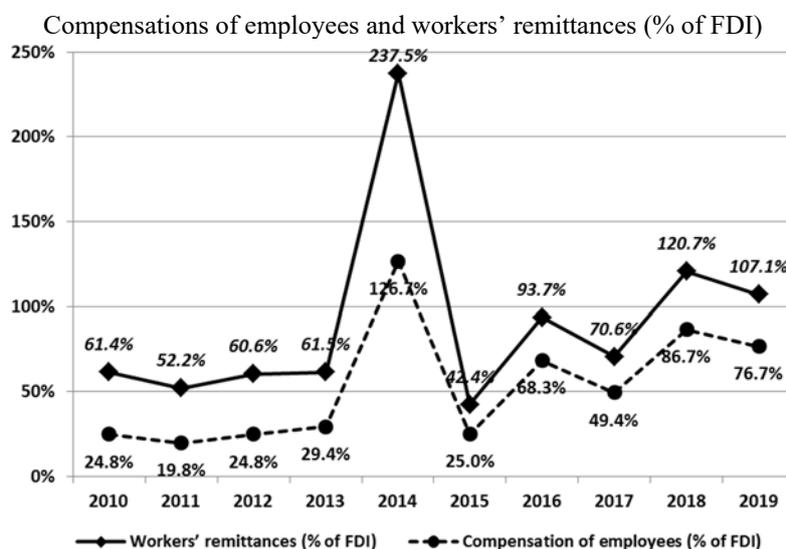


Source: Bulgarian National Bank (www.bnb.bg), National Statistical Institute (www.nsi.bg), retrieved on 20/11/2020.

The increase of the compensations of employees abroad coincides with the growth of foreign direct investments in Bulgaria prior to 2009-2010. Thus, in the 2002-2006 period, they are at levels of up to about 10% of foreign direct investments (FDI) on an annual basis. After 2009 the compensations of employees exceed 20% of FDI, and the remittances of emigrants reach 60% of FDI (Christova-Balkanska, Mintchev, 2012). The decline in the inflow of FDI during the world financial crisis and after it has resulted in a paradoxical situation – in 2014 the compensation of employees and the workers' remittances by migrants as a total have exceeded over twice the foreign direct investments in Bulgaria. It may be expected that the workers' remittances will gradually start to play an essential role for the development of business initiatives in various regions of this country (Figure 5).

On the other hand, the compensation of employees and the workers' remittances are an expression not only of the selflessness and solidarity of the emigrants with their relatives, who have remained in Bulgaria. They are an indicator of sorts of the social connections between the diaspora and the home country. The workers' remittances from abroad have a broad scope of impact. They bring financial and other benefits to households, having "current" or "returning" migrants. As time goes on, they become a serious factor for the modernization of the home country (various contacts, "first-hand" information, and new social and political experience) (Xenogiani, 2006). At the same time, as for example, a number of World Bank analyses show, the compensations and the workers' remittances from abroad also have some undesirable effects. "The overseas support" very often de-motivates the search for jobs or the starting up a business (Mansoor, Quillin, 2006; Quillin, et al., 2007).

Figure 5



Source: Bulgarian National Bank (www.bnb.bg), retrieved on 20/11/2020.

3. Investment and Entrepreneurial Activity of the Return Migrants

The economic activity of the return migrants can be assessed using the information, obtained from sample surveys. Based on information from the project “*Returning Migrants: Segmentation and Stratification of Economic Mobility*”, an evaluation can be made to what extent the returning migrants support their relatives, who have remained in the home country; what part of them support their relatives by sending them money; and what are the economic activities the re-migrants choose to develop their own business (Nonchev and Hristova, 2018; Mintchev and Boshnakov, 2018; Zareva, 2018a, 2018b).

Two main topics are reviewed in this section: (a) support for relatives who have stayed in Bulgaria, including money transferred by Bulgarian re-migrants (during their stay abroad); (b) entrepreneurial and investment activity of the returning migrants.

3.1. Support for relatives, who have remained in Bulgaria

Economic motives predominate among those which incentivize Bulgarians to emigrate. The support for relatives who have remained in the home country via workers’ remittances or otherwise is considered as a positive effect of the migration. The remittances from abroad are of substantial importance for many households in Bulgaria that potentially could bring in a “Dutch disease” effect (Bourdet, Falk, 2006), e.g. a loss of competitiveness of the domestic economy due to loss of interest for part of the local workforce on the labour market in the country of origin.

The data on Table 2 and Table 3 indicate that more than 1/2 of the respondents state that they have supported their relatives who have remained in the home country by providing money or otherwise – irrespective of whether this concerns the first or the last migration destination. Among those who have supported their relatives in Bulgaria, over 88% of the cases indicate that they have done so by remitting money, while between 5% and 9% of the cases declare support to their relatives by sending them goods or seeking employment for them. Support for the relatives does not vary substantially by the sequence of the destination – be it first or last country of migration.

Table 2
Support for relatives, who have remained in Bulgaria – first and last destination

	Did you support members of your family during your first migration?		Did you support members of your family during your last migration?	
	number	%	number	%
Yes	321	53.1	50	53.8
No	278	46.0	40	43.0
Did not know/answer	5	0.8	3	3.2
Total	604	100	93	100
Failed to respond			511	

Table 3
Ways of support for relatives in Bulgaria – first and last destination

	First country of migration			Last country of migration		
	responses		% of cases	responses		% of cases
	number	%		number	%	
Sent them money	283	82.0	88.2	42	73.7	84.0
Sent them goods for sale	17	4.9	5.3	4	7.0	8.0
Searched for job opportunities	16	4.6	5.0	5	8.8	10.0
Other	17	4.9	5.3	2	3.5	4.0
Failed to respond	12	3.5	3.7	4	7.0	8.0
	345	100.0	107.5	57	100.0	114.0

The attitudes in favour of supporting relatives who have remained in the home country are similar among returning migrants, no matter men or women. Yet, men account for about 59% among the returning migrants who support in some form their relatives residing in Bulgaria, and women account respectively for 41%. While the share of men who only support their relatives exceeds 57%, the share of women who remit money, goods or otherwise support their relatives, is about 10% lower (48%).

The data on Table 4 make evident that the younger the respondents, the weaker the attitudes in favour of supporting their relatives in Bulgaria, and vice versa – with the advancement of age the commitment of the migrants to their families who have stayed in Bulgaria increases. The share of individuals under the age of 30, or from 30 to 40 years old, among those who support their relatives, is in the range between 12% and 19%, while among the older ones (40-50 years old) – above 25%. And vice versa – among those who do not actively support their relatives, the relative share of younger generations is significantly higher.

Table 4

Support by re-migrants to those who have stayed in Bulgaria, by demographic characteristics (%)

	Does not provide support	Provides support	Total
<i>Gender</i>			
Male	42.7	57.3	100.0
Female	51.8	48.2	100.0
Total	46.9	53.1	100.0
<i>Age</i>			
Up to 30 years old	64.9	35.1	100.0
31-40 years old	52.9	47.1	100.0
41-50 years old	36.4	63.6	100.0
51-60 years old	36.0	64.0	100.0
Over 60 years old	43.2	56.8	100.0
Total	46.9	53.1	100.0
<i>Family status (in the first country)</i>			
Single	66.5	33.5	100.0
Married/Has Partner	36.1	63.9	100.0
Divorced	45.3	54.7	100.0
Widowed	38.1	61.9	100.0
Total	46.9	53.1	100.0
<i>Number of children in the household</i>			
0	50.6	49.4	100.0
1	38.1	61.9	100.0
2	37.0	63.0	100.0
3	60.0	40.0	100.0
Total	46.9	53.1	100.0
<i>Ethnicity</i>			
Bulgarian	48.3	51.7	100.0
Turkish	49.0	51.0	100.0
Roma (Gypsy)	30.8	69.2	100.0
Other	50.0	50.0	100.0
Total	46.9	53.1	100.0

Interesting information is also derived from the analysis of the monetary remittances by age groups of re-migrants, made on the basis of data from a questionnaire survey of the Bulgarian diaspora and the return migrants conducted in 2011.⁵ In this survey, the majority (61.2%) of re-migrants under 30 years old state that they have not made remittances. The individuals from 31 to 45 years old have transfer money most often (42.6% of them have remitted funds regularly, and 20.4% – irregularly). Among those over 45 years old, nearly 1/2 (45.5%) transfer regularly workers' remittances (Christova-Balkanska, Mintchev, 2012, p. 236).

⁵ These results are obtained in the framework of research project "The Bulgarian Diaspora in Western Europe: Transboundary Mobility, National Identity and Development" implemented under contract № DID 02/21 of 17.12.2009 by the Economic Research Institute at BAS and partners, with the financial support of the National Scientific Research Fund, "Ideas" Programme.

The singles and respectively the married individuals differ substantially in terms of their attitudes in favour of supporting their families in Bulgaria (Table 4). More than 63% of the married individuals support their relatives, while almost as many (66%) of the singles are unwilling to do so. Respectively, while the share of married individuals among the returning migrants supporting their relatives in Bulgaria exceeds 65%, the same share for the singles is just 20%. It should also be underlined that the Roma are the most dependent on the support from abroad – more than 70% of the Roma returning from abroad have supported their relatives in the home country. Among Bulgarians, among the Turkish community, and among the so-called “others”, the share of migrants supporting their relatives at the home amount to about 50-51% (Table 4).

The situation regarding the returnees with various education degrees looks quite interesting (Table 5). The highest share of respondents supporting their relatives is observed among individuals of lower education, and the lowest such share – among higher education graduates. These data confirm the findings in a previous study of the transfer behaviour of the Bulgarian diaspora and the return migrants (Christova-Balkanska, Mintchev, 2012, pp. 234-235). A similar pattern is observed among return migrants grouped by income intervals – the higher the income, the lower the support for relatives who have remained in the home country. On the other hand, the shares of individuals in the lower-income groups are higher in comparison to the shares of those who earn higher incomes, among the returning migrants who support their families.

The individuals who have provided support to their families and relatives remaining in Bulgaria are most numerous among the re-migrants who have stayed abroad for longer periods of time (68%), while this share among the people who have stayed abroad for less than 1 year is much lower (43%). This is not in conflict with the widespread opinion that the support for the relatives staying in the country of origin declines as time goes on. Those opinions are typically valid for the permanent migration, while the opposite case is clearly the one of circular/seasonal mobility, which has become a permanent source of income for many households in the country.

At the same time, it should be pointed out that more than 56% of the interviewed respondents in 2017 declare that they have been able to save during their stay abroad. According to the reported data, the re-migrants have succeeded to save about 12 000 BGN (on average, per individual returned). The most commonly indicated saved amounts have been between 10 000 and 20 000 BGN (33% of the respondents). Those who have saved less (up to 5000 BGN, and from 5000 to 10 000 BGN) account for 26-28%. An insignificant share is found regarding those who have saved most (between 20 000 and 50 000 BGN, as well as over 50 000 BGN) – respectively, between 2% and 6% (Table 6).

The effect of the remittances as such is more clearly visible from the comparison of the annual monetary income per household with a re-migrant, compared to the income per household in the country of origin – a substantial difference in the income distributions is found in this respect (Table 7). The first three income deciles (30%) of the households in Bulgaria have income up to 7300 BGN in 2017, while the incomes of a similar share (27.2%) of the households with a re-migrant are up to just 9600 BGN. Besides, if the lowest 1/2 of the households (first 5 deciles) in the country have an income of up to 10 166 BGN, approximately the same share (53.4%) of the households with a return migrant have incomes

of up to 14 400 BGN. The difference is not negligible – it is evident that the employment abroad provides incomes, and living standard respectively, which are not feasible by the usual employment on the local labour market.

Table 5
Support by emigrants for relatives who have remained in Bulgaria, by the level of education, income, and length of stay abroad (%)

	Does not provide support	Provides support	Total
<i>Level of education (prior to the first migration)</i>			
Primary and lower	37.0	63.0	100.0
Secondary general school	48.4	51.6	100.0
Secondary vocational school	43.6	56.4	100.0
Higher education	61.7	38.3	100.0
Total	46.9	53.1	100.0
<i>Level of income</i>			
Under 800 BGN	47.1	52.9	100.0
From 800 to 1200 BGN	32.5	67.5	100.0
From 1200 to 2000 BGN	45.9	54.1	100.0
Over 2000 BGN	54.3	45.7	100.0
Failed to respond	57.9	42.1	100.0
Total	46.9	53.1	100.0
<i>Length of stay abroad</i>			
Up to 1 year	57.0	43.0	100.0
From 1 to 3 years	42.0	58.0	100.0
More than 3 years	32.1	67.9	100.0
Total	46.9	53.1	100.0

Table 6
Distribution of respondents by savings from employment abroad

	number	%
Up to 5000 BGN	25	26.0
From 5000 to 10 000 BGN	27	28.1
From 10 000 to 20 000 BGN	32	33.3
From 20 000 to 50 000 BGN	6	6.3
From 50 000 to 100 000 BGN	2	2.1
Over 100 000 BGN	4	4.2
Total respondents	96	100.0
Refused to respond / NA	508	
Total polled	604	

Table 7

Cumulative distribution of households in Bulgaria by monetary income for 2017
(households with a returning migrant, and total household population)

	Monetary income per household with a returning migrant*			Monetary income per household in the country**	
	BGN	Cumulative %		BGN	Cumulative %
up to	2400	2.2	up to	5392	10
up to	4800	8.0	up to	6713	20
up to	7200	17.2	up to	7370	30
up to	9600	27.2	up to	8783	40
up to	14400	53.4	up to	10166	50
up to	19200	73.7	up to	11469	60
up to	24000	83.6	up to	13167	70
up to	28800	87.1	up to	15329	80
up to	33600	93.5	up to	17604	90

Notes: Calculations based on: *Survey data (2017); **Data from Bulgarian NSI (Household Budget Survey, Monetary Income by Source and Decile Groups, 2017).

3.2. Economic (business) activity of the returning migrants

One of the most important issues in the research literature is that of the utilization of monetary funds received from abroad. Typically, the information on the usage of the migrant remittances is derived from sample questionnaire surveys (Mihailov, et al., 2007; Mintchev, Boshnakov, 2006; Mintchev, et al., 2016; Boshnakov, et al., 2016). Such information has been obtained from the study conducted at the end of 2017, when over 600 returnees have been interviewed in Bulgaria.

In almost 1/2 of the cases (48.5%) the respondents indicate that they have used the funds received from return migrants for some home improvement. In 38.6% of the cases, the remitted funds have provided financial support to their relatives who have remained at home. “Purchase of a place to live” comes third (13%). One in ten persons prefers to secure the savings. The option of “starting my own business” is quoted in nearly 7% of the cases (Figure 6). While it is not among the most popular options for utilizing funds remitted by the returnees, “own business” is a sufficiently visible option for the returning individuals and their relatives.

Among those who have launched their “own business”, the development of trading outlets (35.7%) was not the only option – other alternatives were also indicated, like opening an apparel store, cafeteria, cosmetics store, etc., but also production establishments in manufacturing (23.8%), e.g. manufacturing of furniture, doors and windows. Investments in various types of services (21.4%) and transportation (11.9%) are also frequent (Figure 7).

In the majority of cases (52.4%), those developing own business, have no hired employees; their business is based on “self-employment” (especially widespread in the cases of transportation and hairdressers’ services, for example). “Up to 3 hired employees” is quoted by 1/4 of the respondents, and “from 3 to 9 employees” – by 19%. Only 1 respondent has stated that he has employed more than 10 people in business (Figure 8). It seems obvious that

this is not a case of mass development of sustainable businesses and of attracting investments into the country of origin, but of mere survival of the households whose members are engaged predominantly in circular or seasonal migration.

Figure 6

Usage of the remittances transferred by the re-migrants during their stay abroad

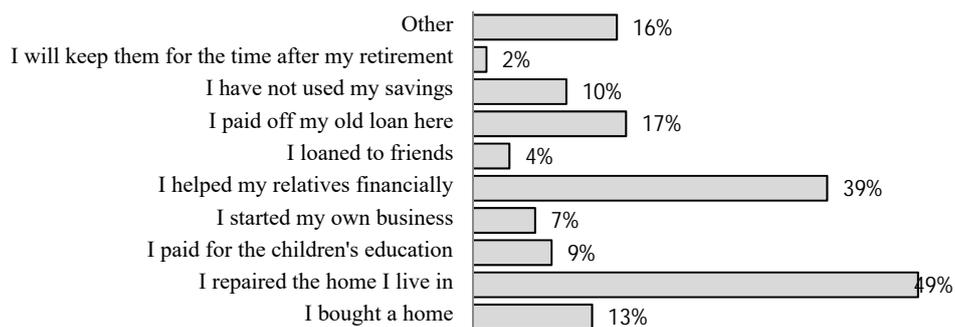


Figure 7

Areas of the business initiatives of remigrants after their return to this country

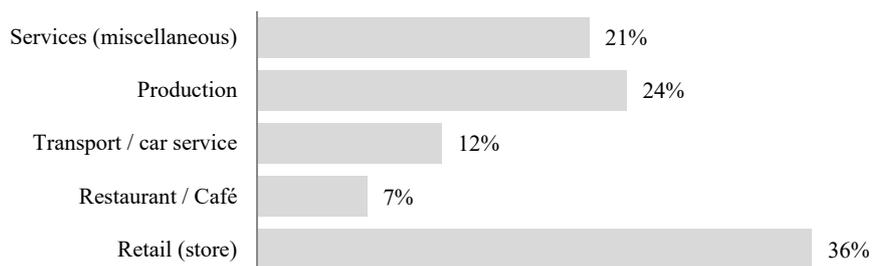
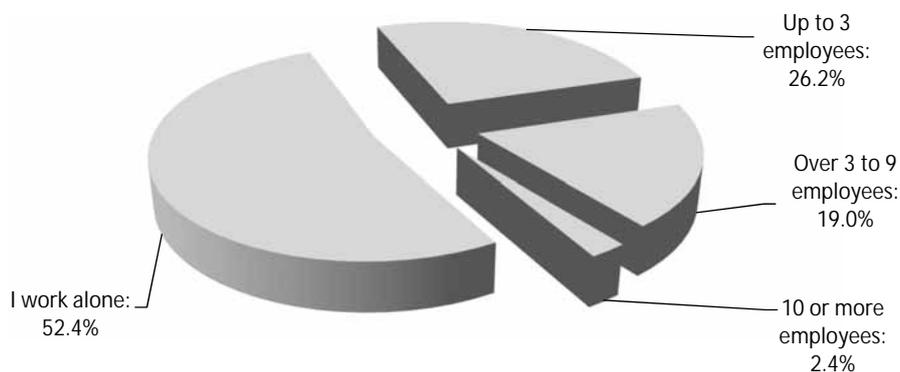


Figure 8

Numbers of employees in enterprises, established by re-migrants



4. Determinants of the Inclination of Migrants to Provide Support at Home

In addition to the descriptive analysis of the interactions among the attributes of the socio-demographic profile of returned migrants and the actual provision of support to their relatives, this study aims to identify which of those characteristics reveal statistically significant effects on the probability for any Bulgarian migrant to have rendered such support while working abroad. For this purpose, a model of binary logistic regression is built and estimated using the sample data. This approach is feasible here because a binary result is recorded when responding to the question “Did you provide support to members of your family/relatives/friends, who live in Bulgaria?” (1 – “yes”; 0 – “no”). The binary logistic regression model has the following general form:

$$\text{Ln} \left(\frac{\pi[Y = 1]}{\pi[Y = 0]} \right) = \text{Ln} \left(\frac{\pi[Y = 1]}{1 - \pi[Y = 1]} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + \varepsilon$$

The empirical results from the estimated model provide indications about those variables, which have a statistically significant effect on the probability $\pi[Y=1]$ for a given respondent to be classified into group “1” (i.e. who have provided support to relatives), unlike $\pi[Y=0]$ for being classified into group “0” (have not provided support). Generally, the parameters of such a model can be estimated by the maximum likelihood method using random sample data (Green, 2003).

In order to estimate the logistic regression model, it is necessary to define a range of independent variables which are expected to have a significant impact on the actual support of relatives in Bulgaria during their stay abroad. Each potential determinant is presented by one or more binary “dummy” variables (each of them encoded as 0 or 1). For the purposes of interpretation of the results, a “reference group” of respondents is defined in order to serve as a basis for comparison of the result obtained for any other group of respondents indicated by the target dummy variable. Table 8 provides information on each socio-demographic characteristic of the respondents and their migration experience, together with the range of independent binary (dummy) variables, specifically created for inclusion of the respective determinant into the binary logistic regression model.

Of special interest for the analysis of the determinants is the migration experience captured in the framework of the survey instrument by several characteristics. It is expected that the differences among the respondents in regard to these variables would have a significant influence on the attitude (and/or the possibility) for the migrants to provide support to their relatives in Bulgaria during their stay abroad. The characteristics selected for input into the model are:

- Duration of the stay abroad (total sum of all periods of stay abroad) – differentiation is adopted between respondents who have stayed for a short time (up to 12 months) from those who have stayed for: (a) over 1 up to 3 years; (b) over 3 years.
- Presence of relatives or other kin abroad (reflects the potential involvement of the respondent in migrants’ networks).

- Work under official labour contract (reflects the occupation of a legal job).
- Successs in saving a portion of the earnings (expected to reflect the intentional behaviour towards generation of remittances).

Table 8

Determinants of the probability for support of relatives/family in Bulgaria during the stay abroad

Determinants	Variables in the model
<i>Socio-demographic profile</i>	
Gender	female (1 – female; 0 – male) Reference category: <u>males</u>
Age	age30 (1 – age up to 30 years old; 0 – other) age3140 (1 – age 31-40 years old; 0 – other) age4150 (1 – age 41-50 years old; 0 – other) age5160 (1 – age 51-60 years old; 0 – other) Reference category: respondents <u>over 60 years old</u>
Education level	basic (1 – primary or lower; 0 – other) secgen (1 – secondary general; 0 – other) secvoc (1 – secondary vocational; 0 – other) Reference category: <u>tertiary educated</u> respondents
Family status	married (1 – married; 0 – other) Reference category: respondents <u>who never married</u> , divorced or widowed
Children living in the household	children (1 – yes; 0 – no) Reference category: respondents from <u>households without children</u>
Ethnicity	Turkish (1 – Turkish; 0 – other) Roma (1 – Roma; 0 – other) Reference category: <u>Bulgarian</u> or other
<i>Migration experience</i>	
Presence of relatives/ friends abroad	famfriends_ab (1 – yes; 0 – no) Reference category: respondents, who <u>have no kin (relatives, friends) abroad</u>
Duration of the stay abroad	Length 3.2 (1 – duration from 1 to 3 years; 0 – other) Length 3.3 (1 – duration over 3 years.; 0 – other) Reference category: respondents with a total duration of the stay abroad <u>of up to 1 year</u>
Work based on labour contract (during the stay abroad)	labcontr (1 – yes; 0 – no) Reference category: respondents, who worked abroad but <u>having no official labour contract</u>
Saving of portion of the earnings	saving (1 – yes; 0 – no) Reference category: respondents, who declare that they were <u>unable to save money</u> during the period of working abroad

The results of the estimated model are presented on Table 9.

Table 9

Results from the binary logistic regression model

Dependent variable: Provision of support to relatives / family in Bulgaria during the stay abroad (1 – yes; 0 – no)

Variables	B	Exp[B]
Gender (females)	-0.223	0.800
Age (up to 30 years old)	-1.207 ***	0.299
Age (31-40 years old)	-0.960 ***	0.383
Age (41-50 years old)	-0.103	0.902
Age (51-60 years old)	0.147	1.159
Education completed (primary or lower)	0.889 ***	2.433
Education completed (secondary general)	0.771 ***	2.162
Education completed (secondary vocational)	0.690 ***	1.995
Family status (married)	0.059	1.060
Children living in the household (yes)	0.632 ***	1.882
Ethnicity (Turkish)	-0.484	0.617
Ethnicity (Roma)	0.476	1.610
Presence of relatives abroad	-0.297	0.743
Duration of the stay (1-3 years)	0.521 **	1.683
Duration of the stay (over 3 years)	0.749 ***	2.114
Work under labour contract (yes)	0.508 **	1.661
Saving of portion of the earnings	0.427 **	1.533
Intercept (beta-0)	-0.812 **	0.444
№ of observations	604	
Nagelkerke R square	0.213	

Note: The critical level of significance of the Wald test: * 0.10; ** 0.05; *** 0.01. Exp[B] measures the odds ratio: the likelihood of classification into group 1 (provided support) compared to that for group 0 (did not provide support).

Source: Authors' calculations.

4.1. Socio-demographic profile

In regard to half (three) of the variables included to take into account the potential influence of the socio-demographic profile, no statistically significant effect is established on the probability of “supporting relatives at home“.

- Under equal other conditions, gender has no connection to the declared support of relatives/family in Bulgaria by the migrants during their stays abroad (the empirical level of significance of the parameter estimate for the respective variable exceeds the maximum threshold of 0.10). A conclusion can be drawn that the (lack of) support to relatives/family in Bulgaria during the stay abroad does not differ substantially for women compared to men.
- No statistically significant effect on the support to relatives in Bulgaria is identified for neither family status nor ethnicity: (a) married migrants do not differ from the single ones; (b) there are no significant differences between representatives of Turkish or Roma communities, compared to the reference group (Bulgarian).

Significant dependencies are found in regard to the other three characteristics.

- Significant differences are registered between the young and the oldest of migrants (reference category: 60+ years old), particularly for the respondents in the age intervals of “up to 30” and “31-40” years old. The negative signs indicate a much lower odds ratio of those classified into group 1 (i.e. supporting their relatives in Bulgaria), compared to those classified into group 0 (i.e. not supporting) among persons up to 40 years old, compared to the oldest ones. Furthermore, the Exp[B] value for the age group of “up to 30” years old is about 0.3, which indicates an odds ratio for the youngest returnees much lower than the ratio for the oldest ones (that value for the age group “31-40” years old is 0.38). On average, less frequent practices of supporting the relatives in Bulgaria are identified among migrants of younger age, compared to those of older age. The coefficients for the age intervals of “41-50” and “51-60” years old are statistically insignificant, i.e. the individuals of and above middle age do not differ substantially from the oldest ones in terms of the practices for supporting their acquaintances at home (more frequently, compared to those among young migrants).
- Concerning the “children living in the migrant’s household” variable, a clear-cut result is obtained – a positive and very significant coefficient. Its transformed value (1.88) shows that the odds ratio for persons in households with children is in a proportion of about 65:35 compared to that for persons with no children. This result clearly shows (under equal other conditions) that the practices of supporting relatives in Bulgaria during a migrant’s stay abroad among persons from households with children are much more frequent than the practices among those with no children, which conforms to the initial expectations.
- Statistically significant effects are obtained in regard to the impact of three education variables – primary, secondary general, secondary vocational. This indicates that persons having no higher education differ substantially from those in the reference category (with higher education) in terms of the practices for supporting relatives in Bulgaria. The positive sign indicates a higher odds ratio among persons of lower education compared to the better-educated ones. The figure of over 2 for the value of Exp[B] indicates that for lower-educated migrants, the ratio between the probabilities of indicating “support” and “lack of support” is more than double the same ratio assessed for persons with higher education.

4.2. Migration experience

The expected effect on the probability of providing support to relatives in Bulgaria is not found only for one of the four variables (“presence of relatives or close friends abroad”) included into the model for taking into account the migration experience of the respondents. Therefore, under equal other conditions, no significant difference is estimated between the odds ratios for returnees having personal contacts abroad, compared to those with no such contacts. The three remaining characteristics of the migration experience demonstrate the expected effects on the practices of support to relatives/kin in Bulgaria.

- A significant net interaction, under equal other conditions, is found between the practices for supporting those left in Bulgaria and for saving money during the stay abroad. The estimated positive and very significant parameter estimate (with the transformed value of $\text{Exp}[B]=1.53$) shows that the odds ratio for persons who succeed to save a portion of their earnings abroad is over 50% higher than the ratio among persons without any savings abroad. Clear empirical evidence is found in support of the statement that the re-migrants who have been saving while abroad, are much more frequently responding “supported relatives/family in Bulgaria” than those who have been unable to save while abroad.
- Even stronger result is estimated in respect of the duration of stay – when comparing migrants who have resided abroad for a total duration of the stays from 1 to 3 years with those in the reference group (short-term stays of up to 1 year), the estimated odds ratio is 1.68 higher than the one among individuals staying for a short period (up to 1 year). The odds ratio is even higher (above 2.1) among individuals staying abroad for longer periods of time (over 3 years) in comparison to those staying for short periods, i.e. the persons having short migration experience. For migrants with extensive migration experience, the ratio of the probability of supporting their relatives in Bulgaria during their stay abroad, compared with the probability of not doing so, is about double the similar ratio of probabilities among the migrants with short migration experience.
- The third factor originating from the migration experience is the work under an official labour contract abroad. The estimated positive and strongly significant coefficient (with a transformed value of $\text{Exp}[B]=1.66$) indicates that the odds ratio for persons who have worked under a labour contract abroad, is about 2/3 higher than that among persons who have worked without such a contract. The model provides clear empirical evidence that the returned migrants with legal jobs abroad much more often responded that “support relatives/family in Bulgaria” compared to those with no official labour contract.

5. Conclusion

The effects of the workers’ remittances of emigrants are multi-faceted. They can be assessed at macro-level using data from the balance of payments of the countries under review, as well as on micro-level using information from sample surveys. Bulgaria is among the top 10 countries of Eastern Europe and the post-Soviet area by amounts of compensation of employees abroad and workers’ remittances transferred by the emigrants. However, the relative share of the workers’ remittances in the GDP of the country is up to 3.5% – significantly lower than the shares of remittances in countries like Albania and Bosnia and Herzegovina (9-10%), but higher than in Greece and Romania (1-2%). It should be underlined that over the last decade, the remittances received from emigrants significantly exceed the foreign direct investments in the country.

The profile of the returning migrants who have supported their relatives (and have sent most frequently remittances during their stay abroad) is a specific one. Those are mainly individuals who have stayed abroad for lengthy periods of time (between 1 and 3 and for more than 3 years), with rather modest incomes and lower education. They are typically older, married, and have children. While the re-migrants who have less often supported their

relatives in Bulgaria are their “exact opposite”. They tend to be younger (up to 40 years old), with a superior education degree (secondary vocational or higher education) and relatively higher incomes. They are typically single and stay abroad for periods of less than 1 year.

The businesses, which returning migrants and their families are oriented to, most often imply “self-employment” (e.g. small retail outlets, taxi services, cafeterias/restaurants, hairdresser shops, etc.). Gradually, small and medium-sized enterprises for manufacturing of clothes, furniture, etc., proliferate. The profile of the re-migrants who more actively support their relatives, as well as the types of business which they aim to develop, indicate that these are cases of predominantly circular/seasonal migration, due to which many households in the country generate funds just to maintain an acceptable living standard.

References

- Bakalova, M., Misheva, M. (2018). Explanations of economic rationality challenged: Contemporary return migration to Bulgaria. – *Ikonomicheski Izsledvania*, Vol. 27, N 2, pp. 80-101.
- BNB. (2015). Methodological notes on the construction of the Balance of Payments of Bulgaria (According to the 6th edition of the IMF "BoP and IIP Manual"). Sofia: Bulgarian National Bank. [БНБ. (2015). Методологически бележки по съставяне на платежния баланс на България (съгласно шестото издание на Ръководството по платежен баланс и международната инвестиционна позиция)]. Българска народна банка, София].
- Boshnakov, V. (2019). Future plans of Bulgarian circular migrants: Empirical evidence from bus travellers. – *Ikonomicheski Izsledvania*, Vol. 28, N 1, pp. 80-94.
- Boshnakov, V., Mintchev, V., Shopov, G., Kaltchev, I. (2016). Migration of Bulgarian population – characteristics and relations to the regional socio-economic disparities. – *Ikonomicheski Izsledvania*, Vol. 25, N 5, pp. 45-78.
- Bourdet, Y., Falck, H. (2006). Emigrants’ remittances and Dutch Disease in Cape Verde. – *International Economic Journal*, Vol. 20, N 3, pp. 267-284.
- Christova-Balkanska, I., Mintchev, V. (2012). Monetary remittances and income (empirical evidence from return migrants and Bulgarians residing in Spain). – In: Mintchev, V. et al. *Bulgarian Emigration: Theories, Policies, Empirical Studies*. Sofia: “Ikopis”, pp. 221-246. [Христова-Балканска, И., Минчев, В. (2012). Парични трансфери и доходи (емпирични свидетелства на примера на завърналите се емигранти и на българите в Испания). – В: Минчев, В., и др., *Българската емиграция: Теории, политики, емпирични изследвания*. София: Изд. „Икопис“, с. 221-246].
- De Haas, H., Fokkema, T., Fihri, M. F. (2015). Return migration as failure or success? The determinants of return migration intentions among Moroccan migrants in Europe. – *Journal of International Migration and Integration*, Vol. 16, N 2, pp. 415-429.
- Gittins, T., Fink, M. (2015). Return migration, informal learning, human capital development and SME internationalization in the CEE region: A systematic literature review. – *Journal of East European Management Studies*, Vol. 20, N 3, pp. 279-303.
- Greene, W. H. (2003). *Econometric Analysis*. Upper Saddle River, NJ: Pearson Education Inc. (Ch.21.3 “Models for binary choice”, pp.665-668).
- IMF. (2013). *Balance of Payments and International Investment Position Manual*. 6th edition. Washington DC: International Monetary Fund.
- Ivanova, V. (2012). Return migration: Existing policies and practices in Bulgaria. – In: *Welcome Home? Challenges and Chances of Return Migration*. Transatlantic Forum on Migration and Integration. Sofia: “Maria Arabadjieva” Printing House, pp. 8-18.

- Mansoor, A., Quillin, B. (eds.). (2006). *Migration and Remittances: Eastern Europe and the Former Soviet Union*. Washington, DC: The World Bank.
- Mihailov, D., Mintchev, V., Boshnakov, V., Nikolova, K. (2007). *Family Models and Migration*. Sofia: UNDP and Centre for Comparative Studies. [Михайлов, Д., Минчев, В., Бошнаков, В., Николова, Кр. (2007). Семейни модели и миграция. Фонд на ООН за население и Център за сравнителни изследвания, София.].
- Mintchev, V. (2009). *International migration and remittances in the Balkans: The case of Bulgaria*. – In: Nowotny E., Mooslechner, P., Ritzberger-Grunwald, D. (eds.). *The Integration of European Labour Markets*. Edward Elgar, p.177-205.
- Mintchev, V., Boshnakov, V. (2006). *The Economics of Bulgarian Emigration – Empirical Assessment*. – *Economic Thought*, Vol. 51, N 7, pp. 134-161.
- Mintchev, V., Boshnakov, V. (2018). *The Choice of Bulgarian Migrants – Stay or Leave Again?*. – *Ikonomicheski Izsledvania*, Vol. 27, N 2, pp. 45-64.
- Mintchev, V., Boshnakov, V., Richter, M., Ruspini, P. (2016b). *Determinants of migration and types of migration and mobility*. – In: Nollert, M. et al. (eds.). *Migration and Transnationalism Between Switzerland and Bulgaria*, Springer International Publishing, pp. 25-60.
- Mintchev, V., Markova, E., Misheva, M., Zareva, I., Christova-Balkanska, I., Kaltchev, I., Boshnakov, V. (2012). *Bulgarian Emigration: Theories, Policies, Empirical Studies*. Sofia: “Ikopis”. [Минчев, В., Маркова, Е., Мишева, М., Зарева, И., Балканска, И., Бошнаков, В., Калчев, Й. (2012). *Българската емиграция: Теории, политики, емпирични изследвания*. София: Изд. „Икопис“].
- Mintchev, V., Shopov, G., Kaltchev, I., Boshnakov, V. (2016a). *Migration of Bulgarian Population – Characteristics and Relations to Regional Socio-Economic Disparities*. – *Ikonomicheski Izsledvania*, Vol. 25, N 5, pp. 45-79.
- Nonchev, A. (2019). *The remigration: Causes and sustainability (the Bulgarian case)*. – *Ikonomicheski Izsledvania*, Vol. 28, N 1, pp. 72-79.
- Nonchev, A., Hristova, M. (2018). *Segmentation of Returning Migrants*. – *Ikonomicheski Izsledvania*, Vol. 27, N 2, pp. 3-24.
- Quillin, B., Segni, C., Sirtaine, S., Skamnos, I. (2007). *Remittances in the CIS countries: A Study of Selected Corridors*. – *WB Chief Economist’s Working Paper Series, Europe and Central Asia Finance and Private Sector Development Department*, Vol. 2, N 2.
- WBG. (2019). *Migration and Remittances, April 2019: Recent Developments and Outlook. Migration and Development Brief No. 31*. Washington, DC: The World Bank Group and Knomad.
- Xenogiani, T. (2006). *Migration Policy and its Interactions with Aid, Trade, and Foreign Direct Investment Policies: A Background Paper*. – *OECD Development Centre Working Papers 249*, OECD Publishing.
- Zareva, I. (2018a). *Policies for encouraging the return of Bulgarian migrants to Bulgaria*. – *Ikonomicheski Izsledvania*, Vol. 27, N 2, pp. 65-79.
- Zareva, I. (2018b). *Returning migrants – Effects on the labour market in Bulgaria*. – *Ikonomicheski Izsledvania*, Vol. 27, N 2, pp. 102-114.
- Zareva, I. (2019). *Participation of returning migrants in the labour market in Bulgaria*. – *Ikonomicheski Izsledvania*, Vol. 28, N 1, pp. 95-104.
- Zareva, I. (2021). *(Re) Integration of Returning Migrants into the Economic Life in Bulgaria*. – *Ikonomicheski Izsledvania*, Vol. 30, N 1, pp. 19-34.

RETURNING MIGRANTS – SUCCESS OR FAILURE³

The article examines the returning Bulgarian migrants in terms of the net result of their migration movements, perceived as successful or unsuccessful. The main criterion for assessing the success of the migration is the self-assessment of remigrants for the degree of achievement of the initial departure goals. The understanding of their quantitative and qualitative dimensions is specified by taking into account the nature of the motives for the initial departure from the country, the reasons and the sustainability of the return. The factors for success or failure, as well as the social profile of successful and unsuccessful remigrants are analyzed. The accomplished upward or downward social mobility of the returned migrants is thematized, taking into account both subjective (self-perceptions of the returned migrants) and objective indicators for assessing the changes in their socio-economic status and quality of life.
JEL: A14; F22; J61

1. Research Methodology

This paper presents selected findings of an empirical study based on a national quantitative survey implemented within the scientific project “Returning Migrants: Segmentation and Stratification of Economic Mobility”. It was conducted among 604 migrants, who returned to Bulgaria at the age of 18 and higher in nine districts of the country: Sofia-city, Plovdiv, Varna, Pleven, Stara Zagora, Dobrich, Kardjali, Yambol and Montana, located in all administrative planning areas (South West, South Central, South East, North East, North Central, and North West) and in different types of settlements (capital city, district city, small town, village).

The scope of the survey population is determined by two main criteria: a) Bulgarian adults who have worked once or repeatedly abroad for three months or more in the last 10 years or have resided outside Bulgaria for the purpose of education, caring for the household of

¹ Andrey Nonchev, University of National and World Economy, Bulgaria, phone: +359-888-721717, e-mail: andrey.nonchev@unwe.bg.

² Marieta Hristova, University of National and World Economy, Bulgaria, phone: +359-897-979528, e-mail: marieta.hristova@unwe.bg.

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relatives abroad, caring for children, accompanying a family member; b) persons, who have returned permanently to Bulgaria or are returning periodically due to the nature of their work.

The method of collecting information is a direct standardized interview (face to face) at the respondent's home. The fieldwork was carried out in the period 28.10.2017 – 20.11.2017.

2. Achievement of Goals, Reasons for and Sustainability of Return

Returning from migration is considered in the overall context of international mobility either as a moment or as an end. Migration movements and return, in particular, are characterized by their complexity, diversity and dynamics. Numerous and sometimes contradictory theoretical explanations of migration attempt to capture the heterogeneity, overlap, and variability of both the reasons for migratory movements and their socio-economic effects (Krsteva, 2014). Despite the extreme diversity of migration processes, the return can generally be interpreted from two perspectives (Piore, 1979; Bartram et al., 2014, p. 121-124).

First, return as a success. Migrants go abroad with the intention of returning after having achieved the goals of their migration project. In this case, the return is an indication of its success.

Second, return as a failure. In cases when the goals of migration have not been achieved, the return to the country of origin can be perceived as a failure.

This distinction is also empirically registered in relation to migrants returning to Bulgaria. The motive for the return "I did what I left for" is indicated by 40.7% of the remigrants (as a first reason – by 21.2%, as a second – by 12.9%, and as a third – by 6.6%). Almost 3/4 of the respondents (74.5%) give a positive answer to the question "Did you manage to achieve what you went abroad for?". The remaining 26% are not satisfied with what they have achieved during their stay abroad. The category of "successful migrants" who had specific plans (training, earning a certain amount of money, acquiring property, performing a specific activity/task, etc.) and return after their completion stands out.

Estimates of the quantitative and qualitative dimensions of the "successful-failed" remigrants ratio can be refined, taking into account the objectives of the initial departure, the causes and sustainability of the return.

Objectives of remigrants on initial departure

The reasons for the initial migration of returned "successful" and "failed" migrants are presented on Table 1. **The main reasons for the initial departure for both groups of migrants are economic in nature, related to "Work – Income – Standard" triad ("WINS")** (Nonchev, Hristova, 2018, pp. 3-24). This motivational complex is more clearly expressed among those who perceive their migration as unsuccessful, especially when the complex nature of its causes is taken into account. Among those who assess their emigration as a failure, "to earn a higher remuneration" (74.7%), "to find a better job" (38.3%) or work

at all (22.7%), “ambition for a higher standard of living” (37%), dominate among the three main reasons for leaving the country initially.

Table 1
Reason for initial migration by the achievement of migration goals (%)

Reasons for migration	Success		Failure	
	First answer	Up to 3 answers	First answer	Up to 3 answers
To enjoy an environment of a higher standard of living	7.3	24.7	13.0	37.0
To earn a higher remuneration	34.0	67.1	30.5	74.7
To find a better job	9.6	38.4	13.0	38.3
I was unemployed in Bulgaria	10.4	18.4	11.7	22.7
For better professional development	3.1	14.7	1.9	12.3
To develop my own business	0.4	1.8	0.6	5.2
To support my family or other relatives in Bulgaria	4.2	33.3	3.9	27.9
To join parents and/or relatives	15.6	19.6	12.3	17.5
To accompany spouse, partner, parents, children	4.2	7.6	4.5	5.2
To be united in marriage/civil union	0.0	0.7	0.6	1.3
To receive desired education	3.3	4.4	2.6	2.6
To ensure better education/future for my children	2.4	6.2	3.2	6.5
To apply for foreign citizenship for myself and my family	0.0	1.1	0.0	1.9
Business trip / official mission	3.1	4.9	0.6	1.3
I felt discriminated in Bulgaria	0.2	2.7	0.0	3.2
I simply did not wish to live in Bulgaria any longer (due to lack of perspectives, unclear rules, poor social environment, crime, corruption practices etc.)	2.0	10.0	1.3	9.1
Did not respond	0.0	44.4	0.0	33.1

Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

Family reasons, which also have an economic dimension, are stated to a greater extent by those who assess their emigration as successful – “to support my family or other relatives in Bulgaria” (33.3%), “to join parents and/or relatives” (19.6%), “to accompany spouse, partner, parents, children” (7.6%), “marriage/partnership” (0.7%).

Those who define themselves as successful remigrants indicate more often reasons related to personal and professional development such as better professional realization or provision of desired education, as well as going on a business trip / official mission abroad. Achieving the goal of “starting my own business” is rather not fulfilled and is indicated mainly by those who declare their emigration unsuccessful.

About 12% of returned migrants have left the country due to reluctance to live in an atmosphere they perceive as intolerable.

The complex nature of the reasons for emigration of remigrants is presented on Table 2. Successful emigrants, who declare that they have fulfilled what they have left for, indicate as reasons for departure mainly the combination “WINS” – “Family” (40%), only “WINS”

(17.2%), “WINS” – “Personal development” (12.2%), only “Family” (11.3%), “Joy” – “Unbearable atmosphere” (5.9%), only “Personal development” (4.6%).

Table 2
Combined reasons for initial migration of “successful” and “failed” migrants based on the 3 answers (%)

Reasons	Success	Failure	All respondents
“WINS“ („Work-INcome-Standard“)	19.6	26.0	21.2
“WINS“ and family	40.0	42.9	40.9
“WINS“ and personal development	11.8	10.4	11.4
“WINS“ and unbearable atmosphere	6.7	8.4	7.1
Family	8.9	2.6	7.1
Personal development	3.1	0.0	2.3
Family and personal development	1.6	1.3	1.5
Family and unbearable atmosphere	1.1	0.0	0.8
Personal development and unbearable atmosphere	0.2	0.0	0.2
Other combinations	7.1	8.4	7.5

Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

The general conclusion from the presented data is that the self-assessment of success or failure of migration is determined primarily by the achievement of its economic goals, which dominate the initial departure abroad. At the same time, **among the successful remigrants, the achievement of goals related to family, personal and professional development is more common.** These goals are much less likely to motivate the migration of the unsuccessful, for whom it is more of a forced economic nature, caused by the need to find (better) jobs, to provide higher incomes and a higher standard of living.

Reasons for return and success of the migration

The economic reasons for return play a significantly smaller role than in the initial departure of both successful and unsuccessful returned migrants.

Those who assess their emigration as unsuccessful indicate to a greater extent economic reasons for return. At the same time, more than 1/3 of them (37%) do not indicate an economic reason for return as a first main reason. Those who assess their emigration as unsuccessful declare a predominantly “negative” economic motivation related to “push factors” in the host country. They state reasons as “it is difficult to find a legal employment (with a formal contract and insurance) in the country of residence” (29.2%), “I lost my job/ could not find a job in the country of residence” (22.1%), “It was not worth it – higher incomes, but also higher expenses in the country of residence” (19.5%), “I paid high taxes and social security contributions in the country of residence” (3.2%). Returning migrants thus attribute their failure to external “objective” circumstances rather than about themselves.

The share of the declared reasons for return, related to the opportunity for professional growth and development of own business in the country, is larger among the successful remigrants:

“professional realization in Bulgaria” (9.3%), “opportunity for better job/business in Bulgaria” (8.4%), “to develop my own business/to invest here” (6.2%).

Table 3
Economic reasons for return of migrants by achievement of migration goals (%)

Economic reasons for return	Success		Failure	
	First answer	Up to 3 answers	First answer	Up to 3 answers
I expect living conditions in Bulgaria to improve	7.6	18.9	10.4	18.8
It was not worth it (higher incomes but higher spending in the country of residence)	3.1	7.8	8.4	19.5
I paid high taxes and social security contributions in the country of residence	0.7	2.7	0.6	3.2
I lost my job / I was not able to find a job in the host country	4.7	9.6	11.7	22.1
It is difficult to find legal employment (with official contract and insurance) in the country of residence	2.2	8.0	11.0	29.2
Opportunities for better job/business in Bulgaria	3.3	8.4	0.0	3.2
Professional realization in Bulgaria	3.1	9.3	1.9	6.5
To develop my own business / to invest in Bulgaria	3.1	6.2	0.6	2.6
I am sent on business trip in Bulgaria	0.7	0.9	0.0	0.0
Restoration/acquisition of property in Bulgaria	2.0	4.0	0.6	2.6
Deterioration of economic situation in the country of residence	2.4	8.0	1.9	8.4
My job was seasonal/temporary	25.6	34.0	14.3	26.0
Another economic reason	0.4	2.2	1.3	2.6
I did not come back for economic reason	41.1	45.8	37.0	44.2

Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

A specific category of remigrants are the seasonal workers. Their share among economically motivated returnees who assess their emigration as successful is approximately 1/3 (34.0%), while among the unsuccessful it is 1/4 (26%). In this case, the very possibility of carrying out seasonal activity is probably important and can be assessed as successful or unsuccessful depending on the degree of achievement of the dominant economic goals.

The structure of the reasons for return differs significantly from that of the reasons for initial departure in both groups – successful and unsuccessful remigrants. The most important are the family motives – “attachment to the family and my relatives in Bulgaria”, “to be with my children in their upbringing or education”, “care for the elderly or a sick relative”, “I wanted to get married in Bulgaria and live here”, “I retired”. The family motives predominate among the three most important reasons for return.

More than half (53%) of successful emigrants reaffirm that they return because they have achieved what they have left for. The role of social and emotional motives is also significant, both in terms of the growing attractiveness of the home country (pull factors) and the role of “push factors” in the host country. Among the emotional factors attracting to Bulgaria, the most obvious is the effect of “nostalgia for the home country” in both groups (Bakalova,

Misheva, pp. 80-101). The difficult adaptation in the host country is declared almost twice as often as a reason for return by those who assess their emigration as unsuccessful (25%) than by those who consider it successful (13%). Reasons for return, such as “insecurity for immigrants in the country of residence” (23.4%), “impossibility to legalize stay in the host country” (13.0%), “intolerance/discrimination in the country of residence” (11.7%), prevail among the unsuccessful remigrants compared to the successful ones.

Table 4
Non-economic reasons for return of migrants by the achievement of goals (%)

Non-economic reasons for return	Success		Failure	
	First answer	Up to 3 answers	First answer	Up to 3 answers
Attachment to the family and my relatives in Bulgaria	33.6	56.4	40.3	54.5
Care for an elderly or sick relative	8.2	13.8	10.4	16.2
Continuing my education in Bulgaria	1.8	2.9	2.6	3.9
Being with my children in the period of their upbringing and education	6.0	16.9	5.2	16.2
I want to marry in Bulgaria and live here	2.9	5.8	2.6	6.5
I have retired	3.3	4.9	0.0	0.6
Impossibility of legalizing the stay in the country of my previous stay	0.7	2.9	4.5	13.0
Intolerant/discriminatory attitude in the country of previous stay	0.2	2.7	3.9	11.7
Insecurity for immigrants in the country of previous stay	0.9	5.8	5.8	23.4
Non-voluntary expulsion from the country of previous stay	0.0	0.4	0.0	0.6
Homesickness	5.3	25.8	3.2	24.7
Entry into politics and social life in Bulgaria	0.2	0.9	0.0	0.6
I have failed to adapt to the foreign country	2.2	13.1	7.8	25.3
I have accomplished all that I have had set out to achieve	27.3	52.9	3.2	5.2
I simply do not wish to live abroad any longer	2.9	15.3	3.9	17.5
Health related reasons (sickness, operation)	1.8	2.0	3.2	3.2
Other	2.7	4.7	3.2	5.8

Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

Sustainability of return

According to the migrants’ initial intentions, several categories are distinguished (King, 2000):

- “Migrants with a purpose” who are leaving their home country with the intention to return and who actually return. They have specific plans and return after achieving the goal placed behind their mobility (education, earning a certain amount of money, buying property, performing specific activities/tasks, etc.).
- Migrants with the intention of permanent emigration, who nevertheless return. Reasons for remigration could be external and coercive, personal or family, favourable changes in the country of origin or deterioration of the situation in the destination country.

- Migrants, who intend to stay abroad temporarily and who do not return (for example, students who remain in the host country or labour migrants who have not planned but have decided to stay permanently in the host country).
- Migrants, who are leaving with the intention of not returning.

Empirical evidence confirms the existence of some relation between remigrants' initial projects and the sustainability of return (Mintchev, Boshnakov, 2018, pp. 45-64) (Table 5).

Table 5

Initial migration projects by the sustainability of return (%)

	Initial intention - permanently	Initial intention- temporarily	No specific intention	Total
I would like to stay in Bulgaria	42.4	63.6	51.8	59.7
I would like to leave again permanently	36.4	7.1	20.5	12.1
I would like to leave again temporarily	21.2	29.4	27.7	28.2

Source: Nationwide quantitative survey, as part of the project "Returning Migrants: Segmentation and Stratification of Economic Mobility".

The obtained data give grounds for several empirically substantiated statements:

First, returning migrants, who intend to remain permanently in Bulgaria, prevail (59.7%). It is noteworthy that their share is about 15 percentage points lower than that of those who indicated that they have achieved what they went abroad for (74.5%). This means that even for "successful" remigrants, the return is not always final. The highest is the share of returning migrants with the intention to remain permanently in Bulgaria among those who were initially oriented towards temporary emigration – 63.6%. Among those who intend to leave forever, this share is 42.4%, and among those who did not have clear migration plans – 51.8%. Those who left with the intention of their stay abroad to be temporary and at the same time have achieved the goals of their migration reach 79.0%.

Second, the stay in Bulgaria is only a phase of mobility for 28.2% of returning migrants who intend to leave again, but temporarily and without seeking to settle permanently abroad. Attitudes to new temporary migration remain relatively stable among returning migrants, irrespective of their original projects. Their share ranges between 21.2% for people, oriented towards permanent leave and 29.4% – towards temporary migration. For remigrants with such an attitude, success is expected and/or partial rather than accomplished.

Third, the category of returnees who intend to emigrate permanently is 12.1%. For the most part, it can be argued that they failed to achieve their migration goals. Among them, 41% are disappointed that they have not been able to stay in the receiving country forever, linking this to the failure of achieving their migration goals. The strongest desire for new and final emigration is registered among returned migrants, who intended to leave the country permanently with their first migration (36.4%). The most probable explanatory hypothesis for their return is the failure in the implementation of their migration plans or the emergence of specific circumstances that have necessitated their temporary residence in

Bulgaria. For almost a third of returnees (31.5%), reverse migration is caused by some objective economic, family or personal circumstances (illness of the migrant or his relatives; care for elderly parents, children or grandchildren; loss of job, termination or expiration of employment contract, expiration of visa or legal residence permit, etc.). More than half of those wishing to emigrate again (55.0%) indicate mainly reasons for leaving, which are of an economic nature: “to receive a higher salary” (32.5%); “I am unemployed in Bulgaria” (2.5%); “To find a better job” (5.8%); “to live in a higher standard of living” (14.0%). This is a clear indicator that the economic goals of the initial departure abroad have not been achieved.

It can be concluded that the initial migration projects are subject to rethinking and do not explicitly define the subsequent migration behaviour. The sustainability of return depends on the degree to which the initial migration goals have been achieved, but is not explicitly determined by them.

3. Factors, Having Effect over the Success of Migration

The self-assessment of the returned migrants for the success of the migration is influenced by their socio-demographic profile, their migration experience, economic holdings (income, savings, and property) related to the implemented migration projects, as well as the specific circumstances of the return.

Socio-demographic profile of the “successful” and “failed” returned migrants

The data from the conducted national quantitative survey provide an opportunity to outline the socio-demographic profile of successful and unsuccessful remigrants (Table 6).

The socio-demographic characteristics of the returned migrants are not among the significant determinants that influence the self-assessment for the achievement of the initial migration goals. Only some generalized findings can be made, supported by the obtained empirical data:

- women are perceived as “more successful” than men among the returned migrants;
- older remigrants have achieved their migration goals to a greater extent than younger ones;
- the singles have achieved their goals to a lesser extent than the married ones;
- Bulgarians are more successful than people from other ethnic communities;
- people with higher and secondary general education have achieved their goals to a greater extent, and the most dissatisfied are people with primary and lower education – the share of those who have failed amongst them is the highest (32.2%);
- Achieving the initial goals is more successful for the retired and those engaged in their own business after returning to the country and most problematic for part-time employees and students.

Table 6
Socio-demographic characteristics of returned migrants by achievement of goals abroad (%)

	Goals are achieved	Goals are not achieved
<i>Gender</i>		
Male	71.8	28.2
Female	77.7	22.3
<i>Age group</i>		
Up to 30 y.o.	71.1	28.9
31-40 y.o.	70.6	29.4
41-50 y.o.	72.1	27.9
51-60 y.o.	75.0	25.0
Over 60 y.o.	84.0	16.0
<i>Marital status</i>		
Single	71.3	28.7
Married	74.1	25.9
Divorced	76.1	23.9
Widow/er	89.7	10.3
<i>Ethnical group</i>		
Bulgarian	75.3	24.7
Turkish	71.4	28.6
Roma	71.2	28.8
<i>Education level</i>		
Basic or lower	67.8	32.2
General secondary	78.6	21.4
Vocational secondary	73.5	26.5
Higher	78.6	21.4
<i>Employment status</i>		
Employed full time	71.8	28.2
Employed part time	57.1	42.9
Student	60.0	40.0
Retired	93.1	6.9
Businessman/entrepreneur	85.7	14.3
Freelancer/self-employed	71.4	28.6
Unemployed	72.4	27.6

Source: Nationwide quantitative survey, as part of the project "Returning Migrants: Segmentation and Stratification of Economic Mobility".

Migration experience

The migration experience of the returned migrants is one of the factors that cause an effect over the success of migration. Its three dimensions (Table 7, Table 8) can illustrate it:

- Number of migration movements;
- Length of stay abroad;
- Migration trajectories.

Table 7

Migration experience of the returned migrants by the achievement of goals abroad (%)

	Goals are achieved	Goals are not achieved
<i>Number of migratory trajectories</i>		
Resided in 1 country outside Bulgaria	73.8	26.2
Resided in 2 and more countries outside Bulgaria	80.3	19.7
<i>Length of stay abroad</i>		
Up to 1 year	68.2	31.8
From 1 to 3 years	73.3	26.7
More than 3 years	86.9	13.1

Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

Table 8

Migration trajectories of remigrants by the achievement of goals abroad (%)

Host countries	Goals are achieved	Goals are not achieved
United Kingdom, Scotland	67.2	32.8
Germany	70.1	29.9
Greece, Cyprus	83.1	16.9
Spain, Portugal	73.1	26.9
Italy	77.1	22.9
USA, Canada	83.9	16.1
Another country in EU	77.2	22.8
Countries outside EU (Turkey, Russia, others)	77.3	22.7

Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

Remigrants who resided in more countries defined themselves in a greater extent as successful in achieving the goals of their migrations (80%). The number of migration movements and the countries of residence contribute to the perception of return as a success.

The share of “successful” remigrants reaches nearly 87% for long-term residents abroad for more than three years and drops to 68% for short-term residents abroad for up to one year. Obviously, the longer the stay abroad, the more likely it is that the migration goals will be accomplished.

Those who returned from the United States and Canada were most satisfied with their migration – 83.9% said they were able to achieve what they went abroad for. Residents in Greece and Cyprus also declare to a greater extent the achievement of their migration goals – 83-84%. Approximately three-quarters of returnees from Western Europe say they have achieved their goals. Disappointment and assessment of the failure of migration are more pronounced among residents in the UK and Scotland (32.8%), as well as in Germany (29.9%) – countries where about 40% of all respondents resided.

Incomes, savings and property

The structure of income and savings of returned migrants is presented in Table 9. The amount of income of returned migrants has an impact over the assessment of the success or failure of migration. The highest is the share (31%) of those who defined themselves as “failed” in their migration to the modal group – 1200-2000 BGN. Somewhat paradoxically, the share of those, who achieved their migration goals, from the lowest (up to 800 BGN) and the highest (over 2000 BGN) income segment of remigrants is the highest (approximately 82%). The phenomenon of “successful poor” could be explained by the relatively low levels of income and employment in Bulgaria, which increase significantly after going abroad.

Table 9

Gross monthly income and saving of returned migrants by achievement of goals abroad (%)

	Goals are achieved	Goals are not achieved
<i>Income group</i>		
Up to 800 BGN	81.7	18.3
801 – 1200 BGN	76.2	23.8
1201 – 2000 BGN	69.3	30.7
Over 2000 BGN	81.6	18.4
<i>Saving amount</i>		
Up to 5000 BGN	63.2	36.8
5001 – 10 000 BGN	81.1	18.9
10 001 – 20 000 BGN	90.4	9.6
20 001 – 50 000 BGN	100.0	0.0
Over 50 000 BGN	100.0	0.0

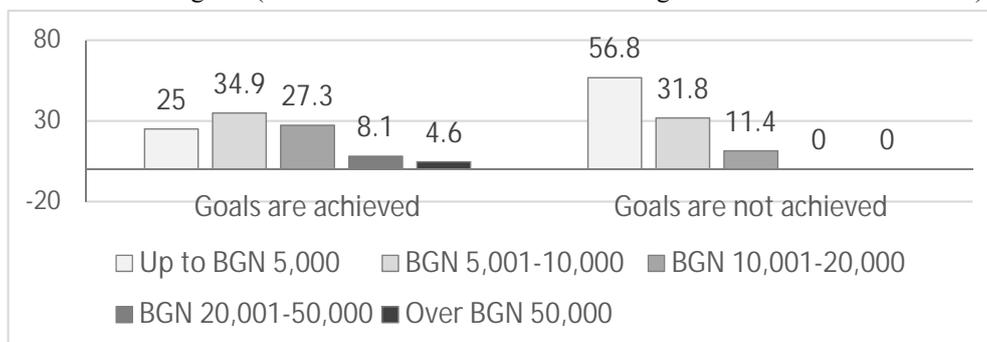
Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

The amount of savings also affects the self-assessment of the success or failure of migration. With the increase of declared savings received during the stay abroad, the share of those who assess their migration as successful also increases. Remigrants who claim to have achieved the goals of their stay abroad report a higher amount of savings than those who have failed to do so. More than half of those who did not achieve their goals (56.8%) saved up to 5000 BGN. Among these remigrants, there are no people who indicated savings over 20 000 BGN, while among those who achieved their goals, this share is 12.7% (Figure 1).

The property owned upon return to the home country also has a small effect on the self-perception of success from migration, as those who do not own such property declare to a greater extent that their migration goals have not been achieved.

Figure 1

Structure of savings accumulated during the stay abroad of returned migrants by the achievement of goals (% of those who disclosed their savings – a total of 216 individuals)



Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

Table 10

Property owned by returned migrants by the achievement of goals abroad (%)

	Goals are achieved	Goals are not achieved
Property		
Apartment	77.0	23.0
House	76.6	23.4
Does not own any	69.3	30.7

Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

Circumstance upon return

The circumstances upon the return to Bulgaria are also related to the self-assessment of the remigrants about the degree of success of their migration. Such surveyed circumstances are:

- existence of specific event that influenced the decision to return;
- job offer before returning to Bulgaria;
- receiving a pension from abroad;
- changes in employment of returning migrants;
- need for support upon return.

The presence of a specific event that influenced the decision to return to the country slightly increased the share of remigrants who are dissatisfied with their migration and have failed to achieve their goals in the migration movement. The share of successful remigrants among those who had a job offer before their return was higher (83.2%). The share of those who did not achieve their goals among those who did not have a job offer before their return was 28.4%.

Table 11

Circumstances upon return of returned migrants by the achievement of goals abroad (%)

	Goals are achieved	Goals are not achieved
<i>Existence of specific event that influenced the decision to return</i>		
Yes	71.6	28.4
No	76.1	23.9
<i>A valid job offer before returning to Bulgaria</i>		
Yes	83.2	16.8
No	71.6	28.4
<i>Receiving a pension from abroad</i>		
Yes	88.2	11.8
No	71.9	28.1

Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”

The international mobility generate significant changes in the migrants’ labour status as well (Zareva, 2018, pp. 102-114) (Table 12).

Table 12

Dynamics of main employment of returned migrants prior to the initial departure, in the first destination country and upon the last return to Bulgaria (% of all respondents)

	<i>Employment prior to the initial departure</i>	<i>Employment in the first destination country</i>	<i>Employment after the last return to Bulgaria</i>
Employed full-time	52,0	72,8	47,0
Employed part-time	3,3	14,6	3,5
Student	7,1	1,2	2,5
Retired	5,1	0,8	11,9
Businessman/ entrepreneur	2,0	0,7	5,8
Freelancer/ self- employed	1,7	2,8	3,5
Unemployed	27,8	6,1	25,2
No answer	1,0	1,0	0,7

Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

After the initial departure abroad, there is a significant increase in the employment of migrants. The share of full-time employees increased in the first destination country from 52.0% to 72.8%, of part-time workers – from 3.3% to 14.6%, and the share of unemployed decreased from 27.4% to 6.1%. There is also a growing share of employees with an employment contracts – from 52.3% to 62.9%, but still every fifth (24.6%) worked without a contract. These findings confirm the conclusion that finding a job is a prime goal for first leaving the country to both unemployed and working Bulgarians before their first departure abroad. Achieving this goal is an important reason for the migration project to be perceived as successful.

Upon the last return to the country, the employment structure of remigrants has generally deteriorated compared to their stay abroad. One in four of them is unemployed, and the share of employed (full or part-time) decreases from 87.4% to 50.5%. The share of those engaged mainly in their own business increased, with 6% of all respondents stating that they had started their own business after returning to Bulgaria, and 6.5% of all migrants put their savings in it. The share of freelancers and self-employed also increased slightly to 3.5%.

Table 13

Support for the return of migrants by the achievement of goals abroad
(with the possibility of up to 5 answers)

Need for support	Goals are achieved		Goals are not achieved	
	First answer	Up to 5 answers	First answer	Up to 5 answers
Financial help	4.4	4.4	22.1	22.1
Support for accommodation	2.2	3.6	2.6	5.8
For the education of children	1.3	1.6	0.0	0.6
To find a job	19.6	21.6	28.6	36.4
Psychological support	6.2	8.7	7.1	13.6
Something else	1.3	1.8	0.0	1.3
No support is needed	64.9	64.9	39.0	39.0

Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

Among the returned migrants, the share of the retired is more than twice as high (11.9%) compared to the time before the first departure of the country. The possibility of receiving a pension from abroad increases the share of those who perceive themselves to have achieved their migration goals (88%).

Two-thirds of the remigrants (65%), who achieved their goals did not feel the need for support on their return. One in five of them needed help to find a job (21.6%) in the first place, which is two and a half times more than the next need for psychological support (8.7%).

About 60% of the returnees, stating that they have not achieved their migration goals, declare the need for various forms of support. The largest share of them needed help to find a job (36.4%), financial assistance (22.1%), and psychological support (13.6%).

4. Social Mobility of the Returned Migrants

Migration is defined as a spatial movement of people between countries, but it is related to the desire of migrants to achieve economic and social mobility, which cannot be accomplished in the home country or is much more feasible abroad. In this context, the success of migration is analyzed taking into account both some subjective (self-perceptions of returned migrants) and objective indicators for assessing changes in their socio-economic status and quality of life.

Socio-economic status of returning migrants

Socio-economic status may be interpreted as a summary dimension of various societal and economic inequalities (Stoyanov, 2016). Several categories of returning migrants are distinguished based on the self-assessment of their financial and social situation (Table 14).

Table 14
Self-assessment of the financial situation of returning migrants (% of all respondents)

Financial situation	%
1 – Poor	10.8
2	30.8
3	52.0
4	3.5
5 – Rich	0.2

Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

In terms of their economic status, returning migrants, according to their own self-assessment, are concentrated primarily in the middle range of the financial hierarchy. One in ten perceives himself as “poor” and approximately one-third (30.8%) place themselves closer to this group. Those who perceive themselves as “rich” or above average are 3.7% and are not among the actively returning migrants.

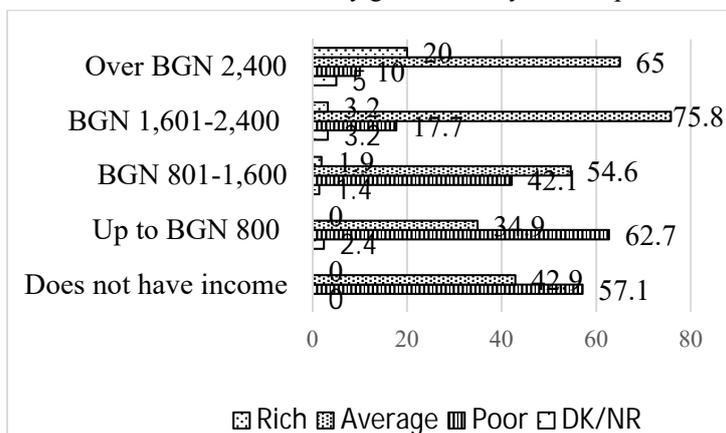
Given that three-quarters of returning migrants say they have achieved what they went abroad for, it can be concluded that the perceptions of success of remigrants and their financial aspirations are not very ambitious. This finding is also confirmed by the structure of the actual income received by the returned migrants, which to the greatest extent form their self-assessment of their financial situation (Figure 2). More than half of the surveyed persons, who at the time of the survey have no income or have such incomes up to BGN 800, self-identify themselves as “poor”. As incomes increase, so does the share of people who place themselves in the middle range of the financial social hierarchy and even perceive themselves as “rich”.

Circumstances related to the parameters of the migratory movements of the returned migrants, such as achieving the initial goals of emigration, length of their stay abroad or sustainability of their return, do not significantly affect their self-esteem regarding their financial status.

The more general self-assessment of returned migrants about their social status largely coincides with the self-perception of their financial status (Table 15). The share of remigrants who place themselves in the middle (by 3%) and higher (by 2%) range of the social status hierarchy is slightly increasing.

Remigrants, who defined themselves as “poor”, are also located mainly in a lower position in the social status hierarchy (79.3%), and 17.1% defined themselves as occupying a middle position in it. The self-perception of most “rich” respondents (72.7%) is that they have a high social status, and 22.7% – an average (Figure 3).

Figure 2
Self-assessment of financial situation by gross monthly income per household (%)



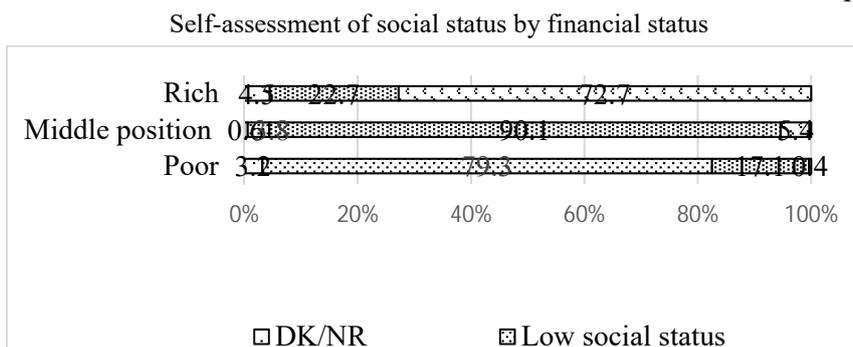
Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

Table 15
Self-assessment of the social status of the returning migrants (% of all respondents)

Social status	%
Lowest social status	9.3
2	26.2
3	55.0
4	5.5
Highest social status	0.2

Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

Figure 3



Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

Self-assessments of the financial and social status of remigrants overlap mostly in the intermediate strata – 90.1% of those who put themselves in the middle range of the financial hierarchy defined themselves in a similar way in the social status hierarchy.

The integral effect of the migration movements over the socio-economic status and the quality of life of the returning migrants according to their self-assessments is presented on Table 16.

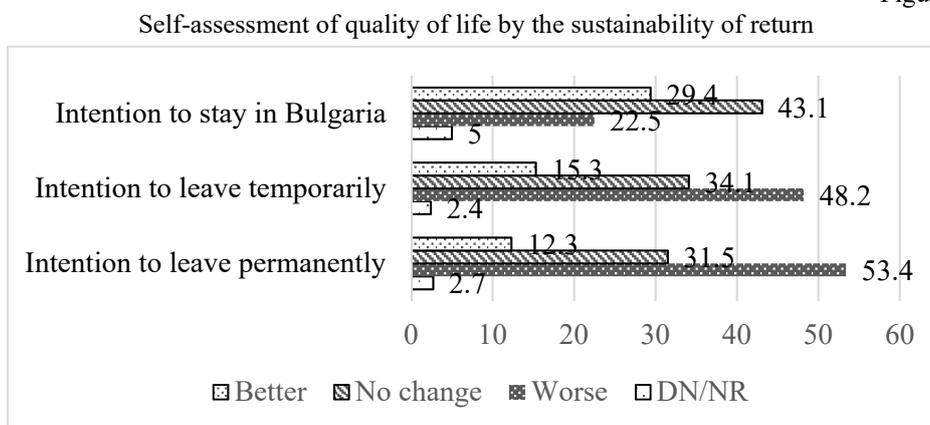
Table 16
Overall self-assessment of the quality of life of returning migrants after their last stay abroad (% of all respondents)

Comparative self-assessment	%
Better	23.3
Worse	33.4
No change	39.2
No answer/ cannot assess	4.0

Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

Those who live better after returning to the country more often (79%) declare the achievement of the goals of their emigration. Despite the self-assessment that they are living worse than before, 77% of remigrants declare that they have achieved their migration goals. This share drops to 69% for those for whom there has been no change in their standard of living.

Figure 4



Source: Nationwide quantitative survey, as part of the project “Returning Migrants: Segmentation and Stratification of Economic Mobility”.

As a whole, returning to Bulgaria is more likely to be associated with a deterioration in the quality of life compared to the last destination country. Upward social mobility is subjectively perceived by approximately one-quarter of the returning migrants (23.3%) and downward –

by about one third (33.4%) of them. About 40% of returnees do not report any change in their standard of living upon return. **Based on these data, it can be stated that the share of “successful” migrants is lower than those declaring that they have achieved the goals for which they have gone abroad (74.5%).** This conclusion is also confirmed by the registered wishes of the migrants to go abroad again, regardless of whether permanently or temporarily. Short-term migrants evaluate their return neither as progress nor as a step back and believe that things are “as before” (Bakalova, Misheva, 2019).

The subjective assessment of the financial situation, the more general self-assessment of the social status and the assessment of the quality of life today compared to living abroad are components of the overall feeling of well-being of returning migrants, and they reflect the socio-stratification effects of migration movements carried out and are indicators of the success of the migration.

Conclusion

Based on the analysis of the empirical data on returning Bulgarian migrants in terms of the success of their migration movements, several main conclusion can be drawn:

First, the motive for the return “I did what I went abroad for” is indicated by 40.7% of returning Bulgarian migrants (as a first reason – by 21.2%, as a second – by 12.9%, and as a third – by 6.6%). Almost three-quarters of respondents (74.5%) answered in the affirmative to the question “Did you manage to achieve what you went abroad for?”. One in four remigrants (26%) is dissatisfied with what they have achieved during their stay abroad.

Second, the self-assessment of the success or failure of migration is determined primarily by the achievement of its economic goals, which dominate the initial departure abroad. At the same time, among the successful remigrants, the achievement of goals related to family, personal and professional development is more common. For the unsuccessful, migration is more of a forced economic nature, caused by the need to find (better) jobs, to provide higher incomes and a standard of living.

Third, the structure of the reasons for return differs significantly from that of the reasons for leaving the country in both groups - successful and unsuccessful remigrants. Of greatest importance are family motives, which predominate among the three most important reasons for return. The share of the declared reasons for return, which are related to the opportunity for professional growth and development of own business in the country, is larger among the successful remigrants: “professional realization in Bulgaria” (9.3%), “opportunity for better job/business in Bulgaria” (8.4%), “to develop my own business/to invest here” (6.2%).

Fourth, after the initial departure abroad, the employment of migrants has increased significantly. The share of full-time employees increased in the first country of residence from 52.0% to 72.8%, of part-time workers – from 3.3% to 14.6%, and the share of the unemployed decreased from 27.8% to 6.1%. Finding a job is a primary goal in the initial departure of both unemployed and working Bulgarians. Achieving this goal is an important reason for the migration project to be perceived as successful.

Fifth, returning migrants, who intend to remain permanently in Bulgaria, predominate (59.7%). However, their share is about 15 percentage points lower than that of those who indicated that they had achieved what they went abroad for (74.5%). This means that even for “successful” remigrants, the return is not always final. The highest is the share of returning migrants with the intention to remain permanently in Bulgaria among those who were initially oriented towards temporary emigration – 63.6%. Among those who intend to leave forever, this share is 42.4%, and among those who did not have clear migration plans – 51.8%.

Sixth, for the most part, it can be argued that the returnees who have not achieved their migration goals intend to emigrate again and permanently (12.1%). Among them, 41% are disappointed that they have not been able to stay in the host country, linking this to the failure to achieve their migration goals. The strongest desire for new and final emigration is registered among returned migrants, who intended to leave the country permanently with their first migration (36.4%).

Seventh, the socio-demographic characteristics of the returned migrants are not among the significant determinants that influence the self-assessment for the achievement of the initial migration goals. Some of the generalized findings on the socio-demographic dimensions of migration success are as follows:

- women are perceived as “more successful” than men among the returned migrants;
- older remigrants have achieved their migration goals to a greater extent than younger ones;
- the singles have achieved their goals to a lesser extent than the married ones;
- Bulgarians are more successful than people from other ethnic communities;
- people with higher and secondary general education claim that they have achieved their goals to a greater extent, than those with vocational secondary and especially primary and lower education.

Eighth, the amount of income of returned migrants has an impact on the assessment of the success or failure of migration. The amount of the savings generated during the stay abroad also has an effect on the self-assessment for success or failure of the migration. With the increase of declared savings received during the stay abroad, the share of those who assess their migration as successful also increases. At the same time, returned migrants, according to their own self-assessments, are concentrated primarily in the middle range of the financial social hierarchy. One in ten perceive himself or herself as “poor”, approximately one-third (30.8%) place themselves closer to this group, and only 0.2% of respondents perceive themselves as “rich”. **As three quarters of the returned migrants claim to have achieved what they went abroad for, it can be concluded that the perceptions of success of the remigrants and their financial aspirations are not very ambitious.**

Ninth, remigrants, who perceived themselves as “poor”, placed themselves primary in a lower position in the social status hierarchy as well (79.3%), and 17.1% of them – as occupying a middle position in it. The self-perception of most of those perceived as “rich” (72.7%) is that they have a high social status, and 22.7% – an average. Self-assessments of

the financial and social status of remigrants overlap mostly in the intermediate strata – 90.1% of those who put themselves in the middle range of the financial hierarchy defined themselves in a similar way in the social status hierarchy.

Tenth, return to Bulgaria is generally associated with a deterioration in the quality of life compared to the last country of residence. Ascending social mobility is subjectively perceived by approximately a quarter of returned migrants (23.3%), and descending – by about a third (33.4%). About 40% of remigrants do not report a change in their standard of living after returning. Those living better after returning to the country declare to a greater extent the achievement of the goals of their emigration (79%). Despite the self-assessment that they live worse than before, 77% of remigrants declare that they have achieved their migration goals. This share drops to 69% for those for whom there has been no change in their standard of living. Based on these data, it can be concluded that the share of financially and socially “successful” remigrants is smaller than that of those who declare that they have achieved the goals for which they went abroad.

References

- Bakalova, M., Misheva, M. (2018). Explanations of economic rationality challenged: Contemporary return migration to Bulgaria. – *Economic Studies*, Vol. 27, N 2, pp. 80-101.
- Bakalova, M., Misheva, M. (2019). Ustoichivost na zavryshtaneto i reemigracia: perspektivite na zavryshtashite se v Bulgaria. – *Spisanie na BAN*, N 2/132, p. 26-32. [Бакалова, М., Мишева, М. (2019). Устойчивост на завръщането и реемиграция: перспективите на завръщащите се в България. – *Списание на БАН*, N 2/132, с. 26-32].
- Bartram, D., Poros, M. V., Monforte, P. (2014). Return Migration. – In: *Key Concepts in Migration*. SAGE Key Concepts Series. Sage Publication: pp. 121-124.
- King, R. (2000). Generalizations from the History of Return Migration. – In: Bimal Ghosh (ed.). *Return Migration: Journey of Hope or Despair?* Geneva: IOM.
- Krysteva, A. (2014). Ot migracia kum mobilnost: politiki i pytishta. *Nov bulgarski universitet*. [Кръстева, А. (2014). От миграция към мобилност: политики и пътища. Нов български университет, София.].
- Mintchev, V., Boshnakov, V. (2018). The choice of Bulgarian migrants – Stay or leave again?. – *Economic Studies*, Vol. 27, N 2, pp.45-64.
- Nonchev, A., Hristova, M. (2018). Segmentation of Returning Migrants. – *Economic Studies*, Vol. 27, N 2, pp. 3-24.
- Piore, M. J. (1979). *Birds of passage: Migrant labor and industrial societies*. UK: Cambridge, University Press.
- Stoyanov, A. (2016). *Socialna diferenciacia, stratifikacia i statusni ierarhii*. Izdatelski kompleks – UNSS, Sofia. [Стоянов, А. (2016). Социална диференциация, стратификация и статусни йерархии. Издателски комплекс – УНСС, София.].
- Zareva, I. (2018). Returning migrants – Effects on the labour market in Bulgaria. – *Economic Studies*, Vol. 27, N 2, pp. 102-114.

THE EFFECTS OF COLLABORATION BETWEEN INTERNAL AUDITING AND FINANCIAL AFFAIRS DEPARTMENTS: A SURVEY CONDUCTED THROUGH THE INTERNAL AUDITING AND FINANCIAL AFFAIRS DEPARTMENTS

All companies have an accounting department, but the internal auditing department is structured when the management of a company is getting more difficult, paralleling to its growing and complexity.

It has been studied in this article the function of an internal auditing department, the possible risks, disorders, and collaboration with accounting in order to minimize these points as much as possible. It is clear that the main information source of auditing is accounting records, financial reports, analysis, etc.

The closer collaboration needs to be established for the big size companies because controlling the assets would be more complicated for big companies that have multiple complex departments. For these types of large scale businesses, there are clearly so many objects in order to establish a strict collaboration. How the collaboration can be, what they can provide each other, how they should support their works, where they must act together, and other possible questions can be raised. The answers to these questions should establish all necessary procedures, and strict applications of these procedures would add considerable value to complex organizations.

JEL: M40; M41; M42

Introduction

The internal auditing department has an independent and objective activity that gives trustees to the shareholders of a company regarding the operations of the company. Internal auditing also provides advice, including systems and procedures on how to improve the efficiency of the assets of the company and to receive more values. It contributes the organization to achieve its targets through systematic and methodical approaches, its risk management (Felix, et al., 2001). Additionally, it tries to find measurements in order to stop possible frauds and to decrease or eliminate the risk factors.

Of course, all companies have in the way of internal controlling systems. Sometimes it is considered as a part of the duties of accounting or financial affairs departments by

¹ Assist. Prof. Ibrahim Mert, Ph.D., Istanbul Aydin University, Turkey, phone: +90 444 1 428, e-mail: ibrahimm@aydin.edu.tr.

establishing and processing strict standards and rules in a company. The achievement by constructing an internal auditing department instead of running an internal control system as a part of the financial affairs department can be suggested that achieving the mission of the objectives of internal control cannot be a side duty of an executive department. In an organization, there are lots of objectives to be achieved, such as operational efficiency and effectiveness, reliability of financial reporting, and compliance with relevant laws and regulations (COSO, 1992).

The risks that an internal control system can identify and establish measurements are mainly the case of the treatments done by individuals and whose activities are audited just by themselves. The previously entered accounting entries and all accounting database, including financial statements, are fully made accessible to internal auditing to enable it to reach its targets. This also allows an internal auditing department to perform the validation and posting of the accounting entries.

A strong connection between internal auditing and accounting is essential, and both of them are very useful for each other. The assistance of general accounting, cost accounting, and financial accounting is vital for the performance of internal auditing.

This survey research was based on collecting information from a group of employees by asking them set of questions through electronic mails and analyzing the returned responses. The following steps were involved to perform an effective survey:

- Determining the persons who will be a part of the survey;
- Deciding the type of the survey as mail;
- Designing the form and questions to ask to the participants;
- Distributing the form of the survey to the participants;
- Analyzing the returned responses;
- Transmitting the results of the analysis into the paper.

The Purpose of the Study

This paper aimed to get a conclusion on “The Effects of Collaboration between Internal Auditing and Financial Affairs Departments: A Survey Conducted through the Internal Auditing and Financial Affairs Departments the Financial Parameters of Companies” by conducting a survey analysis. Through the survey, the thoughts and perceptions of the representatives of internal auditing and financial affairs departments were gathered. The Likert Scale was utilized to measure the responses from the participants and the collected data was analyzed by involving the qualitative data analysis techniques such as Descriptive Statistics and Chi-Square Analysis.

The findings are presented in the further chapters and the results are summarized in the conclusion.

1. The Usefulness of Accounting Department for the Operations of Internal Audit

Information is an essential determinant factor for an internal auditing department to reach its engaged targets, more precisely the success of an entity. Even, Dunn (1996) says that to define or limit the working field of internal auditors. Information based on particular scientific criteria is not only an important thing but also a vital indicator for the fairness of the financial performance of a company for shareholders and other interest groups. The vital information must be relevant to the activities of the company, that is, match the audited object or respond to all questions on the way to the financial performance of the company. It must also be verifiable for the interest groups and shareholders; hence, the importance and trustiness of the auditing process so that the audit condition is respected by the readers. In addition to these facts, the information which is processed by the auditors must be neutral so that the auditing process can treat it objectively (Richiute, 2002). The internal audit team will also appreciate because of using this information that the information data is easily exploitable to optimize its intervention times. Another very important point is that, in order to reach an undisputable result, the essential attribute for information to be satisfactory is the accuracy of information (Ljubisavljević, Jovanovi, 2011). Any error at the end of the auditing process erases the previously stated qualities and increases the complaints.

Lin et al. (2011) support that without any arguing and doubt, internal audit is one of the most information processing tools in a company. To evaluate internal auditing processes, the auditors must rely on the written procedures (Uzun, 2009), which describe the steps and wideness of the auditing process, on the way in which these written procedures are actually used, on the results produced at the end of the audit, on the controls implemented for the control of the internal auditing operations. On each of these steps, the information is essential from the procedures; therefore, but also job descriptions of auditing steps and auditing reports (Felix, et al., 2005). For these reasons, the internal auditing operation collects data in order to obtain the necessary documentation, calculation, system, methods, etc. for the evaluation of the audited processes and finally to create the financial performance of a company to present to the shareholders. Chambers (2010) states that internal control systems enable companies to focus on other activities, which can be riskier for others that do not have internal control systems.

The results of the accounting department can be exploited by the internal auditor at different stages of the internal auditing assignment according to the level of its reliability. First of all, as Coram, Ferguson, and Moreney (2006) state, the information delivered by the accounting department is certainly valuable for reaching the objects of auditing activity with approaching subjects to be audited. With the assistance of accounting data, an auditor can, among other things, know the volume of the operations and their evolutions, as well as the certainly proven risks by analyzing their provisions. Because of this, accounting records and reports can be useful for an audit process as a certain tool during the execution of the audit activities. It is also the duty of an internal auditor to monitor internal control forms (Effok, 2003). It is the nature of the accounting department to centralize all economic transactions at one hand, and this is an incomparable database in terms of completeness for auditing. The accounting systems make it possible for auditing activity to extract information to process according to more and more refined selection criteria that auditing would define according to the necessities. Accounting is based on control points that can inform the internal audit

department regarding accounting records (Al-Matari, et al., 2014). Bank reconciliations performed by the accounting department can be a very easy example as a function of the accounting department to provide key information about cash flow in terms of account openness and operation.

It is clear that the quality of information for auditing is essential (Jensen, 1993). It is easy to understand the reason of this that one of the challenges of an audit mission is to find the correct and trustable sources of this highly qualitative and trustable information. The main point or address to obtain the information matching the required conditions is the information producing department, which is accounting (Whittington, Pany 2004). Indeed, accounting is the only department that has to register all types of operation of an entity to the books in time and correct manner. It is the mission of accounting to register all economic operations of a company. As a next point, in the accounting department, each registration must be justified clearly by an accounting document tracing the path of the operation to the financial statements (Goodwin, Yeo, 2001). Accounting is an information centre of a company and should be governed with strict rules and clear standards that can be observed, understood and applied by all dedicated accounting employees. The availability of accounting data must be presented to the interest groups and the internal auditing department (Ho, Hutchinson, 2010). The accuracy of the accounting data is the purpose of which is to ensure the regularity, the fairness of the operations of a company.

The accounting department allows the internal auditors to know what is the current situation of the company or, and what has happened previously regarding the topic being audited. Robertson (1976) states that one thing is admitted and understood that accounting entries and statements respect a legal framework, and for this reason, the pictures of these tables are sometimes far removed from economic realities. Of course, management may estimate these differences, and its control can compensate these differences in the presentation of financial statements with the attachment of the internal auditing reports (Endaya, 2014). It would just help for the accomplishment of its missions and expected qualities, and it is expected that the internal audit department uses the values of accounting as much as possible.

2. The Function of the Internal Auditing Department for the Operations of the Accounting Department

Behind the term of internal audit, there are, actually, several different types of approaches for substantive auditing works conducted by an internal auditing department for the analysis of a company. Nevertheless, all these audit procedures, applications, and activities meet the same requirements and have the same overall objectives when they apply their activities (Guredin, 1996). An auditing department focuses on measuring risks, controlling weaknesses, and predicts possible results. Risks and weaknesses are also depending on the type, dimension, and geographical location of companies. Brewer and List (2004) underline that these factors oblige companies for establishing internal control systems.

When the auditing process starts and is on-going, its primary purpose is to measure, control, and predict possible risks, procedures to be updated, renewed, or cancelled. The internal auditing of accounting is also an essential subject in order to determine and take measures

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for possible frauds or misuses on revenues, expenditures, expense, etc. (Goodwin, Kent, 2003). The activity of internal auditing provides an overview and, most importantly, dashboards that will enable the managers of the company, more specifically the accounting manager, to anticipate, and set sensitive alarming points to warn them at the right time. In addition to accounting, actually more widely than that, setting up procedures for other departments, such as sales and marketing and cost management to ensure the sustainability of the business for its shareholders. Shareholders have realized that an on-going basis (Chambers, 2010) effective control system is an essential tool for better financial indicators in an organization.

3. Harmonizing the Procedures of a Company

As it is known that there are lots of procedures in a company to run it in a way, which enables the employees what to do in case of a specific subject (Prawitt, et al., 2009). An internal auditing department also serves to harmonize the procedures of a company. Whether data flows or methods of accounting, an internal auditing department determines the problematic and/or inefficient milestones and to propose more efficient alternatives in order to decrease or stop the irregularities and allows the management also to identify these points and takes a decision regarding the application of these proposals. The existence of an internal auditing department is a vital operation for a profit-based private company. On the other hand, Brewer and List (2004) put their opinions that the function of the internal auditing department is not so essential in public companies.

It is indeed extremely crucial, as an example, that the necessary proofs of expenditure, very essential for the accounting department of the company (Goodwin, 2003), go back in time and be checked almost daily, to avoid possible accounting errors which, ultimately, can be very costly at the end of that transaction or near or far future for the companies, that means for shareholders and other interest groups.

4. Ensuring the Duties of Financial Affairs

Even though ensuring legal accountability is a field of external financial auditors (IAA, 2018), there are a lot of examples that internal auditing takes a part of legal accountability. The duty of internal auditing is not, of course, on the points of the pure calculation of taxes or the preparation of tax declarations or forms (Burns, Nordstrom, 2015). Instead, internal auditing departments have contributions to formal points of the taxation such as preparation of invoices, bill of lading, checks, and timing of these types of activities.

Accounting, finance, and financial affairs are professional services run by the employees, called accountants and financiers. On the other hand, Sawyer (2004) states that there are standards, systems, methods, rules, procedures, and other legal frameworks to be run this department properly as it is regulated. In case of not applying the defined conditions or not acting accordingly by ignorance of the rules of taxation and accounting, unintentionally, it is not called a fraud or such.

One of the important roles of the auditing process, it doesn't matter whether accounting activity is performed by a chartered accountant from outside of a company, an outside consultant, or an in-house accountant, is also to provide and ensure that the accounting applications comply fully with the rules of taxation to avoid a possible recovery.

5. Analysis of Data and Variable Factors

To determine if there is any effect from the collaboration between internal auditing and accounting departments, a survey was utilized to accumulate related data to generate outcomes in order to present the results of this research study. The survey was conducted on 21 companies in Turkey. The research methodology had been arranged according to qualitative data collections from the companies surveyed. The participants of the survey are the employees who work in the companies located in Istanbul. These companies are specifically chosen for the study because they have established their internal auditing departments for long years, and these well-function departments have strong collaborations with financial affairs departments (accounting and finance) while performing their duties.

The dimension of the sampling of this study is good enough, and the representatives of participant companies were the managers and the chiefs of the internal auditing, accounting, finance, and financial affairs departments. The judgment sampling method was used in order to get the answers of the participants. I can underline that it has been observed in these population that there are strong and well-designed collaborations have been constructed between internal auditing and financial affairs departments. Generally speaking, financial affairs departments were in the position of protective and supportive approach to internal auditing departments. On the other hand, the internal auditing departments were in the position of observing the activities of the financial affairs departments.

5.1. *The research methodology*

The answers of the participants were supportive, clear enough for categorizing them in order to present a conclusion of this research. During the analysis of the questioner, the simple random sampling technique was utilized by selecting each individual sample from the entire population by providing equal chances to each individual, and the following data has been collected.

For analyzing the provided answers below, qualitative data analysis techniques have been used:

a) Descriptive Statistics has been utilized to determine the level of the agreement or disagreement of the participants and the answers have been prepared, tabulated and summarized on the base of percentages, mean, median, mode, and standard deviation.

- Proportion= f/N and $\%=f/N*100$
- Mean >4.0 as the minimum and minimum expected value for mode and median is 4.0

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b) The Chi-Square Analysis was utilized for testing the hypotheses according to the answers of the participants. The rejection condition of the hypothesis is 95 confidence of alpha with $\alpha = 0.05$.

5.2. Implications of Likert Scale

The research hypothesis was “*The effects of collaboration between internal auditing and financial affairs departments have positive effects in the performance, or neutral effects (no effect) or negative effects in the financial performance of a company*”. Likert scale was utilized for measuring the variables of *positive effects*, *neutral effects (no effect)*, and *negative effects*. The Likert values were 1 = not at all, 2 = no, 3 = not really, 4 = neutral, 5 = a little bit, 6 = yes, 7 = absolutely.

- 1) **Positive effect:** A measure of participants’ thoughts about the collaboration of internal auditing and financial affairs has positive effects on the financial statements: **with 1 = not at all; 2 = no; 3 = not really; 4 = neutral; 5 = a little bit; 6 = yes; 7 = absolutely**
- 2) **Neutral effect:** A measure of participants’ thoughts about the collaboration of internal auditing and financial affairs has neutral effects on the financial statements: **with 1 = not at all; 2 = no; 3 = not really; 4 = neutral; 5 = a little bit; 6 = yes; 7 = absolutely**
- 3) **Negative effect:** A measure of participants’ thoughts about the collaboration of internal auditing and financial affairs has neutral effects on the financial statements: **with 1 = not at all; 2 = no; 3 = not really; 4 = neutral; 5 = a little bit; 6 = yes; 7 = absolutely**

6. Empirical Results and Descriptive Statistics

There were 27 companies in the study; each was assigned a number from 1 to 27.

While analyzing the outcomes, it was tried to determine whether the collaboration between internal auditing and the financial affairs department has a positive effect on company performance or not at present and in the future. Various tests have been utilized by using an independent samples t-test method.

Below results have been reached:

- 1) **Mean for “the thoughts of positive effect”** was considerably higher ($M = 5.50$, $s = 1.556$) among the participants of internal auditing departments than those of financial affairs departments’ participants ($M = 3.78$, $s = 1.577$). The difference is essential ($p = .001$). Chi-square analysis was utilized for further analysis to observe the difference of the positive effect between the participants of internal auditing department and financial affairs department and the chi-square analysis supported these results that “the thoughts of positive effect” were unevenly scattered among the participants of the internal auditing departments ($p = .004$).

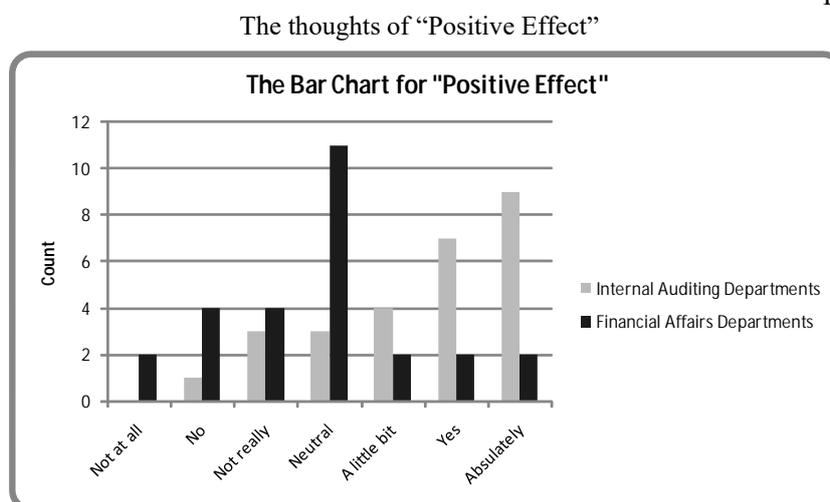
- 2) **Mean for “the thoughts of neutral-no effect”** were higher ($M = 4.85$, $s = 1.199$) among the participants of financial departments than those of internal auditing departments’ participants ($M = 4.35$, $s = 1.198$). Chi-square analysis supported these results that “the thoughts of neutral-no effect” were unequally scattered among the participants of the internal auditing departments ($p = .004$).
- 3) As far as the **Mean of “the thoughts of negative effect”** is concerned, ($M = 1.88$, $s = 0.816$) among the participants of internal auditing departments and ($M = 1.89$, $s = 0.801$) among the participants of financial affairs departments, as it is seen there was no statistically considerable difference between the two departments ($p = .194$).

As a further step, t-tests were utilized to determine whether the internal auditing departments were also associated with the thoughts of “positive effects”, “neutral effects”, and “negative effects”.

Based on the independent samples of a t-test, the mean of the thoughts of “*collaboration between internal auditing and financial affairs departments has positive effects in the performance of a company*” was much higher for the participants of the internal auditing departments ($M = 5.48$, $s = 1.556$) than for the participants of the financial affairs departments ($M = 3.78$, $s = 1.577$). The difference between these two results was statistically important ($p = .001$).

Chi-square analysis also was utilized as a further analysis for the difference of the thoughts of collaboration between internal auditing departments and financial affairs departments. Chi-square analysis also confirmed that the thoughts of positive effect were unevenly scattered among the participants of internal auditing departments versus the financial affairs departments ($p = .004$). The bar chart (Figure 1) plainly illustrates the same tendency detected in the t-test.

Figure 1

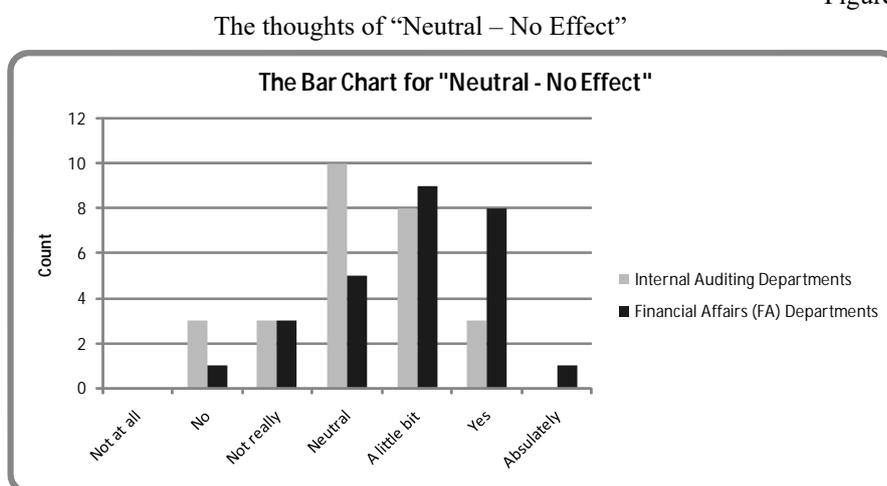


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Based on the independent samples of a t-test, the mean of the thoughts of “*collaboration between internal auditing and financial affairs departments has neutral effects (no effects) in the performance of a company*” was little higher for the participants of the financial affairs departments (M = 4.85, s = 1.199) than for the participants of the internal auditing departments (M = 4.19, s = 1.145).

Chi-square analysis also was utilized as a further analysis for the difference of the thoughts of collaboration between internal auditing departments and financial affairs departments. Chi-square analysis also confirmed that the thoughts of positive effect were unevenly scattered among the participants of internal auditing departments versus the financial affairs departments (p = .004). The bar chart above (Figure 2) plainly illustrates the same tendency detected in the t-test.

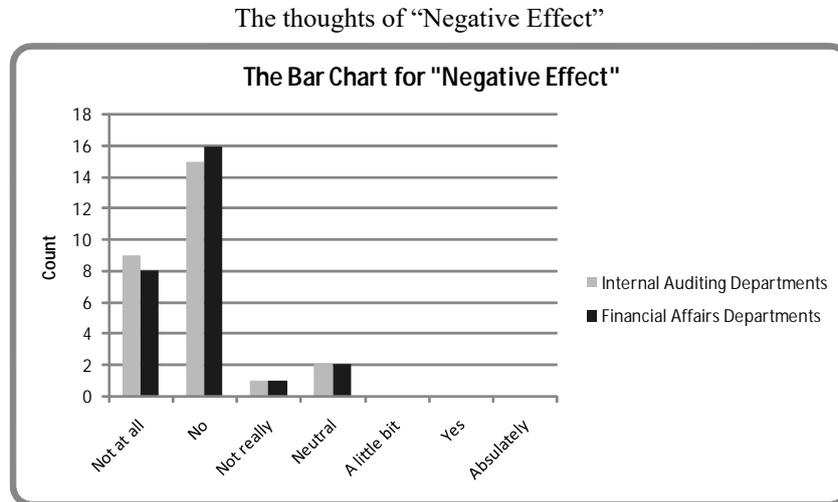
Figure 2



Based on the independent samples of a t-test, the mean of the thoughts of “*collaboration between internal auditing and financial affairs departments has negative effects on the performance of a company*” was very close for the participants of the internal auditing departments (M = 1.88, s = 0.816) than for the participants of the financial affairs departments (M = 1.89, s = 0.801).

The result of Chi-square was also confirmed that the thoughts of negative effects were unevenly scattered among the participants of internal auditing departments versus the financial affairs departments (p = .194). The bar chart above (Figure 3) apparently shows the same tendency realized in the t-test.

Figure 3



Conclusion

The relationship between internal audit and accounting as being a source of reliable and relevant information is obviously very important, and it should be supported by the management of the entities. Provided that this quality of information is proven and certified, the reliability of the information would be accepted and appreciated by the shareholders.

Since the Accounting Information System is the first information system in the company, the mission of the internal audit will be more time-efficient. In fact, the information from financial affairs departments, if it is well understood, makes it possible to re-schematize the progress of operations, thus reconstructing the internal audit trail. This collaboration is the approach that is used while performing the activities of internal audit and accounting in a company.

As it is explained in this paper and in the attached tables that internal auditing and financial affairs departments would apply their own assignments while performing their duties. The value or the effect of the collaboration between these two departments is not considered at the same level of importance. The survey participants of the internal auditing department think that collaboration is important, and it may contribute values to the financial performance indicators of a company. On the other hand, the survey participants of financial affairs departments do not think as strong as the survey participants of the internal auditing department that collaboration between internal auditing and financial affairs would add significant values to a company (Table 7 in Annex).

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Limitations of the study

The results of the survey analysis are based on subjective assessment. In other words, the answers from respondents were not supported by quantitative studies. Even though, the result of the analysis concluded from the subjective assessments regarding the effects of connection of the internal auditing and financial affairs departments, it would have added considerable values if the study was supported with quantitative parameters.

Recommendation for future studies

Since it was mentioned in the previous paragraph that the study was based on subjective answers, future studies to measure the Effects of Collaboration between Internal Auditing and Financial Affairs Departments should be coordinated and based on quantitative analysis by considering the financial parameters of the companies. The results of quantitative analysis based on the financial statements of the companies will increase the effect of the study.

References

- Al-Matari, E. M., Al-Swidi, A. K., Fadzil, F. H. B. (2014). The Effect of the Internal Audit and Firm Performance: A Proposed Research Framework. – *International Review of Management and Marketing*, Vol. 4, N 1, pp. 34-41, <https://www.econjournals.com/index.php/irmm/article/view/669/pdf>, Retrieved on March 17, 2019.
- Coram, P., Ferguson, C., Moroney, R. (2006). The Value of Internal Audit in Fraud Detection. The AFAANZ Conference 2006, 1-32, Australia: Accounting and Finance Association of Australia and New Zealand. https://www.researchgate.net/publication/277291577_The_Value_of_Internal_Audit_in_Fraud_Detection/link/5a89f1ef0f7e9b1a95542c2b/download, Retrieved on March 06, 2019.
- Brewer, D., List, W. (2004). Measuring the Effectiveness of Internal Control. Gamma Secure System Limited. www.gammasl.co.uk/research/time040317.pdf (Retrieved on March 02, 2019).
- Burns, P., Nordstrom, P. (2015). Compliance & Internal Audit Collaboration Developing a compliance third line of defense. PriceWaterhouseCoopers, https://assets.corporatecompliance.org/Portals/1/PDF/Resources/past_handouts/CEI/2015/804_2.pdf, Retrieved on March 12, 2019.
- Chambers, A. (2010). Approaches to Enterprise Risk Management. Q Finance-Bloomsbury Information Ltd., ISBN-10: 1-84930-003-8, ISBN-13: 978-1-84930-003-2.
- COSO. (1992). Enterprise Risk Management—Integrating with Strategy and Performance (2017). Committee of Sponsoring Organizations of the Treadway Commission, <https://www.coso.org/Documents/2017-COSO-ERM-Integrating-with-Strategy-and-Performance-Executive-Summary.pdf>. (Retrieved on April 10, 2019).
- Dunn, J. (1996). Auditing: Theory and Practice. Prentice Hall Direct, London, Subsequent ed., ISBN-10: 013-2-40896-1, ISBN-13: 978-0-13240-896-7.
- Endaya, K. A. (2014). Coordination and Cooperation between Internal and External Auditors. – *Research Journal of Finance and Accounting*, Vol. 5, N 9, <https://www.iiste.org/Journals/index.php/RJFA/article/view/13039/13423>. Retrieved on March 15, 2019.

- Felix, W. L., Gramling, A. A., Maletta, M. J. (2001). The Contribution of Internal Audit as a Determinant of External Audit Fees and Factors Influencing this Contribution. – *Journal of Accounting Research*, 39(3), p. 513-534. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/1475-679X.00026>, Retrieved on March 07, 2019.
- Felix, W. L., Gramling, A. A., Maletta, M. J. (2005). The Influence of Non-audit Service Revenues and Client Pressure on External Auditors' Decisions to Rely on Internal Audit. – *Contemporary Accounting Research*, 22(1), p. 31-53. <https://onlinelibrary.wiley.com/doi/abs/10.1506/JN7X-B51L-V45W-4U7R>, Retrieved on April 17, 2019.
- Goodwin, J. (2003). The relationship between the audit committee and the internal audit function: Evidence from Australia and New Zealand. – *International Journal of Auditing*, 7(3), p. 263-278. <https://onlinelibrary.wiley.com/doi/full/10.1046/j.1099-1123.2003.00074.x>, Retrieved on April 10, 2019.
- Goodwin, J., Kent, P. (2003). Factors affecting the voluntary use of internal audit. Presented at the Annual Meeting of the American Accounting Association, Hawaii 2004, Working Paper No. 2004-001, https://www.researchgate.net/publication/241248564_Factors_Affecting_the_Voluntary_Use_of_Internal_Audit, Retrieved on May 01, 2019.
- Goodwin, J., Yeo, T. Y. (2001). Two Factors Affecting Internal Audit Independence and Objectivity: Evidence from Singapore. – *International Journal of Auditing*, 5(2), p. 107-125, <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1099-1123.2001.00329.x>, Retrieved on May 01, 2019.
- Guredin, E. (1996). Denetim (Auditing). Beta Basım Yayım, Ed. 10.
- Ho, S., Hutchinson, M. (2010). Internal Audit Department Characteristics/Activities and Audit Fee: Some Evidence from Hong Kong Firms. – *Journal of International Accounting, Auditing, and Taxation*, 19(2), p. 121-136. <https://www.sciencedirect.com/science/article/pii/S1061951810000170>, Retrieved on March 22, 2019.
- Jensen, M. (1993). The modern industrial revolution, exit and the failure of internal control systems. – *Journal of Finance*, 48, p. 831-880. <https://onlinelibrary.wiley.com/doi/10.1111/j.1540-6261.1993.tb04022.x>, Retrieved on April 04, 2019.
- Lin, S., Pizzini, M., Vargus, M., Bardhan, I. R. (2011). The Role of the Internal Audit Function in the Disclosure of Material Weaknesses. – *The Accounting Review*, 86(1), p. 287-323. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1592593&download=yes, Retrieved on April 09, 2019.
- Ljubisavljević, S., Jovanovi, D. (2011). Empirical research on the internal audit position of companies in Serbia. – *Economic Annals*, LVI (191), p. 123-141. <http://www.ekof.bg.ac.rs/wp-content/uploads/2014/06/191-6.pdf>, Retrieved on April 09, 2019.
- IAA. (2018). Internal Audit Competencies. The Institute of Internal Auditors, <https://iia.no/wp-content/uploads/2018/06/2018-Global-KB-Internal-Audit-Competencies.pdf>, Retrieved on March 21, 2019.
- Prawitt, D., Smith, J., Wood, D. (2009). Internal Audit Quality and Earnings Management. – *The Accounting Review*, 84, p. 1255-1280. <https://poseidon01.ssrn.com/delivery.php?ID=231116021119092076030089114105066121018062034043090044011066087076100005106089112104029123096099014032005004114014115004082096037012043042080120121114067088070106056062015124087099024088106001087098002116016064067024066000100076027082123125089098008&EXT=pdf>, Retrieved on March 02, 2019.
- Richiute, D. (2002). *Auditing and Assurance Service*. 7th ed. South-western College Pub, ISBN-13: 978-0324117769, ISBN-10: 0324117760.

Mert, I. (2021). *The Effects of Collaboration between Internal Auditing and Financial Affairs Departments: A Survey Conducted through the Internal Auditing and Financial Affairs Departments.*

Robertson, J. C. (1976). Auditing. Business Publications. 5th ed. ISBN-10: 0256058326 ISBN-13: 978-0256058321.

Sawyer, D. (2004). Sawyer's Internal Auditing, Institute of Internal Auditors. 5th ed. ISBN-10: 0894135090, ISBN-13: 978-0894135095.

Uzun, A. K. (2009). The Role of Internal Audit in Internal Control Quality in Corporate Organizations. 3rd International Symposium On Auditing In Turkey, Retrieved on June 28, 2019. http://archive.ismmmo.org.tr/docs/SEMPOZYUMLAR/SEMPOZYUM_09/EN/5%20paralel%20oturum%203/2%20ali%20kamil%20uzun.pdf, Retrieved on April 12, 2019.

Whittington, O. R., Pany, K. (2004). Principles of Auditing, and Other Assurance Services. 20th ed. McGraw-Hill Education, ISBN-10: 0077729145, ISBN-13: 978-0077729141.

ANNEX

Table 1

The data for *Thoughts of "Positive Effect"*

	Not at all	No	Not really	Neutral	A little bit	Yes	Absolutely	Total Points for the Mean	Total Companies	Mean
The value of the answer	1	2	3	4	5	6	7			
Internal Auditing (IA) Departments	0	1	3	3	4	7	9		27	
Value from the answer of IA	0	2	9	12	20	42	63	148		5.48
Financial Affairs (FA) Departments	2	4	4	11	2	2	2		27	
Value from the answer FA	2	8	12	44	10	12	14	102		3.78

This table presents the returns of comparisons between the thoughts of the internal auditing departments and financial affairs departments. The comparison focuses on the answers to that there is a "*Positive Effect*" on the financial indicators of companies in case of having collaboration when these two departments perform their duties. The table reports that among 27 companies, the survey participants from internal auditing departments believe stronger than those of the financial affairs department that there is a positive result of these departments establish collaborations while rendering their work.

The rows of Table 1 show where the answers of Internal Auditing Departments and Financial Affairs Departments gathered about the *thoughts of "positive effect"*.

It is clear from Table 1 that participants from internal auditing departments made their opinions in favor of "*a collaboration between accounting and auditing departments would create better indicators in the financial statements of a company*", with a total point of 148.

On the other side, even though they also have a supportive opinion, the opinions of the participants from the internal auditing departments are not as strong as those of the participants of the internal auditing department. The total point of the participants of the financial affairs departments is just 102.

Table 2

Raw Scatter of the *Thoughts of “Positive Effect”*

	Internal Auditing Departments	Financial Affairs Departments
1	3	2
2	6	4
3	2	4
4	7	3
5	7	4
6	4	2
7	4	6
8	7	4
9	6	3
10	7	5
11	5	3
12	4	4
13	6	7
14	7	1
15	7	2
16	6	2
17	7	4
18	7	5
19	6	6
20	3	3
21	3	7
22	6	1
23	6	4
24	5	4
25	7	4
26	5	4
27	5	4
Sum	148	102
Mean	5.48	3.78
S	1.556	1.577

Table 2, above, represents the raw data source of table 1. It is possible to see in table 2 the repetitions of the company opinions on the base of the Likert Scale, the sum of the choices, means of the departments and standard deviations of the data for the opinions of both departments.

Table 3

The data for the *Thoughts of “Neutral – No Effect”*

	Not at all	No	Not really	Neutral	A little bit	Yes	Absolutely	Total Points for the Mean	Total Companies	Mean
The value of the answer	1	2	3	4	5	6	7			
Internal Auditing Departments	0	3	3	10	8	3	0		27	
Value from the answer of IA	0	6	9	40	40	18	0	113		4.19
Financial Affairs (FA) Departments	0	1	3	5	9	8	1		27	
Value from the answer FA	0	2	9	20	45	48	7	131		4.85

This table depicts the returns of the comparisons of the answers of that there is a “*Neutral – No Effect*” on the financial indicators of companies even if there is a collaboration between internal auditing and financial affairs departments when these two departments perform their duties. The table shows that among 27 companies, there is no a considerable difference between the survey participants from internal auditing departments and financial affairs departments whether there is a positive or negative effect if these departments establish collaborations while rendering their work.

The rows of table 2.1 show where the answers of Internal Auditing Departments and Financial Affairs Departments gathered about the *thoughts of “Neutral – No effect”*.

It is clear from table 2.1 that participants from both departments made their opinions in favour of “*a collaboration between accounting and auditing departments would not create better or worse indicators in the financial statements of a company*”, with the total points of 113 and 131.

On the other hand, we can identify that the opinions of the participants from financial affairs departments are stronger (4.85 about the “*Neutral – No Effect*” than those of the participants from the internal auditing departments (4.19).

Table 4

Raw Scatter of the *Thoughts of “Neutral – No Effect”*

	Internal Auditing Departments	Financial Affairs Departments
1	3	6
2	5	3
3	6	2
4	5	4
5	5	3
6	6	5
7	4	5
8	4	6
9	4	6
10	4	5
11	4	5
12	4	5
13	5	5
14	5	5
15	4	4
16	4	4
17	3	4
18	2	6
19	5	6
20	5	3
21	6	5
22	3	7
23	4	6
24	4	4
25	5	6
26	2	6
27	2	5
Sum	113	131
Mean	4.19	4.85
S	1.145	1.199

Table 4, above, represents the raw data source of table 3. It is possible to see in table 4 the repetitions of the company opinions on the base of the Likert Scale, the sum of the choices, means of the departments and standard deviations of the data for the opinions of both departments.

Table 5

The data for the *Thoughts of “Negative Effect”*

	Not at all	No	Not really	Neutral	A little bit	Yes	Absolutely	Total Points for the Mean	Total Companies	Mean
The value of the answer	1	2	3	4	5	6	7			
Internal Auditing Departments	9	15	1	2					27	
Value from the answer of IA	9	30	3	8	0	0	0	50		1.85
Financial Affairs Departments	8	16	1	2					27	
Value from the answer FA	8	32	3	8	0	0	0	51		1.89

Table 5 represents the outcomes of the comparisons of the answers of that there is a “*Negative Effect*” on the financial ratios of companies if a collaboration is composed between internal auditing and financial affairs departments when these two departments perform their duties. The table reflects that among 27 companies, the thoughts are almost the same between the survey participants from internal auditing departments and financial affairs departments whether there is a negative effect if these departments render their duties with collaboration.

The rows of table 5 show where the answers of Internal Auditing Departments and Financial Affairs Departments gathered about the *thoughts of the “Negative effect”*.

The mean differences of data returns are from deciles 1 to 10 (1.85 to 1.89). It is clear from table 3.1 that participants from both departments made their opinions in favour of “*a collaboration between accounting and auditing departments would not create negative indicators in the financial statements of a company*”, with the total points of 50 and 51.

Table 6

Raw Scatter of the *Thoughts of “Negative Effect”*

	Internal Auditing Departments	Financial Affairs Departments
1	3	2
2	2	2
3	1	2
4	2	2
5	4	4
6	2	2
7	2	2
8	1	1
9	2	2
10	2	2
11	1	4
12	2	1
13	2	2
14	2	2
15	4	1
16	1	1
17	2	1
18	2	2
19	2	3
20	1	1
21	1	2
22	1	2
23	2	1
24	2	2
25	1	2
26	2	2
27	1	1
Sum	50	51
Mean	1.85	1.89
S	0.818	0.801

Table 6, above, represents the raw data source of table 5. It is possible to see in table 6 the repetitions of the company opinions on the base of the Likert Scale, the sum of the choices, means of the departments and standard deviations of the data for the opinions of both departments.

Table 7

The summary of the *thoughts of the survey participants*

	Internal Auditing Departments	Financial Affairs Departments
Thoughts of “Positive Effect”	5.48	3.78
Thoughts of "Neutral - No Effect"	4.19	4.85
Thoughts of “Negative Effect”	1.85	1.89

Table 7 summarizes the thoughts of the survey participants by sorting the three different thoughts and their means in the internal auditing departments and financial affairs departments.

As it was touched in the explanations of previous tables, it can be concluded from table 7 that:

a) Participants from the Internal Auditing Departments think that:

- **Positive Effect:** Yes, collaboration with financial affairs departments would support the financial indicators of a company upward.
- **Negative Effect:** No, collaboration with financial affairs departments would affect the financial indicators of a company the downward.
- **Neutral Effect:** It is not clearly established in their minds whether collaboration with financial affairs departments would support the financial indicators of the downward.

b) Participants from the Financial Affairs Departments think that:

- **Positive Effect:** It is not clearly established in their minds whether collaboration with financial affairs departments would support the financial indicators of the downward.
- **Negative Effect:** No, collaboration with financial affairs departments would affect the financial indicators of a company downward.
- **Neutral Effect:** It is mildly clear in their minds whether collaboration with financial affairs departments would have any effect on the financial indicators of a company.

FACTORS INFLUENCING INFORMATION SHARING INTENTION FOR HUMAN RESOURCE ANALYTICS³

In the past few years, Human Resource Analytics (HRA) has drawn interest of the academic community and HR practitioners. However, an in-depth analysis of practice and research in HRA, is required. In this research paper, the authors have attempted to revisit the literature in HRA and present a clear understanding of the existing state and the key areas of research. A research gap was identified in ethics and privacy concerns in the acceptance of HRA and a research model was proposed for further research. The objective of the paper is twofold: a) review research in human resource analytics and identify a research gap; b) research proposition and Research model.
JEL: C82

Introduction

In this highly competitive business world, organization's want more from their talent and investments. The decision-makers are challenged by questions such as: Why does one executive outperform his/her colleagues? How do investments in employees impact workplace performance? What is the effect of employee engagement programs on the company's bottom-line? How do we know when to staff employees and when to cut back? What will be the minimum duration for new employees to get acquainted with the system and start showing results? Why do some teams perform well while others do not?

Using people-related data and analyzing it with systematic reasoning can help provide answers to such questions. Early work in analytics implied devising simple HR metrics such as employee headcount, absenteeism, turnover, and cost per hire. This made way for benchmarking HR delivery, policies, and practices between comparable organizations. However, this information did not provide the business intelligence needed to gain a competitive edge through talent. In present-day organizations, abundant transactional data is available from knowledge management systems and social networking sites. But the important question is how to analyze it and use it logically. HRA has progressed beyond

¹ Sarika Singh, School of Petroleum Management, Pandit Deen Dayal Petroleum University, Gandhinagar, India, e-mail: sarika.sphd18@spm.pdpu.ac.in.

² Dr. Ashutosh Muduli, School of Petroleum Management, Pandit Deen Dayal Petroleum University, Gandhinagar, India, e-mail: ashutosh.muduli@spm.pdpu.ac.in.

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graphic data collection and reporting. It involves data collection and analysis, with the help of statistical tools to assist in business planning and decision-making. HRA can also be used to keep track of HR investments and outcomes and identify causal relationships between talent variables.

In recent times, HRA has been recognized as a practice that can improve the standing of the HR function. The organizations, that build HRA, as a core competence can not just improve the overall HR service delivery and effectiveness but also contribute to the bottom-line (Bassi et al., 2011). Since 2010, the research efforts in HRA have increased considerably among scholars (Bassi et al., 2011; Aral et al., 2012; Kapoor, Kabra, 2014; Angrave et al., 2016; Vidgen et al., 2017; Heuvel, Bondarouk, 2017; Kryscynski et al., 2018; Mayo, 2018). As a result, research in HRA has gained prominence and grown by leaps and bounds.

In view of these events, the authors are keen to understand the research and literature development work in HRA and provide useful direction for further research. Specifically, we have studied research articles published during the period 2010-2019, and then suggest an area where further research may be helpful for practitioners as well as researchers.

Literature Review

At the outset, it will be useful to understand the steps adopted, in the research paper. The first step was to identify the period of the study. The global economic depression lasted from December 2007 to June 2009. The economic downturn endured for 18 months and impacted financial markets as well as the banking and real estate industries across many countries in the world. In response to the economic recession, governments and central banks undertook exceptional steps to save the financial system and adopted wide-ranging policy measures. As per the OECD report published in 2009, OECD countries had taken extensive measures in infrastructure investment, taxes and labour market, regulatory reforms, and trade policy. These developments seemed to have set the stage for a global recovery. This heightened emphasis on performance, coupled with the realization that data and analytics, have the potential to transform the activities of companies and scientific researchers, resulted in a surge in the practice of HRA. The researchers also noticed a constant rise in the number of articles, published on the subject of HRA from the year 2010. Bearing this in mind, the period of the study was chosen to be from 2010 to 2019.

The second step was to collect literature related to HRA. To achieve this, appropriate keywords were ascertained and electronic databases such as EBSCO, Proquest and J-Stor were searched using these keywords. The third step was to investigate the subject matter and check the relevance of the selected articles to the present study. A final shortlist of 56 articles was critically examined and included in the literature review.

In the fourth and final step, the researchers identified the research gap and presented a research proposition and model for further research.

Table 1

A shortlist of 56 articles, related to HRA

No	Author	Findings
1.	Bassi, McMurrer, Moss, Sidhu, and Vickers, 2011	An account of the several debates around HRA, to achieve a consensus on its value to the business.
2.	Rasmussen and Ulrich, 2015	Strategies, that can help HRA from becoming just another management fad.
3.	Angrave, Charlwood, Kirkpatrick, Lawrence, and Stuart, 2016	The article discusses the drawbacks of human resource analytics and stresses that the present trends may damage the interests of the employees and not be beneficial to the organization.
4.	Anjali, 2018	The objective of the research is to study the existing state HRA and uncover its benefits, importance, and business impact.
5.	Davenport, Harris, and Shapiro, 2010	A review of the six types of HRA, in vogue in today's organizations, i.e., Human-capital facts, Analytical HR, Human-capital investment analysis, Workforce forecasts, the Talent value model, and the Talent supply chain.
6.	Harris, Craig, and Light, 2011	The paper proposes a ladder of six analytical capabilities: Employee database, Critical talent management, Focused HR investments, Customized EVP, Workforce planning and Talent supply chain.
7.	Alexis, 2010	The study explores new and current trends in leading organizations and recent work of thought leaders in human capital analytics.
8.	Falletta, 2014	The study is an insight into the HR Research and analytics practice of high performing Fortune 1000 companies.
9.	Du Plessis and De Wet Fourie 2016	A longitudinal research project to study the influence of big data on the HR practitioner's role, goals, and activities.
10.	Lismont, Vanthiena, Baesens and Lemahieu, 2017	Organizations are rated based on Analytics maturity stage: no analytics, analytics bootstrappers, sustainable analytics adopters and disruptive analytics innovators.
11.	Bose and Jose, 2018	An exploratory study on the evolution of HRA
12.	Sousa, 2018	The study identifies the kinds of analytics systems employed by organizations to improve their business decision-making.
13.	Levenson, 2011	Case-study based paper illustrating how to design apply and integrate analytics into the human resource function.
14.	Mondore, Douthitt and Carson, 2011	A case-study based paper explaining the implementation of HRA with the help of a HR business partner roadmap.
15.	DiBernardino, 2011	By providing a financial approach to human capital analytics the paper attempts to gauge effectiveness and impact of Human capital investments at enterprise level value.
16.	Aral, Brynjolfsson and Wu, 2012	The empirical research paper tests three-way complementarities between HRA, performance pay and Information technology.
17.	Dulebohn and Johnson, 2013	This study provides a framework which helps inform the selection, and application of HRA to the operational, managerial, and strategic decision-making levels in human resource.
18.	Douthitt and Mondore, 2014	Provide a blueprint for organizations to follow as they improve their HRA practice with the help of an integrated talent scorecard focused on business outcomes.

Singh, S., Muduli, A. (2021). *Factors Influencing Information Sharing Intention for Human Resource Analytics*.

No	Author	Findings
19.	Sharma and Sharma, 2014	The research paper illustrates how human resource analytics can help assess the impact of human resource activities on business planning and implementation.
20.	Collins, 2015	The article considers the role of mission, stakeholders, champions, to build the Workforce analytics capability of the human resource function.
21.	Minghui, 2017	The paper illustrates how academicians & practitioners can collaborate in building HRM causal models, and quasi experimental designs, to improve organization decision making.
22.	Boudreau and Cascio, 2017	The research paper proposes the LAMP model which stresses the four elements necessary for the wider use of HRA in organizations, (logic, analytics, measures, process).
23.	Vidgen et al., 2017	The empirical research paper suggests that organizations work towards a business analytics ecosystem by ascertaining key business areas and functions to accomplish this transformation.
24.	Kaur and Fink, 2017	The paper provides a high-level roadmap for building the talent analytics function and offers a review of key approaches, competencies, and tools for talent analytics in 16 corporations.
25.	Marler and Boudreau, 2017	An evidence-based literature review of published articles in human resource analytics by using integrative synthesis research methodology.
26.	Kremer, 2018	A literature review to discuss the impact of moderating factors on HRA and come up with suggestions on how to work around these factors.
27.	Ben-Gal, 2018	ROI based review on HRA to guide decision-makers in its implementation.
28.	Gupta and Shaikh, 2018	A research review paper that suggests how people analytics is fast becoming a novel approach in human resource management.
29.	Tursunbayeva et al, 2018	A mixed method 'scoping review' of the term people analytics (PA), the value proposition offered by PA services and tools vendors and sought-after PA skillsets
30.	Nocker and Sena, 2019	With the help of case studies, the paper deliberates the benefits vis a vis the costs involved in implementing talent analytics and how it can improve organizational decision making.
31.	Mohammed, 2019	A study of the existing literature on the relationship between HRA and its role in improving managerial decision making and HR tasks.
32.	Mc Cartney and Fu, 2019	The research paper provides empirical evidence on the business impact of HRA.
33.	Netten, Choenni and Bargh, 2019	The paper presents a framework that exploits HR data for the implementation of HRA in practice.
34.	Etukudo, 2019	A qualitative paper, adopting a case-based approach to study ways of utilizing HRA to improve company performance.
35.	Telu and Verma, 2019	A literature review that explores the concept of HRA and its importance in the business industry, obstacles that hinder adoption of HRA and solutions for overcoming them.
36.	Zeidan and Itani, 2020	A systematic review to highlight processes, emerging trends, antecedents, consequences, and influences impacting the adoption of HRA.

No	Author	Findings
37.	Vargas et al, 2018	The empirical study aims at developing an appreciation of the factors that influence HRA adoption at the individual level.
38.	Kryscynski et al, 2018	This empirical study tests the relationship between the analytical skills of HR professionals with perceived job performance. Further the study explores moderating factors such as industry, company, and job-level factors.
39.	Coco, Jamison, and Black, 2011	A case-based research that demonstrates with the help of causal modeling how employee engagement leads to measurable business outcomes at Lowes.
40.	Ramamurthy et al, 2015	The author employs propensity to leave analytics in the form of a talent management tool.
41.	Sharma and Sharma, 2017	The conceptual paper proposes HRA as a potential solution for issues related to performance management.
42.	Chattopadhyay et al, 2017	An empirical study that illustrates how HRA can be applied to address issues such as attrition, employment branding and work-life balance.
43.	Gudivada and Indira, 2017	An in-depth study on the application and use of HRA in the talent acquisition function at Dr. Reddy's, an Indian pharma MNC.
44.	Mayo, 2018	A practical paper to provide guidance to talent managers on how HR metrics and analytics can be applied in talent management.
45.	Barber, Choughri and Soubjaki, 2019	The study investigates how HRA may be used to advance the training and development strategy in private organizations in Lebanon.
46.	Valentine, Hollingworth and Francis. 2013	This empirical research suggests that quality-based HR practices advance an ethical context, yielding more favorable employee attitudes.
47.	Slade and Prinsloo, 2013	The article suggests a framework to come up with appropriate ways to address ethical issues in learning analytics in higher education institutions.
48.	Holt, Lang, and Sutton, 2017	This analytical study investigates, the impact of organizational monitoring practices on potential employees' beliefs and intentions.
49.	Mittelstadt, 2017	A conceptual paper proposes the concept of group privacy and discusses the commercial and social benefits while evaluating the ethicality of analytics platforms.
51.	Guenhole, Feinzig and Green, 2018	An empirical study on how different cultures have an impact on employee's willingness to sharing their personally identifiable data for human resource analytics.
52.	Nersessian, 2018	This article assesses the extent to which International human rights law exercises a legal or ethical check the proper handling of big data and analytics in the modern networked world.
53.	Kapoor and Kabra, 2014	The research paper analyses recruitment of analytics experts and professionals in different business areas. These models are utilized for indication of HRA adoptions in the present and future.
54.	Pape, 2016	The study offers a blueprint to estimate the data items that are required for Business analytics. The framework was applied in HR function and a list of 30 data items for HRA was furnished.
55.	Heuvel and Bondarouk, 2017	A qualitative study comparing the purpose of use and value provided by HRA in 2015 and in 2025.
56.	Afzal, 2019	The paper deliberates the prospects, challenges, and benefits of implementing HRA in the Indian IT sector.

Research provides a critical evaluation of the concept of HRA, for e.g., an account of the several debates around the concept of human resource analytics and the need to achieve a consensus on its value to the business. (Bassi et al., 2011). Though HRA is touted as a practice that can improve the standing of the HR function, yet realizing its complete potential remains a challenge. Adopting a business centric, ‘outside-in’ approach can enable implementation and avoid HRA from becoming just another management fad (Rasmussen, Ulrich, 2015). An exploratory study on the evolution of HRA infers that factors, adopting appropriate methods of analytics and collaborative interventions can help achieve maximum business impact (Bose, Jose, 2018).

Initial years, witnessed researchers proposing ways to design, apply and integrate HRA in organizations (Levenson, 2011; Mondore et al., 2011). A research by Douthitt and Mondore (2014), presents a blueprint for organizations to follow as they improve their HRA practice with the help of an integrated talent scorecard focused on business outcomes. Subsequent research started examining how academicians & practitioners can collaborate in building HRM causal models and quasi-experimental designs to improve organization decision making (Minghui, 2017). Aral et al. (2012), conducted an empirical study by combining data on human capital management software adoption with detailed survey data on incentive systems and HR analytics practices for 189 firms. The empirical research suggests how performance pay, HRA and Information technology can lead to a larger productivity premium when implemented as a system of complements, rather than when implemented in isolation. Boudreau and Cascio (2017), in their research paper proposed the LAMP model, which highlights the four elements necessary for wider use of HRA, in organizations, (Logic, Analytics, Measures, Process). A recent paper by Kaur and Fink (2017), suggests a high-level roadmap for building the talent analytics function and offers a review of key approaches, competencies, and tools for talent analytics in 16 multinational corporations. Ongoing research emphasizes how HRA can influence the effectiveness and impact of HR practices such as employee engagement, performance appraisal, training, and development (Sharma, Sharma, 2017; Gudivada, Indira, 2017; Mayo, 2018; Barber et al., 2019). Several evidence-based literature reviews on HRA also provide decision-makers with guidance in its implementation (Marler, Boudreau, 2017; Kremer, 2018; Ben-Gal, 2018; Mohammed, 2019; Telu, Verma, 2019). Lately, a systematic review on HRA deliberated issues such as the processes involved, emerging trends, antecedents, consequences (such as, organizational effectiveness), and the influences impacting its adoption (Zeidan, Itani, 2020)

Parallely research focused on exploring new and current trends in HRA practices (Alexis, 2010), in Fortune 1000 companies (Falletta, 2014; Sousa, 2018). Case-based research studies investigate the types/levels of HRA practiced in modern organizations and suggest a ladder of six analytical capabilities for managing talent and directing programs toward the long-term needs of the business: employee database, critical talent management, focused HR investments, customized EVP, workforce planning and talent supply chain (Davenport et al., 2010; Harris et al., 2011).

While HRA is known to build the organization’s analytical and decision-making capabilities, it is important to track return on investment. A research paper, published recently, provides empirical evidence on the impact of HRA on organizational performance (Mc Cartney and Fu, 2019). A qualitative, multiple case-based study by Etukudo (2019), explores how HR

managers can utilize analytics to improve company performance. Literature has also modelled future trends in terms of prospects, challenges, and benefits of adopting HRA (Kapoor, Kabra, 2014; Heuvel, Bondarouk, 2017; Afzal, 2019).

One of the key challenges is balancing ethics and privacy concerns alongside realizing potential business benefits from the implementation of HRA. A recent study considers the extent to which the International human rights laws operate as a legal constraint and provide a baseline for ethical practices and globally acceptable standards about the proper handling of big data and analytics in the modern global society (Nersessian, 2018). At the organizational level, Holt et al. (2017), performed an analytical study to investigate the impact of organizational monitoring practices on potential employees' beliefs and intentions. These were complemented by detailed studies centred on privacy concerns of employees and explored the impact of culture on the individual's willingness to provide their personal data for HRA (Guenhole et al., 2018). A notable empirical research relating to ethics in HRA, suggests that quality-based HR practices can be used to advance an ethical context, yielding more favourable work attitudes (Valentine et al., 2013).

Research Gap

As espoused by research, HRA is viewed as a strategic tool that provides value by supporting evidence-based decision making and improving the efficiency and effectiveness of human resource policies and services. (Rasmussen, Ulrich, 2015). In the present-day business context, it is important for organizations to have well-defined information governance policies and adopt a proactive approach to address employee's concerns with regards to sharing information (Fawcett et al., 2011). Further, Fawcett endorsed the view that the Information sharing intention of an employee or customer advances organizational performance and profitability. Personal information allows people to be individually identified and includes written records such as individual's name and address, photographs, images, video, or audio footage. Such information may be generated at the workplace as well as on social media. When an employee is required to share personal information, for human resource analytics, there is apprehension about how that information will be collected and used. There are growing concerns about potential violation of business ethics and privacy and employees and other stakeholders will not be willing to share their information for human resource analytics (Bassi, 2011).

A research on HR attributions suggests that an employee's response to HR practices is subject to the perception he/she forms regarding senior management's objective to implement certain HR practices (Mignonac, Richebe, 2013). Literature suggests that it becomes difficult to achieve desirable employee-level outcomes when employees attribute human resource practices to have intimidating motives. However, the reverse is true when employees perceive organizational actions as understandable and free of any covert objectives (Nishii et al., 2008). Hence, it is proposed that employee's perceptions of the organization's objective behind use of HRA has an impact on their intention to share information.

Another important line of research, advocates that apparently well-intentioned human resource practices may not achieve the intended results if the implementation does not

consider the employee's perceptions (Woodrow, Guest, 2014; Guest, Bos-Nehles, 2013). In January 2019, IPSOS and the World Economic Forum released a report titled Global citizens and data privacy, which cites lack of information and low trust around the usage of personal data by companies and governments. The report concludes that if organizations are transparent about their data protection policies and have a clean security record, it can help mitigate employees and customers fears around misuse of personal information. It is therefore important to explore employees' beliefs and attitudes to see whether there are significant factors in the workplace that can be controlled to maximize the impact of HRA. In addition, research examined how the cultural setting can impact an employees' openness to allowing their personal information to be utilized for HRA (Guenole, Sheri, 2018). Though there is considerable research on ethics and privacy domain in HRA, the underlying forces influencing individual-level acceptance of HRA in an organizational setting has not been explored. There are a few studies in the context of bio-medical research and learning institutions that explore the importance of gaining an individual's trust before using his or her personal information, however none in the organizational context. Even if individual acceptance is studied, it receives minimum to modest academic attention. An empirical study applies innovation theory to investigate an employee's decision to adopt HRA in organizations (Vargas et al., 2018). The primary goal of this research is to recognize the factors that facilitate or come in the way of adoption of HRA and suggest ways to improve the adoption rate. The research examines the impact of attitude on the individual's adoption of HRA, however, not in-depth.

Further research is required to investigate the antecedent/personal characteristics that influence an employees' acceptance of HRA and willingness to share information. It becomes vital for organizations to consider employee's perceptions during the implementation of HRA to attain the full breadth of operational and strategic benefits from the initiative. Improved acceptance for HRA is likely to step up its success rate.

Objective

Sharing information by employees is critical for maximizing the effectiveness and success of human resource analytics. The rationale of the study is to ascertain the psychological as well as social factors that induce employees to share information for human resource analytics. The researcher has attempted to answer the below questions:

RQ1: What are the underlying factors at the Individual level that influence information sharing intention for human resource analytics?

RQ2: What are the factors at the organizational level that build information sharing intention for human resource analytics?

RQ3: What is the relationship between organizational trust and information sharing intention for human resource analytics?

Methodology

The methodology adopted for the study comprises of three steps including: literature review in HRA; identification of factors influencing organizational trust and information sharing intention for HRA; and presenting a conceptual model for further research.

- A. Published articles in HRA were searched from journals, published books and web-based articles.
- B. Individual and organizational factors influencing information sharing behaviours for HRA were identified and a literature review was conducted on each factor.
- C. A conceptual model was proposed for further research on information sharing intention for HRA.

Research Proposition and model

The feature of an individual's willingness to share information is often overlooked (Fawcett et al., 2007). Previous studies, such as the research by Du et al., 2001, cite gains from sharing information, but disregard the results of willingness to share. However, multiple researchers draw attention towards the need to examine the social and psychological factors that persuade people to share information (Zhao et al., 2013; Tokar, 2010; Narayanan, 2004). Our research focuses on identifying specific social and psychological factors that influence the intention of employees to share information for HRA. The researchers propose to investigate how this willingness influences the quality of information shared and the effectiveness of HRA. The active phrase here is "the willingness of individuals". As postulated by Gibbert and Krause 2002, in practice, one cannot be forced, but can only be encouraged and facilitated to share information. For firms wanting to improve their employee's information sharing behaviours, it becomes important and challenging to influence employee's intentions. Therefore, researchers, as well as practitioners, have a shared interest in understanding the motivating factors behind information sharing (Reinholt et al., 2011). But what are the factors that motivate or encourage such behaviours?

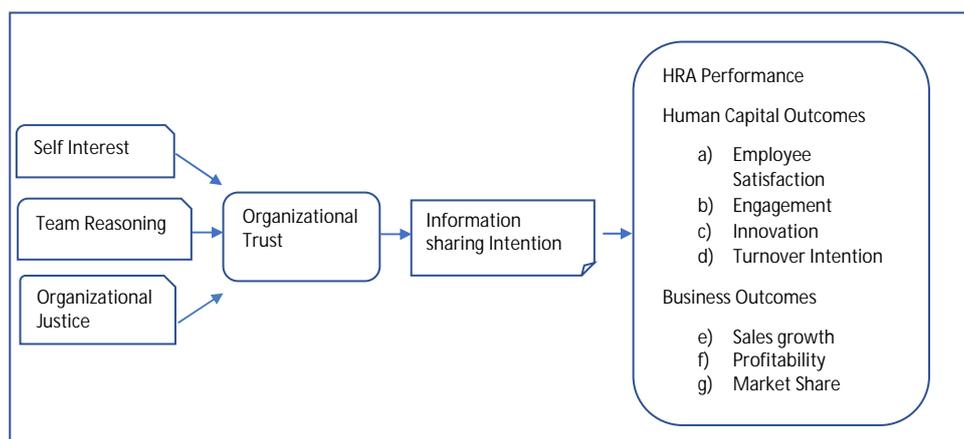
Szulanski (1996) submitted that motivational forces come from two sources: (1) employees' personal belief structures, and (2) institutional structures, i.e., values, norms and accepted practices which are instrumental in shaping individuals' belief structures (De Long, Fahey, 2000). As suggested by Hall (2003), insights from social exchange theory and social contract theory can be used to better understand the role of individual factors and social determinants in the willingness to share information. In this regard, information sharing theory by Constant et al. (1994) proposes that social exchange factors (like trust and reciprocity) and social psychology factors (like attitudes, feelings, and self-identity) influence an individuals' intentions to share information. According to Constant et al. (1994), **information sharing is affected by rational self-interest** as well as the social and organizational context. The researchers propose that "organizational culture and policies as well as personal factors can influence people's attitudes about information sharing".

The theory of planned behaviour may be applied to identify factors affecting information sharing. According to the theory (TBP) proposed by Ajzen and Fishbein (1980), beliefs and evaluations would impact the individual's attitude, while normative beliefs and motivation to comply would influence subjective norms. Thus, we may assume that attitudes and subjective norms shape an individual's intention, and intention in turn influences behaviour. Drawing on the theory of planned behaviour, a study by Bock et al. (2005) proposes that an individual's attitudes towards sharing information, the prevailing subjective norms, along with the organizational climate shape an employee's intentions to share information. From an employee's standpoint, the principles of self-interest, team reasoning and organizational justice uphold organizational trust. Organizational trust in turn, improves the information sharing intention of employees and builds acceptance for HRA. Better acceptance for the HRA practice and enhanced information quality is likely to impact human resource and business outcomes positively.

The researchers thus propose conceptual research model for further study (Figure 1).

Figure 1

Proposed research model: Building organizational trust for information sharing intention for HRA



a) *Self Interest*

Self-interest was identified as an independent factor that influences the trust and information sharing intention of employees. As per Adams and Maine (1998), Self-interest is described as an individual's drive to fulfil his own desires, ignoring the other person's interests or how his / her actions may impact other people to fulfil his own desires (Adams, Maine, 1998).

Drawing on expectancy theory and behavioural decision theory, Meglino and Korsgaard, (2004) propose that considering their values and risk preferences, most individuals strive to achieve their self-interest or outcomes. A study by Mellers et al. (1998) adopts the view that in pursuit of attainment of their self-interests, people normally resort to maximizing their results/benefits.

Table 2

Self Interest

Author	Key Findings
Adams and Maine, 1998	an individual's drive to fulfil his own desires, ignoring the other person's interests or how his / her actions may impact other people.
Meglino and Korsgaard, 2004	having considered their beliefs and possibilities, most individuals are inclined to maximize their self-interest.
Mellers, Schwartz and Cooke, 1998	in pursuit of attainment of their self-interests, people normally resort to maximizing their results / benefits

Information privacy can be expressed as the confidentiality of personal information and usually associated with personally identifiable information stored in computer systems. As stipulated by Foxman and Kilcoyne (1993), Information privacy is said to exist only when an individual (1) can exercise control over the use of his/her personally identifiable information and (2) advised about information collection and other procedures. As argued by Culnan (1995), and Foxman and Kilcoyne, (1993), control is the operative aspect and practiced by allowing for consent, modification, and choice to participate or not, whereas awareness relates to the extent to which an employee is informed about the organizations' information privacy practices. Self Interest of the employee can be safeguarded by providing autonomy and transparency in collection, storage, and information sharing practices. Obtaining employee's consent and providing transparency in the collection, use and sharing of personal information for human resource analytics can give a sense of control and autonomy to employees.

Proposition 1: Self Interest is significantly related with information sharing intention.

b) Team Reasoning

However, Self-interest may be extended to the interest of the group with which an individual is interested in sustaining an ongoing relationship. If an individual wants to be in an enduring relationship with a group, then that individual will be inclined to take the interest of that group into account while taking a decision. As per Coleman et al. (2008), this type of decision-making grounded in an inclination towards the group is called team reasoning. In comparison to individual utility maximization, Team reasoning is a distinct factor. In his probe into 'shared cooperative activity' Bratman (1993) presents a different account of collective intentionality. Bratman suggests that when an agent has the intention to engage with the other in the process of mutual responsiveness and mutual support, the agent team reasons. Subsequent theories propose that 'We' in the team reasoner's perception, is an agency, acting as a distinct entity pursuing a single objective. Gold and Sudgen (2007), investigate the thought that a team of individuals is a distinct agent and decision-makers may be inclined to extend either individual or shared objectives contingent with the situation. According to Gilbert (2008), team reasoning occurs when individual parties are jointly committed to follow, by virtue of their individual actions, a single body with a single objective.' As stated by Pacherie (2013), participants in a team are inspired for team-directed reasoning by identification with the group and by viewing a situation where a decision

regarding the group is to be taken as a problem facing the group. An individual engages in team reasoning when, in a situation wherein the presence of other agents, she quizzes What should we do? Instead of What should I do? Bacharach (1999) suggests that when an individual must make social choices, a team reasoner identifies with the group conceiving of himself as part of a team and takes a decision as a unit irrespective of the circumstances. Team reasoning improves organizational trust and encourages him to engage in behaviour's that benefit the organization. In effect, it furthers the information sharing intention for human resource analytics.

Proposition 2: Team reasoning is significantly related with information sharing intention

Table 3

Team Reasoning

Author	Key Findings
Colman et al., 2008	If an individual wishes to be in an enduring relationship with a group, then he takes the group's interest into consideration at the time of taking decisions
Bratman, 1993	Team reasoning happens when an individual is a commitment to engage with the other by practising mutual responsiveness and mutual support.
Gold and Sudgen, 2007	A team of individuals is a distinct agent and decision-makers may be inclined to extend either individual or shared objectives contingent with the situation
Pacherie, 2013	When participants in a team identify with the group and view a situation where a decision needs to be taken as a task facing the team, they are inspired by team reasoning.
Bacharach, 1999	A team reasoner adopts a 'We' perspective by taking decisions in favour of the agency regardless of the circumstances.

c) Organizational Justice

Besides self-interest and team reasoning, organizational justice forms the moral basis for a trust relationship between an employer and an employee. Moorman (1991) described organizational justice as an employee's understanding of the extent of fairness in the organization. Greenberg (1987) introduced the concept of organizational justice in relation to how an employee evaluates the organization's behaviour, thus influencing the employee's resulting attitude and behaviour. Initial research suggested that justice in organizational context may be divided into two types of perceptions: distributive justice and procedural justice. Distributive justice is concerned with the equality of distribution of results among deserving employees. The organization is understood to have observed distributive justice if the outcomes are equally distributed among deserving employees (Leventhal, 1976; Homans, 1961; Deutsch, 1975; Adams, 1965). In contrast, when the procedures employed to make talent-related decisions and implement these decisions are fair, the organization is perceived to have adhered to Procedural justice. (Leventhal, 1980; Thibaut, Walker, 1975, Karuza, Fry, 1980). Procedural justice can be practised by lending an ear to the employee's voice while taking a management decision or by acknowledging an employee's influence over the outcome, as explained by Thibaut and Walker, 1975. Leventhal et al. (1980) propose that when an organization follows the basic principles of equality, such as fairness, reliability, correctness, proper representation, and adherence to ethics, while implementing a practice, it

is called Procedural justice. Bies and Moag, (1986) put forward an altogether new aspect of justice, called Interactional justice. The relational treatment received by employees during the institution and practice of organizational policies, is described as Interactional treatment. The researcher proposes that, Interactional justice is practised when managers taking decisions are sensitive and respectful towards team members and provide a clear basis for their decisions. Greenberg (1993) came up a four-factor model for organizational justice. As per him, since respect and sensitivity towards employees may alter reactions to decision outcomes, thus Interpersonal justice can be considered as the relational side of distributive justice. Also, since the information required to evaluate justice is provided by explanations, interactional justice may be viewed as the interpersonal angle of procedural justice.

Organizational justice serves as a precursor for gaining employee trust and commitment. Greenberg and Colquitt in their handbook of organizational justice (2005), suggest that employees have more trust, are more committed to the organization, and are more satisfied when justice is perceived as being fair. Multiple studies on organizational justice have endorsed the view that the commitment demonstrated by an employee relates to the perceived equality/objectivity in the organization. (Cohen-Charash, Spector 2001; Colquitt, 2001; Masterson et al., 2000). Maintaining organizational justice at the workplace can lead to favourable results. Incorporation of the principles of organizational justice provides the basis for gaining employee trust, acceptance, and participation in HRA.

Proposition 3: Organizational Justice is significantly related with Information sharing Intention

Table 4

Organizational Justice

Author	Key Findings
Moorman, 1991	An individual's opinion of the degree of fairness in the organization
Thibaut and Walker, 1975	Procedural justice can be furthered by allowing room for an employee's say or employee's influence at the time of making decisions / or in a business outcome.
Leventhal et al., 1980	Procedural justice happens when an organization follows the basic principles of equality, such as fairness, reliability, correctness, proper representation, and adherence to ethics, while implementing a practice
Bies and Moag, 1986	The relational treatment employees receive during the institution and practice of organizational policies.

d) Organizational Trust

As per Gills (2003) when an organization is willing to aptly expose itself to risk, along with the understanding that the significant other is concerned, competent, consistent, and identified with the shared value system and goals, comprises organizational trust. Schoorman et al. (2007), suggested that when an employee is agreeable towards their organization's actions or policies, then he/she, demonstrates organizational trust. As per Tam and Lim (2009), the employees are willing to trust their organization only when it clearly communicates the rationale behind its policies, practices, and actions by way of formal and informal channels. The fundamental belief is that the other person will act justifiably, not malevolently, and will be competent, honest, and fair. Fulmer and Gelfand (2012) defined

organizational trust, where an employee is willing to accept vulnerability based on the expectation that the organization will conduct its interactions with the employees fairly and positively. Research contends that organizational trust is a crucial input for cooperation and effectiveness in organizations (Rousseau et al., 1998; Zand, 1972; Zand, 1997; Lewis, Weigert, 1985; Nooteboom, 2002; McAllister, 1995; Lane, 1998; Sousa-Lima et al., 2013) support the view that organizational trust is essential for developing social exchange relationships, especially taking into consideration the dynamic nature of the reciprocal relationship. In agreement with Blau (1964), and Luo (2002), trust is the foundation for social exchange relationships. Drawing from social exchange theory, trust is a key construct in any social exchange relationship (Luo, 2002). Thus, we may infer that employees are more likely to respond with higher effort and demonstrate a positive attitude at the workplace when they have high trust in their organization.

Several researchers agree that a high degree of trust in the organization can make them more effective by paybacks such as organizational commitment, better employee cooperation and employee relations, information sharing, positive attitude, organizational citizenship behaviour, and better job performance etc. (Tan, Tan 2000; Mayer et al., 1995; Laschinger et al., 2001; Dirks, Ferrin 2001; Chen et al., 2005; Rousseau et al., 1998; Tan, Lim, 2009). Building employees' trust in an organization, not only makes it more efficient but also facilitates the adaptation to new processes and forms of work. Therefore, improving organizational trust is a beneficial goal for an employer. When employees trust their organization, they will be inclined to support its mission and respond positively to HR practices. From an employee's standpoint, the principles of self-interest, team reasoning and organizational justice uphold organizational trust and build acceptance for HRA.

Proposition 4: Organizational trust is related with Information sharing intention

Table 5

Organizational Trust

Author	Key Findings
Gills, 2003	When an organization is willing, to aptly expose itself to risk, along with the understanding that the significant other is concerned, competent, consistent, and identified with common value systems and goals.
Fulmer, Gelfan, 2012	organizational trust when an employee is willing to accept vulnerability based on the expectation that the organization will conduct its interactions with the employees fairly and positively
Shoorman et al., 2007	Employee's trust is their' openness to be accepting to organization's policies and actions.
Sousa-Lima, Michel, Caetano, 2013	Organizational trust is essential element in social exchange relationships, especially considering the discretionary nature of the reciprocal relationship

e) *Information sharing intention*

As put forward by Bock et al. (2005), the information-sharing behaviour is a direct outcome of the willingness to enact that behaviour. De Vries et al. (2006) described willingness to share as the openness of an 'individual' to allow another 'individual' access to his information assets. Information sharing theory by Constant et al. (1994) asserts that social

exchange factors such as i). trust and reciprocity and ii). social psychology factors such as attitudes, feelings, and self-identity, influence an employee’s willingness to share information.

Fawcett et al. (2007, 2011) maintain that the amount as well as the quality of information is affected if an individual is not willing to share information. An employee will be willing to share his personal information for human resource analytics only if he places high trust in the organization. Thus, trust is an important input in social exchange relationships (Konovsky, 1994). McCarter and Northcraft, 2007, contend that information will be passed on spontaneously when trust is high among social contract partners, and this, in turn, will help design, implement, and manage value-adding business initiatives. To conclude, reliable, accurate and complete information sharing is not possible without a high degree of trust (Kwon and Suh, 2005). Employees’ information sharing intention for HRA serves as an indicator for how well the practice has been accepted by employees. Higher acceptance will lead to effective HR decisions and improved business impact.

Table 6

Information Sharing Intention

Authors	Key Findings
de Vries et al., 2006	Intention to share information is the extent to which an individual is willing to allow another individual access to his information capital
Constant et al., 1994	Two categories of factors, social exchange and social psychological factors, influence an individuals’ intention to share information.
Konovsky, 1994	Trust is a key input in social exchange relationships and when there is high trust, information can flow spontaneously
Fawcett et al., 2007	If an individual is not willing to share information, not just the amount of information but the quality of information shared is also affected
Kwon, Suh, 2005	A high degree of trust enables reliable, accurate and complete information sharing.

Considering the dynamic and competitive nature of the business environment, trust can play an important role in building a sustainable organization (Mishra, 1996). The acceptance and success of HRA can be measured in terms of human capital and business outcomes.

Human capital is a bridging concept between human resource and business with the help of which employees’ attitudes can be logically related to tangible business outcomes (Boudreau and Ramstad, 2002). Human capital outcomes are leading indicators of performance and have been identified in the research and best practice literature as the key drivers of sustainable competitive advantage and future organizational performance (Becker et al., 2001; Pfau, Kay, 2002). In the same breath, a study in the context of the Indian steel industry found a strong positive relationship among Business strategy, strategic HRM practices (such as HRA), human resource outcomes and organizational performance (Muduli, 2012).

Business outcomes include financial measures and are lagging indicators in that they reflect what has been produced in the past. We propose a list of human capital measures and business measures that demonstrate the effectiveness and high business impact of HR practices informed by human resource analytics.

Research limitations

This paper is restricted to a review of academic articles obtained from an online database such as EBSCOhost and Google Scholar with the words “human resource analytics”, “HR analytics”, “people analytics”. Apart from this, only research and articles from high quality, peer-reviewed journals were considered. Other academic sources, such as books and conference papers, were not included in the study.

Conclusion

Organizations are responsible for leveraging their resources to earn profit for their shareholders, but the way they choose to do business impacts a broader set of stakeholders.

Effective implementation of HRA with high business impact improves HR’s strategic influence and quantifiable business contribution. However, ethics and privacy concerns restrain employees from sharing personal information, and it is not being fully utilized as an organizational resource to support business objectives. Effective information sharing is essential for the success of HRA practice and the fulfilment of HR and business outcomes. Therefore, it becomes a business imperative to identify and address the factors that influence organizational trust and information sharing intention of employees. This will not only improve the information quality but also lead to better acceptance of HRA.

The paper makes a significant contribution to research as well as practice. From a research perspective, the paper can provide valuable insights for further research in the root cause of poor information sharing intentions of employees and customers. From a practical perspective, the paper provides useful guidelines for HR organizations to design and develop effective policies for HRA.

References

- Adams, D. M., Maine, E. W. (1998). *Business Ethics for the 21st Century*. Mountain View, CA: Mayfield Publishing Company.
- Ajzen, I. (1991). The theory of planned behaviour. – *Organizational Behaviour and Human Decision Processes*, 50(2), pp. 179-211.
- Bacharach, M. (1999). Interactive team reasoning: A contribution to the theory of co-operation. – *Research in Economics*, 53(2), pp. 117-147.
- Bassi, L. (2011). Raging debates in HR Analytics. – *People & Strategy*, 34(1), pp. 14-18.
- Bassi, L. J., McMurrer, D. P. (2008). Toward a Human Capital Measurement Methodology. – *Advances in Developing Human Resources*, 10(6), pp. 863-881.
- Becker, B. E., Huselid, M. A., Ulrich, D. (2001). The HR Scorecard: Linking People, Strategy, and Performance. – *Journal of the Australian and New Zealand Academy of Management*, 8(2), pp. 66-67.
- Blau, P. M. (1964). *Exchange and power in social life*. John Wiley & Sons.
- Bies, R. J., Moag, J. S. (1986). Interactional Justice: Communication Criteria of Fairness. – *Research on Negotiation in Organizations*, Volume 1, pp. 43-55.
- Boudreau, J. W., Ramstad, P. M. (2002). Strategic HRM Measurement in the 21st century: From Justifying HR to strategic talent leadership. *Center for Advanced Human Resource Studies*.

- Cheung, C. M., Lee, M. K., Lee, Z. W. (Jul 2013). Understanding the continuance intention of knowledge sharing in online communities of practice through the post-knowledge-sharing evaluation processes. – *Journal of the American Society for Information Science and Technology*, 64(7), pp. 1357-1374.
- Computers in Human Behaviour, Available at: <https://www.10.1016/j.chb.2017.06.028>.
- Cohen-Charash, Y., Spector, P. (Nov 2001). The role of Justice in organizations: A Meta Analysis. – *Organizational Behaviour and Human Decision processes*, 86(2), pp. 278-321.
- Colman, A. M., Pulford, B. D., Rose, J. (2008). Collective rationality in Interactive decisions: Evidence for Team reasoning. – *Acta Psychologica*, 128(2), pp. 387-397.
- Colquitt, J. A. (2001). On the dimensionality of Organizational Justice: A Construct Validation of a Measure. – *Journal of Applied Psychology*, Volume 86, pp. 386-400.
- Constant, D., Kiesler, S., Sproull, L. (1994). What's Mine is Ours? Or Is It ? A study of attitudes about Information sharing. – *Information Systems Research*, Volume 5, pp. 400-421.
- Culnan, M. J. (1995). Consumer awareness of name removal procedures: Implications for direct marketing. – *Journal of Direct Marketing*, 9(2), pp. 10-19.
- De Vries, R., Anderson, M. S., Martinson, B. C. (2006). Normal Misbehavior: Scientists Talk about the Ethics of Research. – *Journal of Empirical Research on Human Research Ethics*, 1(1), p.43-50.
- Du, T. C., Lai, V. S., Cheung, W., Cui, X. (2012). Willingness to share information in a supply chain: A partnership-data-process perspective. – *Information & Management*, 49(2), pp. 89-98.
- Fawcett, S. E., Ellram, L. M., Ogden, J. A. (2007). *Supply Chain Management: From Vision to Implementation, An Integrative Approach*. s.l.: Pearson.
- Fawcett, S. E., Wallin, A. C., Fawcett, A. M., Magnan, G. M. (2011). Information Technology as an Enabler of Supply Chain Collaboration: A Dynamic-Capabilities Perspectives. – *Journal of Supply Chain Management*, Volume 47, pp. 38-59.
- Foxman, E. R., Kilcoyne, P. (1993). Information Technology, Marketing Practice, and Consumer Privacy: Ethical Issues. – *Journal of Public Policy & Marketing*, 12(1), pp. 106-119.
- Fulmer, C., Gelfand, M. (2012). At What Level (and in Whom) We Trust. – *Journal of Management*, 38, pp. 1167-1230.
- Ge, M., Helfert, M. (2008). Effects of information quality on inventory management. – *International Journal of Information Quality*, 2(2), pp. 176-191.
- Gibbert, M., Krause, H. (2002). Practice exchange in a best practice marketplace. – In: Davenport, T. H., Probst, G. J. B. (eds.). *Knowledge Management Case Book: Siemens Best Practices*. s.l.: Erlangen: Publicis Corporate Publishing.
- Gilbert, M. (2009). Shared intention and personal intentions. – *Philosophical Studies*, 144(1), pp. 167-187.
- Gills, T. (2003). More Than a Social Virtue: Public Trust among Organizations' Most Valuable Assets. – *Communication World*, 20(3).
- Gold, N., Sudgen, R. (2007). Theories of team agency. – In: Peter, F., Schmid, H. B. (eds.), *Rationality and Commitment*. Oxford: Oxford University Press, p. 280-312.
- Guenole, N., Fenig, S. (2018). *The Grey Area: Ethical Dilemmas in HR analytics*. IBM Smarter Workforce Institute, 2018.
- Greenberg, J. (1993). The social side of fairness: Interpersonal and informational classes of organizational justice. – In: Cropanzano, R. (ed.). *Justice in the Workplace: Approaching Fairness in Human Resource Management*. Hillsdale: Lawrence Erlbaum Associates, pp. 79-103.
- Hall, H. (2003). Borrowed theory: applying exchange theories in information science research. IPSOS World Economic forum. (2019). *Global Citizens and Data privacy*. IPSOS.
- Konovsky, M., Pugh, S. (1994). Citizenship Behaviour and Social Exchange. – *The Academy of Management Journal*, 37(3), pp. 656-669.
- Korsgaard, M. A., Meglino, B. M., Lester, S. W. (2004). The effect of other orientation on self-supervisor rating agreement. – *Journal of Organizational Behaviour*, 25(7), pp. 873-891.

- Kwon, I. W. G., Suh, T. (2005). Trust, commitment, and relationships in supply chain management: a path analysis. – *Supply Chain Management: An International Journal*, 10(1), pp. 26-33.
- Long, D., Fahey, L. (2000). Diagnosing Cultural Barriers to Knowledge Management. – *Academy of Management Perspectives*, 14(4), pp. 113-127.
- Leventhal, G. S., Karuza, J., Fry, W. R. (1980). Beyond Fairness: A Theory of Allocation Preferences. – *Justice and Social Interaction*, Vol. 3, pp. 167-218.
- Leventhal, G. S. (1976). The Distribution of Rewards and Resources in Groups and Organizations. – *Advances in Experimental Social Psychology*, Vol. 9, pp. 91-131.
- Masterson, S. S., Lewis, K., Goldman, B. M., Taylor, M. S. (2000). Integrating Justice and Social Exchange: The Differing Effects of Fair Procedures and Treatment of Work Relationships. – *Academy of Management Journal*, Vol. 43, pp. 738-748.
- McCarter, M. W., Northcraft, G. B. (2007). Happy together? Some insights from viewing managed supply chains as social dilemmas. – *Journal of Operations Management* 25(2), pp. 498-511.
- Mellers, B. A., Schwartz, A., Cooke, A. D. J. (1998). Judgment and decision making. – *Annual Review of Psychology*, Vol. 49, pp. 447-477.
- Mignonac, K., Richebé, N. (2013). “No Strings Attached?”: How Attribution of Disinterested Support Affects Employee Retention. – *Human Resource Management Journal*, Vol. 23, pp. 72-90.
- Mishra, A. K. (1996). Organizational Responses to Crisis: The Centrality of Trust. – In: Kramer, R. M., Tyler, T. R. E. (eds.). *Trust in Organizations*, Sage, Thousand Oaks, pp. 261-287.
- Moorman, R. H. (1991). Relationship between Organizational Justice and Organizational Citizenship Behaviours: Do Fairness Perceptions Influence Employee Citizenship?. – *Journal of Applied Psychology*, Vol. 76, pp. 845-855.
- Muduli, A. (2012). Business Strategy, SHRM, HR Outome and Organizational Performance: Evidence from an Indian Industry. – *Global Management Journal*, 4(1).
- Narayanan, V. G., Raman, A. (2004). Aligning Incentives in Supply Chains. *Harvard Business Review*.
- Nersessian, D. (2018). The law and ethics of big data analytics: A new role for International human rights in the search for global standards. – *Business Horizons*, 61(6), pp. 845-854.
- Nooteboom, B. (2002). *Trust: Forms, Foundations, Functions, Failures and Figures*. Edward Elgar.
- Nishii, L. H., Lepak, D. P., Schneider, B. (2008). Employee attributions of the “why” of HR practices: Their effects on employee attitudes and behaviours, and customer satisfaction. – *Personnel Psychology*, 31(3), pp. 503-545.
- Pacherie, E. (2013). Intentional joint agency: shared intention lite. – *Synthese*, 190(10), pp. 1817-1839.
- Pfau, B. N., Kay, I. T. (2002). The Human Capital Edge: 21 People Management Practices Your company must implement (or avoid) to maximise shareholder value.
- Rasmussen, T., Ulrich, D. (2015). Learning from practice: How HR analytics avoids being a management fad. – *Organizational Dynamics*, 44(3), pp. 236-242.
- Reinholt, M. I. A., Pedersen, T., Foss, N. J. (2011). Why a central network position is not enough: The role of motivation and ability for knowledge sharing in employee networks. – *Academy of Management Journal*, 54(6), pp. 1277-1297.
- Rousseau, D., Sitkin, S., Burt, R., Camerer, C. (1998). Not So Different After All: A Cross-discipline View of Trust. – *Academy of Management Review*. 23(3), pp. 393-404.
- Schoorman, F. D., Mayer, R. C., Davis, J. H. (2007). An Integrative Model of Organizational Trust: Past, Present, and Future. – *Academy of Management Review*, 32(2), pp. 344-354.
- Scott, W. R. (2014). Institutions and Organizations. Ideas, Interests, and Identities. – *Management*, 17(2), pp. 136-140.
- Sousa-Lima, M., Michel, J. W., Caetano, A. (2013). Clarifying the importance of trust in organizations as a component of effective work relationships. – *Journal of Applied Social Psychology*, 43(2), pp. 418-427.
- Szulanski, G. (1996). Exploring Internal Stickiness: Impediments to the Transfer of Best Practice within the Firm. – *Strategic Management Journal*, Vol. 17, Special Issue: Knowledge and the Firm. (Winter, 1996), pp. 27-43.

- Tokar, T. (2010). Behavioural Research in Logistics and Supply Chain Management. – *The International Journal of Logistics Management*, Vol. 21, pp. 89-103.
- Thibaut, J. W., Walker, L. (1975). *Procedural justice: A psychological analysis*. Hillsdale, NJ: Erlbaum.
- Vargas, R., Yurova, Y. V., Ruppel, C. P., Tworoger, L. C., Greenwood, R. (2018). Individual adoption of HR analytics: a fine-grained view of the early stages leading to adoption. – *The International Journal of Human Resource Management*, 29(22), pp. 3046-3067.
- van den Heuvel, S., Bondarouk, T. (2016). The rise (and fall) of HR analytics: a study into the future applications, value, structure, and system support. Paper presented at 2nd HR Division International Conference, HRIC 2016, Sidney, Australia.
- Woodrow, C., Guest, D. E. (2014). When good HR gets bad results: exploring the challenge of HR implementation in the case of workplace bullying. – *Human Resource Management Journal* 24(1), pp. 38-56.
- Zand, D. E. (1972). Trust and Managerial Problem Solving. – *Administrative Science Quarterly* 17(2), pp. 229-239.
- Zimmermann, A., Ravishankar, M. N. (2014). Knowledge transfer in IT offshoring relationships: the roles of social capital, efficacy, and outcome expectations. – *Information Systems Journal*, 24(2), pp. 167-202.
- Zhang, X., Liu, S., Deng, Z., Chen, X. (2017). Knowledge sharing motivations in online health communities: A comparative study of health professionals and normal users. – *Computers in Human Behaviour*, Vol. 75, pp. 797-810.

STRUCTURAL CHANGES OF HOUSEHOLD EXPENDITURES IN BULGARIA – ENGEL’S LAW AND BAUMOL’S “COST DISEASE”

This study examines the change in the structure of household expenditures in the light of different income and price elasticity of demand for certain groups of goods and services. The laws of Engel and Baumol were largely followed, according to the former, as wealth is growing the structure of consumption changed, while the latter focus on productivity and relative prices. Econometric techniques have been implemented to correctly determine elasticity coefficients, as well as quantitative methods for expressing the contribution of rising income and prices to household expenditure. The results of the analysis show that income growth is a more significant factor for the change in household expenditure patterns in a developing country like Bulgaria. Considerations have also been made about the effectiveness of monetary policy on the consumption of different groups of goods and services.

JEL: D12; O12; P36

1. Introduction

The level and structure of consumption are one of the basic criteria for the socio-economic development of society.² With the increase in income, household expenditures are being allocated to a growing range of additional new goods and services as new and higher level preferences are being met. In post-industrial societies, human motivation is increasingly directed towards services and to some extent overcoming the previous greater material dependence. Modern notions of value, which are well represented and developed in the concepts of the post-industrial and information society, are being re-aligned with the leading role of the creative personality and the desire for self-realization and self-improvement, which drives the need to acquire new skills and knowledge. All this is reflected in the increasing consumption (and demand, respectively) of services. These new structural features of consumption have a stimulating effect on the production and supply and thus contribute

¹ Nikolay Peykov has a Ph.D. in Political Economy from the University of National and World Economy, Sofia. Currently works at the Ministry of Finance, Bulgaria. e-mail: niki_peykov@hotmail.com.

² This refers to individual household consumption, which is different from total consumption. The latter covers individual household consumption and government consumption, which may be individual or collective.

significantly to structural change – to expand and increase the share of the services sector in the economy.

The development of consumption theory is due to the change of scientific paradigms during the various stages of the development of society. The need to systematize the accumulated knowledge and the presentation of alternative, largely complementary, methodological approaches examining consumption as an integral part of the overall structural change of household expenditures are increasing. In this regard, the aim of the article is to determine the driving forces behind the structural changes in household expenditures in Bulgaria. The object of the study is the structure of consumer spending in Bulgaria and the subject are its fundamental drivers. In order to achieve the aim of the study, it is necessary to present and understand the basic theoretical paradigms that determine the structure of consumer spending. A second task is to group the different product types of expenditures in the framework of the main three economic sectors – agriculture, industry and services. And lastly, an econometric approach has been implemented in order to determine the magnitude that fundamental factors have over the household expenditures structure. In addition, some thoughts about the relationship between consumer spending and structural transformation of Gross value added (GVA) are made. The methods used in the study are synthesis, deduction and induction, description, as well as econometric procedures.

2. Literature Review

The very first study of consumption preferences shows that as household disposable income increases, consumption patterns change and this accompanies the shift of consumption structure. On the basis of the Ernst Engel's law (Engel, 1857), the Engel's curves are also constructed, which graphically describe the relationship between the consumption of a particular type of good or service and wealth. They create the basis for determining the income elasticity of demand for different types of goods. This dependence shows that as the income increases, the structure of the goods sought by the consumer changes, which also implies a change in the production structure. Most studies use income as a measure of wealth, while consumption is usually represented by households expenditures, amount consumed or a relative share of the household budget.

After reaching a certain level of saturation, the increase of the costs for a particular good or service is less than the increase in income. Manufacturers of this product or service will redirect part of their resources to the production of another, where the preferences are not yet fully met. (Yoshikawa, 2002; Saviotti, Pyka, 2008) This will change the structure of investment, aggregate production and the difference in productivity between sectors, which in the next stage will transform the whole economy (Clark, 1957).

The increase in disposable income expands the consumer's choice by contributing to more goods being made available to him. For high-income households, the choice is much more diverse and depends on the tastes, social attitudes and consumer experience (Witt, 2001). The distribution of income between different social groups is important in shaping the structure of consumption. If increasing proportion of the population manages to meet a high level of saturation of particular preference, the income elasticity of demand will begin to decline and

the good or service that satisfies the need may turn from luxurious to normal, or necessary. Ivanova, T. (2015) confirms that there is a difference in marginal propensity to consume between low and high-income households in Bulgaria. The different elasticity and accessibility of consumption can be a turning point in the consumer spending structure.

Innovations, the introduction of new goods and services, also influence consumer choice. Buying innovative products is associated with a person's inner attitude towards the search for the new and the unknown, expressing creative thinking, a high-value system, rejection of accepted norms and a high image in society. Introducing a new product to the market requires additional marketing, advertising, branding, and so on. In the post-industrial society, consumption is not limited to the product itself, but covers a whole range of services that accompany it. In most cases, product innovation is associated with a higher quality of the product itself, and at high levels of income, consumer preferences are shifted from low to high-quality goods and services (Bils, Klenow, 2001). When income elasticity exceeds price elasticity in absolute terms, manufacturers are more inclined to focus their efforts on quality improvement rather than a price reduction. The reasons for the changes of consumption pattern have a microeconomic basis, which is why their research methodology should start from there.

William Baumol and William Bowen formulate the hypothesis of the so-called „cost disease”, at the heart of which is the different labour productivity across sectors (Baumol, 1967). The productivity gap is mainly explained by the peculiarities of the technological process, the lack of new technologies and the differences in the technological diffusion. According to W. Baumol, the different growth rates of the different sectors is due to the different speed at which the sectors introduce new technologies, which in turn leads to a decrease in the cost of production in the high-performing industries and a change in relative prices. Since the production of goods is capital intensive in nature and the production of services is labour-intensive, technological diffusion takes place faster in the branches of material production than in intangible production. New technologies create cost-cutting conditions, leading to price reductions. Such change is more difficult to occur in the services sector because of its labour-intensive nature. In response to this hypothesis, W. Baumol divides economic activities into two types, which he describes as technologically progressive and stagnant. According to him, the production of the technologically advanced activities prices is more prone to decline or increase at a slower pace compared to the product of other activities. The later are defined as stagnant activities, such as the face-to-face services, healthcare, education, cultural activities, etc.

The law of E. Engel and William Baumol's so-called “cost disease” have different views about the forces that drive the change in the consumer spending structure. Engel's law describes the change in consumption of food and non-food items as dependent on the change in income, i.e. the factors are mainly on the demand side. According to W. Baumol, the restructuring of household spending is driven by a shift in relative prices caused by the different speed of technology spread and productivity across sectors. Redistribution of costs leads to a change in the structure of consumption, i.e. in Baumol the change is mainly due to supply-side factors. Thus, the effect of the “cost disease” on consumer expenditures is, in fact, reflected in the substitution effect known in microeconomics.

Another significant difference between the two concepts lies in the different approach used. While Engel's law reflects the income elasticity of demand, the magnitude of Baumol's "cost disease" is determined by the price elasticity of demand. The prevailing effect is determined by the elasticity value in absolute terms. If the income elasticity has a higher value, the law of Engel determines the structural change and vice versa. Elasticity is at the heart of consumer preferences. Engel's law shows how, as income increases, households' relative spending on a particular good change, which is described by the different shape and slope of Engel's curves. The advantage of this approach is that it can be used in a wide range of countries with different levels of economic development and different preferences generated by socio-cultural and natural-geographical reasons. However, it is difficult to explain how, as income increases, a good or service can go from luxurious to normal, something that Baumol's concept is able to do. At the same time, however, the "cost disease" fails to explain why in low-technology countries, with low levels of foreign trade, low relative FDI, consumer preferences and household spending are still changing.

In a study on the nature of services, Robert Summers examine in detail the relationship between the increase of household incomes and changes in final demand structure, which is expressed in terms of final consumption expenditure (Summers, 1985). His analysis reveals the relationship between the structure of aggregate production and the way prices are reflected. When he is using current prices in the analysis, the link between income growth and production structure is obvious. The picture changes when internationally comparable prices are applied, expressed in terms of purchasing power standard (PPS). In this case, the slope of the regression line goes from positive to zero. Replacing current prices with internationally comparable ones eliminates the price difference between countries, which suggests that the quantities demanded are price independent. As a result, it is concluded that the share of services in final demand is independent of income. Therefore, the different price levels between developing and developed countries are the reason for the different structure of aggregate demand.

In another study, entitled *The Service Economy*, Victor Fuchs also analyze the consumption of goods and services by households (Fuchs, 1968). His results show that the elasticity of demand for services is slightly higher than that of demand for goods. The main contribution to the low elasticity of goods comes from food products. If they are excluded from the equation, the income elasticity of demand for goods is close to the one for services. A common characteristic of non-food products is that there is an upper bound on saturation, after which the increase in income does not have a significant effect on demand. One of the important findings of the analysis is that "income growth and the subsequent shift in demand have not been a major source of relative employment growth in services" (Fuchs, 1968, p. 3). The main reason for the change in the employment structure is the lagging productivity growth in services. At the same time, the volume of aggregate demand and employment in the tertiary sector proves to be more stable throughout the business cycle, which is explained by the inability of services to be stored for future periods.

The speed of economic transformation and household consumption are two economic characteristics that are not interdependent. Any change in income implies a change in the pattern of consumption, once a higher proportion of the population's needs are met. With increasing productivity in the individual sector/industry, the price of some goods becomes

relatively lower, making them accessible to the majority of consumers. During the competition for greater market share, manufacturers are focusing their efforts on introducing new products and investments in sectors where demand is growing (Gualerzi, 2012). In this way, the opportunities for consumption are widened, productivity in certain sectors is increased, the structure of intermediate consumption and supply is changed. Therefore, the increase in income is followed not only by changes in the distribution of expenditures, but also by the entire production structure of the economy.

3. Structure of Household Expenditures

The main reasons for the changes in the size and structure of households consumption can be summarized by the level of income, the level and structure of taxes, the magnitude of interest rates, which determines the credit activity and savings, the redistribution of government spending, transfers from abroad, the level of prices and consumer preferences. According to Keynesian theory, demand-side factors are crucial for shaping the product-market equilibrium. Fisher (1930) is among the first economists who supported the view that interest rates may have a significant impact on the restructuring of consumption over time. Damyanov, D. (2019) believes that households in Bulgaria have significant credit constraints as most of the loans are mortgages, which significantly hinders the change in the structure of consumption. These changes are of big importance in Bulgaria, like in many other countries, household's consumption forms a major part of GDP (Raleva, 2015).

In order to gain an overall picture of how the structure of consumer demand in Bulgaria has changed over the years, statistics on household final consumption expenditures by product groups according to the Classification of Individual Consumption by Purpose (COICOP)³, which covers the period 1995-2018, were first used. Eurostat data were used by regrouping to form three product groups that match the demand of households for the products of the three main economic sectors - agriculture, industry, and services.⁴ The reported expenditure on *food and non-alcoholic beverages, alcoholic beverages and tobacco* has been taken as a substitute indicator for the demand for agricultural products. Demand for end products from the activity of the industry sector includes household spending on *water, electricity and fuels, clothing and footwear, furnishings, household equipment and routine household maintenance, purchase of vehicles and operations of transport equipment*. The demand for services includes the costs for *healthcare, transport services, communications, housing and real estate rental, recreation and culture, education, restaurants and hotels, miscellaneous goods and services (including social protection, insurance, financial services)*. On the basis of this distribution are also calculated data on the relative share of household expenditure on

³ See International Labor Organization, Classification of Individual Consumption by Purpose (COICOP) – Extract, <https://www.ilo.org/public/english/bureau/stat/download/cpi/coicop.pdf>; United Nations, Classification of Individual Consumption by Purpose (COICOP) 2018, Statistical Papers, Series M Vol. 99, NY, https://unstats.un.org/unsd/classifications/business-trade/desc/COICOP_english/COICOP_2018_-_pre-edited_white_cover_version_-_2018-12-26.pdf.

⁴ The allocation made is entirely at the discretion of the author and aims at grouping COICOP spending categories in a manner that is as consistent as possible with the sectoral grouping that would be derived from the international classification of economic activities (NACE Rev.2).

the purchase of goods and services from the activities of each of the three sectors individually in the total expenditure of households. They are calculated in two ways – on the basis of data on total household expenditures at current prices, as well as at constant 2010 prices for selected years from 1995-2018 and presented in Table 1.

Table 1

Share of expenditure by economic sectors in the total consumer expenditure of households for selected years 1995-2018 (%)

Sector/year	1995	2001	2007	2013	2018
at current prices					
Agriculture	33.2	34.8	28.3	25.2	24.3
Industry	22.9	22.8	26.1	27.0	25.1
Services	43.9	42.4	45.6	47.8	50.6
at 2010 prices					
Agriculture	35.3	30.9	29.0	22.9	24.2
Industry	23.7	21.7	24.2	30.1	26.8
Services	41.0	47.4	46.8	47.0	48.9

Source: Own calculations based on Eurostat data, <http://appsso.eurostat.ec.europa.eu/nui/show.do>.

Over the period considered, the share of household spending on food and non-alcoholic beverages, alcoholic beverages and tobacco decreased significantly, with a more significant fall in real terms. At the same time, till 2012, households were allocating a growing proportion of their nominal income to acquiring products from industrial activity. In real terms, this growth is more pronounced and continues until 2013. The major contributor to the trend, both in real and nominal terms, is the increasing expenditures for cars and auto parts, home furnishings and home maintenance. The costs increase for water, electricity, and fuels are also important for the total nominal increase of expenditures. Since 2013, there has been a shift and real decrease in the share of costs for water, electricity, and fuels, as well as a lower share of costs for home furnishings and maintenance. The total nominal costs for furnishings, household equipment and routine household maintenance declined, but the expenditures for car and auto parts also remained lower than in 2012. As regards services, the tendency is to increase the share of costs for them, both at current and constant prices. The share of real costs for communications, leisure and cultural leisure has increased almost throughout the whole period 1996-2018. On the other hand, expenditures on education, health care, transport services, hotels and restaurants increase with a pace that is near or a little bit lower than the growth of total household expenditures.

The results in Table 1 indicate a restructuring of household spending, as the degree of change depends on the nature of the prices used. Nevertheless, households spend less and less of their disposable income on acquiring groceries, which is consistent with the hierarchy of needs hypothesis, and shifting consumption towards higher-level goods and services (Schettkat, Yocarini, 2006). The structure, as well as the absolute amount of funds allocated to different types of goods, could stimulate production in a particular industry or sector. On the next level, increased demand would stimulate investment activity in the industry/sector, leading to economies of scale, boosting competitiveness and increasing exports. Such a causal link would make a significant contribution to the economic development of the

country and increase the well-being of the population. Consumer spending patterns are changing as a result of rising income (real and nominal) and changing needs. The latter are also a result of the increase in income and the saturation of this part of the preferences having a lower character. The economic theory considers the restructuring of costs as a result of qualitative change in needs, which causes a series of causal phenomena, and their result is a qualitative change in aggregate demand and production structure.

4. Measurement of the Income and Price Elasticities

In order to analyze the driving forces of the consumer expenditures structural changes, the approaches and methods of other studies have been applied (Summers, 1985). They highlight the different income and price elasticities of demand between different groups of goods and services. The different income and price elasticity between goods and services would allow explaining why the structure of final consumption is changing. Elasticity analysis follows the methodology (Falvey, Gemmell, 1996) of previous studies that use the following equation:

$$\ln (RE_i) = \alpha_i + \beta_i \ln(RY) + \gamma_i \ln (Ps_i/Pgdp) + u_i \quad (1)$$

where RE is the real expenditures per capita for a particular commodity or service, RY is the real GDP per capita, Ps indicates the prices for the different goods or services, and $Pgdp$ refers to the GDP deflator.

The notation \ln is a natural logarithm, i denotes the different types of goods and services, α_i is a constant, with β_i and γ_i the regression coefficients of the independent variables are represented, and u_i is a random variable with a mathematical expectation of zero and variance σ^2 . Annual data are used according to the Classification of Individual Consumption by Purpose (COICOP) for the period 1995-2018, available from Eurostat. The real costs of households are calculated using constant 2010 prices, as GDP deflator with a base year 2010 is applied in the left and right-hand side of the equation. Some of the price indices are obtained as weighted values from the price indices of the relevant goods/services. Such are the Real estate rent price index that is calculated as a weighted average of Actual rentals for housing and Imputed rentals for housing price indices; the Water, electricity, gas and other fuels price index as a weighted average of Water supply and miscellaneous services relating to the dwelling, and Electricity, gas and other fuels price indices; the Vehicles and auto parts price index as a weighted average of Purchase of vehicles and Operation of personal transport equipment price indices. For these three groups, household’s consumption expenditures are obtained as the sum of expenditures of the constituent subgroups already indicated.

In equation (1) the ratio between the price index of a particular good or service and the GDP deflator on the right-hand side reflects the relative price increase for the respective group, with the aim of eliminating the effect of nominal wage increase and labour costs. From a purely technical point of view, prices tend to increase over time, i.e. exhibit a trend and are often integrated of order I(1). This may compromise the estimates of the elasticity coefficients. If the price index and the other variable on the right-hand side of the equation show a common trend, it may also lead to issues with multicollinearity. All these issues are solved by dividing the price index by GDP deflator, eliminating this way the trend problem.

Table 2
Relative price and total income elasticities of demand for goods and services, 1995-2018

	Coefficient of		Adj. R ² , F-criteria [in brackets]	LM Breusch-Godfrey test of 2nd degree for autocorrelation
	Total income elasticity (β_i)	Relative price elasticity (γ_i)		
Food and non-alcoholic beverages	0,400***	-0,956***	0,89 [95,197]	Obs*R ² =2,215 Prob.Chi-Square=0,3305
Alcoholic beverages and tobacco [§]	0,751***	-0,892***	0,81 [51,593]	Obs*R ² =15,335 Prob.Chi-Square=0,0005
Clothing and footwear	0,069	-1,903***	0,96 [254,706]	Obs*R ² =3,538 Prob.Chi-Square=0,1705
Furnishings, household equipment and routine household maintenance [§]	2,695***	-0,254	0,95 [229,835]	Obs*R ² =13,285 Prob.Chi-Square=0,0013
Vehicles and auto parts	1,994***	0,234	0,96 [304,171]	Obs*R ² =2,086 Prob.Chi-Square=0,3524
Water, electricity, gas and other fuels [§]	1,025***	-1,037***	0,90 [100,340]	Obs*R ² =8,469 Prob.Chi-Square=0,0145
Health	0,817***	-0,285***	0,56 [15,471]	Obs*R ² =0,261 Prob.Chi-Square=0,8775
Transport services [§]	0,250***	-0,100	0,17 [3,359]	Obs*R ² =13,670 Prob.Chi-Square=0,0011
Communications [§]	1,391***	-0,869***	0,97 [423,908]	Obs*R ² =8,965 Prob.Chi-Square=0,0113
Real estate rent [§]	0,656***	0,130	0,74 [33,551]	Obs*R ² =13,375 Prob.Chi-Square=0,0012
Recreation and culture [§]	2,242***	-0,540	0,96 [274,239]	Obs*R ² =8,254 Prob.Chi-Square=0,0161
Education	1,105***	-0,743***	0,78 [42,610]	Obs*R ² =4,764 Prob.Chi-Square=0,0924
Restaurants and hotels [§]	1,101***	-0,646***	0,68 [25,659]	Obs*R ² =7,292 Prob.Chi-Square=0,0261
Miscellaneous goods and services	1,994***	-1,489***	0,96 [280,213]	Obs*R ² =4,120 Prob.Chi-Square=0,1275

Notes: The coefficients denoted by *, **, *** are statistically significant at 10%, respectively; 5% and 1% risk of error.

§ indicates the presence of autocorrelation and/or heteroskedasticity. The values of Fisher's F-criterion are indicated in [].

Source: Own calculations based on Eurostat data, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_10_co3_p3&lang=en.

From a purely economic point of view, this method shows how the price of one group of goods or services changes compared to all the others. In this way, the familiar substitution effect is separated, which, as we know from the theory, is the pure substitution of a good/service with a cheaper alternative when the price of the former increases. As already mentioned in the previous part the substitution effect is in practice the response of households

to the “cost disease”. The real GDP per capita is used as a proxy⁵ indicator for household’s income per capita as the data series for the latter are currently limited to 2004 while the accuracy of estimates requires longer time period. As the equation (1) is in logarithmic form the regression coefficients should be interpreted as elasticities (Petkov, 2010, p. 133). Thus the first coefficient β_1 measures the elasticity of household expenditures to the changes in real GDP per capita. As GDP represents the total income in the economy the according elasticity coefficient will be named shortly total income elasticity. The second regressor shows the change in household expenditures when the price of a good/service changes relative to the prices of all others, so that it can be called the coefficient of relative price elasticity. Table 2 presents the results of the applied equation (1), which reflects both the total income and the relative price elasticity of demand.

Before interpreting the coefficient values obtained, it is necessary to diagnose the models and their corresponding coefficients. First, one can see the results of the LM Breusch-Godfrey test for autocorrelation presented in the last column of the table above. It is obvious that some of the equations do have problems with autocorrelation. Second, the equations presented are tested for a structural break in the intercept. As a result of the structural break, the regression coefficients can become biased and not efficient as the standard errors are not properly estimated. The later have a negative effect on another test for autocorrelation, heteroscedasticity, etc. However, there are two well-known problems with structural break estimation. The first one is the difficulty of differentiating data that is subject to a structural break from data from having data with a unit root. The second one is that although break locations in data can be estimated consistently, there is no efficiency condition for the limiting distribution of the estimates. As there can be more than one break in the data, the estimators could be divided into single and multiple break estimators. Actually, it is theoretically proven that consistency for the break date estimates is satisfied for single break estimators even if more than one break in the data exist (Bai, 1997). That is why a Quandt-Andrews breakpoint test is applied to test for a structural break in the intercept. The testing sample is trimmed in the beginning and in the end by 7.5% on each side, or by 15% in total. The null hypothesis of Quandt-Andrews method is for no breakpoint so the rejection of the hypothesis means that there is deflection in the year in question. The results are shown in the Appendix, Table 1. The test shows that in only two of the equations, there is no structural break, they represent the household expenditures for the most basic needs of food, non-alcoholic beverages, and healthcare. For the rest of the equations, the breakpoint does exist as the year of the break is presented in the second column of the table.

To solve the issue with the structural break, one should add a dummy variable for the years since the date of the break. Thus equation (1) takes the following form.

$$\ln (RE_i) = \alpha_i + \beta_i \ln(RY) + \gamma_i \ln (Ps_i/Pgdp) + \delta_i \text{DummyXXXX} + u_i \quad (2)$$

⁵ A possible proxy can be the Gross national income and Gross national disposable income but they are expressed in current prices and the choice of appropriate deflator is questionable as the factor income and transfers from/to abroad are in nominal terms. The Compensations per employee are not a good proxy as well considering they do not include the income from rents, equities, pensions, self-employment, ect.

Where *DummyXXXX* is a variable that takes one for the year since the break appears, while *i* refer to the group of household expenditures. It should also be noted that the test may be misleading in small samples due to the 15% time series limiting. This effect occurs at the household expenditures equations for clothing and footwear, as well as water, electricity, gas and other fuels. They get better results if a dummy variable is added in the year following the structural break indicated by the Quandt-Andrews method. The results based on equation (2) are presented on Table 3.

Table 3
Relative price and total income elasticities of demand for goods and services
with an added dummy variable, 1995-2018

	Coefficient of		Dummy (δ_i)	Adj. R2, F- criteria (in brackets)
	Total income elasticity (β_i)	Relative price elasticity (γ_i)		
Food & non-alcoholic beverages	0,400***	-0,956***		0,89 [95,197]
Alcoholic beverages and tobacco	1,147***	-0,808***	-0,378***	0,97 [220,702]
Clothing and footwear	0,458**	-1,723***	-0,176***	0,97 [264,601]
Furnishings, household equipment and routine household maintenance	2,525***	-0,636**	-0,459***	0,98 [389,492]
Vehicles and auto parts	1,396***	-0,175	0,320***	0,98 [457,692]
Water, electricity, gas and other fuels	0,797***	-1,034***	0,201***	0,93 [105,404]
Health	0,817***	-0,285***		0,56 [15,471]
Transport services	0,245***	-0,925***	0,422***	0,64 [14,425]
Communications	1,421***	-1,036***	-0,249***	0,99 [565,154]
Real estate rent	0,797***	0,037	-0,217	0,87 [54,560]
Recreation and culture	1,227***	-0,766***	0,528***	0,99 [654,861]
Education	1,167***	-0,773***	-0,311***	0,85 [44,317]
Restaurants and hotels	1,509***	-0,602***	-0,314***	0,82 [34,809]
Miscellaneous goods and services	2,282***	-1,303***	-0,205***	0,97 [261,250]

Notes: The coefficients denoted by *, **, *** are statistically significant at 10%, respectively; 5% and 1% risk of error.

Source: Own calculations based on Eurostat data, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_10_co3_p3&lang=en

A second pair of tests was made on each of the models for the presence of heteroskedasticity – using the Breush-Pagan-Godfrey test, as well as for the presence of autocorrelation in residuals – using the Breusch-Godfrey LM-test. The null hypothesis of the test implies a lack of heteroscedasticity or autocorrelation, accordingly. According to the results in Table 2 in the Appendix, it was found that in none of the cases, autocorrelation can be confirmed at 5% significance level after the dummy variable was added. In only one case (the real estate rent equation), the presence of heteroscedasticity can't be excluded. Thus, in this case Huber-White coefficient covariance method was applied. In practice, this method recalculates the standard errors of the regression coefficients, which makes the estimates of the t and F-criteria reliable and aims to clear the residual heteroskedasticity effect.

The results obtained from equation (2) generally confirm the expectation of the negative relative price elasticity of demand and supports the results of Radilov and Chernevski (2016). In some cases, it even exceeds one, which means that a small change in prices would have a significant effect on demand. These are the groups of various goods and services like clothing and footwear, water, electricity, gas and other fuels, communications, miscellaneous goods and services. For other groups such as food and non-alcoholic beverages; transport services, the relative price elasticity is close to one.

The demand for food and non-alcoholic beverages is more sensitive to changes in prices compared to changes in income. The results also show that as household income increases, household spending on foodstuffs increases at a slower pace than the rate of income itself, i.e. households aim initially to meet their lower preferences, which includes meeting the needs for living. Once they are met, any further increase in income is associated with a greater increase in costs for other goods and services, respectively with a relative reduction in the cost of food and non-alcoholic beverages. An important feature is the high negative value of relative price elasticity, which in absolute value is higher than the total income per capita elasticity and shows that the demand for food will decrease with the increase of prices. This would cause a decline in agricultural demand and could subsequently be the cause of a decline in production. A similar logic is valid for the demand for clothing and footwear, water, electricity and fuels, transport services.

For other commodities such as alcoholic beverages and tobacco; home furnishings and home maintenance, the effect of rising income outweighs that of price changes. In particular, the cost of home furnishing and housekeeping increases more than the increase in income itself, i.e. the elasticity of demand relative to the change in income is much above one, which has a greater positive effect on industrial production than the increase in income itself. Costs for vehicles and auto parts are highly dependent on changes in income, but the validity of the relative price elasticity coefficient cannot be confirmed. Overall, the demand for goods is positively resilient to changes in income but negatively resilient to changes in price. In three of the six commodity groups, the absolute value of relative price elasticity is higher than the total income elasticity.

Most types of services (except healthcare, transport and real estate rent) have a high total income elasticity of demand, i.e. above one, which is consistent with the results of other similar studies. The high positive total income elasticity indicates the tendency of the population to meet their higher level preferences. Services are generally more sensitive to changes in income compared to changes in prices. This is somewhat in line with expectations

given the understanding that most services are positioned higher in the hierarchy of needs. Expenditures for healthcare services, transport and real estate rent have total income per capita elasticity below one, which confirms their place of necessities in the hierarchy of needs. At the same time, the groups of communication services and the mixed category of miscellaneous goods and services, which mainly include services, are characterized by a relative price elasticity above one. Overall, the monitoring of services is consistent with the individual subcategories, i.e. the sensitivity of their demand to income is high (above one) and to price is low (below one).

Based on the data presented and the methodology applied, it can be concluded that as household income increases, their expenditures for services and some types of goods increase to a greater extent compared to the increase in income itself. At the same time, the average relative price elasticity of demand for services is lower than one and the average relative price elasticity of goods is approximately one. This means that an equivalent change in the price level in all groups will have a greater impact on the overall demand for goods. In the context of structural change of households expenditures, the elasticities show that an increase in income stimulates demand for services to a greater extent, which translates into a greater incentive to increase their production and causes a structural transformation of the economy towards an increase in the share of the sector services. The relative price elasticity is higher compared to total income elasticity in absolute value in three of the six types of goods. At the same time, this phenomenon is observed only in transport services out of the eight categories of services.

This pattern is important for producers in case of increasing the average wage, since the individual producer is not able to determine its value independently. Let us assume that wages increase by 1%, which result in an equivalent 1% increase in the prices of all goods and services as a result of increased costs. Under these conditions, demand will decrease in sectors where relative price elasticity is higher in absolute value compared to the total income per capita elasticity, since the effect of price increase will be greater than the effect of income. This pattern is most unfavourable in the demand for transport services and clothing and footwear, where the absolute value of total income-to- relative price elasticity ratio is 0.266 and 0.265, accordingly. This means that a 1% increase in income (or labour costs, respectively) can result in no more than a 0.265% or 0.266% increase in the price of the final product in order to keep the amount of demand unchanged. Any attempt by companies to increase their product/services prices more than this (i.e. 0.26%) would cause a contraction in demand in the sector. This dependence limits the flexibility of production and it could become a reason for slower growth and development of such sectors. Similar patterns can be seen in the demand for food & non-alcoholic beverages, where the absolute value of total income-to-relative price elasticity is 0.418, and in the case of water, electricity and fuels with a ratio of 0.771.

5. Contributions of Income and Prices To the Growth of Household Expenditures

In order to measure the contributions to the growth of household expenditures, one can aggregate the effects of income and price changes on demand for the three main groups – agriculture, industry and services. The aggregation is made on the basis of the already applied and presented method that was used to compile the results shown in Table 1. In order to measure the contributions of total income per capita and relative price changes on the demand for different groups of goods and services, the following model (3) was estimated.

$$\Delta \ln (RE_i) = \alpha_0 + \beta_i \Delta \ln (RY) + \gamma_i \Delta \ln (P_{s_i}/P_{gdp}) + u_i \quad (3)$$

The abbreviations of the variables follow those in equation (1), the only difference is that the first differences of the logarithms Δ are used. The results for the respective regression coefficients are presented in Table 4 together with the LM Breusch-Godfrey test for serial autocorrelation, while the results from Breusch-Pagan-Godfrey test for homoscedasticity can be found in the Appendix, Table 3. One can see that the results from the previous equations and equation (3) do not differ much. It was only the estimates for food and non-alcoholic beverages that revealed the presence of heteroskedasticity, which is solved by applying the HAC (Newey-West) method for re-evaluation of the t-statistics of the coefficients (Verbeek, 2004, p. 111). The same procedure was followed in order to re-estimate the t-statistics in the equation for Health as the results showed some evidence of autocorrelation. However, the autocorrelation itself shouldn’t have a significant impact on the coefficient estimates, especially after the first differences are already applied (Petkov, 2010, p. 333).

In order to estimate the contributions of each component to the household’s expenditures growth, first we sum the changes of household expenditures for each subgroup in order to get the change for the main group. For example, to get the growth of consumer expenditures for agricultural products, we sum up the growth of expenditures for food and non-alcoholic beverages with alcoholic beverages and tobacco. This way, the dynamics of consumer spending for each of the three main groups are represented by the sum of its constituent subgroups. The right-hand side of the formula follows a similar logic. The contribution of the change in total income per capita and relative prices are obtained by multiplying them by the corresponding coefficient from Table 4 for the subgroup. However, it should be borne in mind that adjusted R^2 is below one, which means that some of the changes in consumer spendings remain unexplained.

Table 4
Coefficients of price and income growth to demand growth for goods and services, 1995-2018

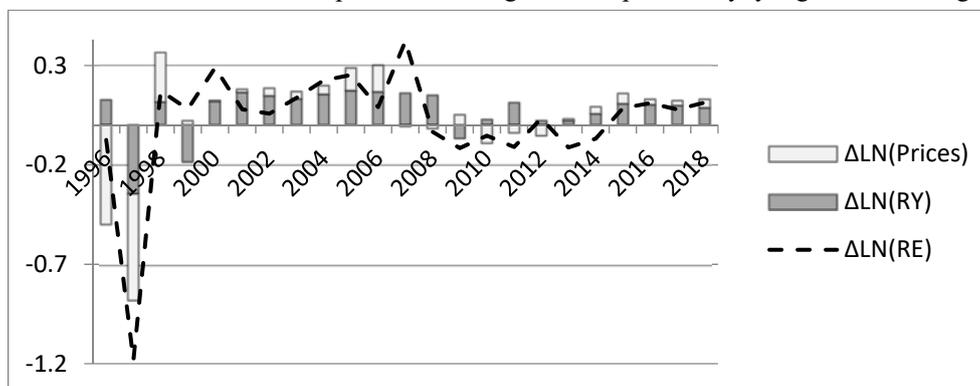
	Coefficient of		Adj. R ²	LM Breusch-Godfrey test of 2nd degree for autocorrelation
	Total income growth (β_i)	Relative price growth (γ_i)		
Food and non-alcoholic beverages	1,235**	-0,786***	0,71	Obs*R ² =3,319 Prob.Chi-Square=0,1902
Alcoholic beverages and tobacco	1,078***	-0,586***	0,60	Obs*R ² =1,999 Prob.Chi-Square=0,5488
Clothing and footwear	0,940**	-0,977*	0,48	Obs*R ² =2,195 Prob.Chi-Square=0,3337
Furnishings, household equipment and routine household maintenance	1,602***	-0,585*	0,39	Obs*R ² =0,350 Prob.Chi-Square=0,8393
Vehicles and auto parts	1,216***	-0,572**	0,38	Obs*R ² =0,778 Prob.Chi-Square=0,6779
Water, electricity, gas and other fuels	0,619*	-1,071***	0,75	Obs*R ² =0,956 Prob.Chi-Square=0,6199
Health	1,281***	-0,490**	0,34	Obs*R ² =6,292 Prob.Chi-Square=0,0430
Transport services ^s	0,612**	-0,257	0,19	Obs*R ² =4,849 Prob.Chi-Square=0,0885
Communications	1,067***	-1,043***	0,48	Obs*R ² =2,824 Prob.Chi-Square=0,2437
Real estate rent	0,795***	0,092	0,35	Obs*R ² =3,259 Prob.Chi-Square=0,1960
Recreation and culture	1,499***	-0,961**	0,17	Obs*R ² =0,505 Prob.Chi-Square=0,7770
Education	1,263***	-1,099***	0,81	Obs*R ² =0,858 Prob.Chi-Square=0,6511
Restaurants and hotels	1,063**	-1,024***	0,43	Obs*R ² =2,774 Prob.Chi-Square=0,2498
Miscellaneous goods and services	1,543***	-1,282***	0,69	Obs*R ² =1,439 Prob.Chi-Square=0,4869

Notes: The coefficients denoted by *, **, *** are statistically significant at 10%, respectively; 5% and 1% risk of error.

Source: Own calculations based on Eurostat data, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_10_co3_p3&lang=en.

Household expenditures on agricultural products are the first group represented.

Figure 1
Contribution to household expenditures for agricultural products, yoy logarithmic change



Source: Own calculations based on Eurostat data, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_10_co3_p3&lang=en.

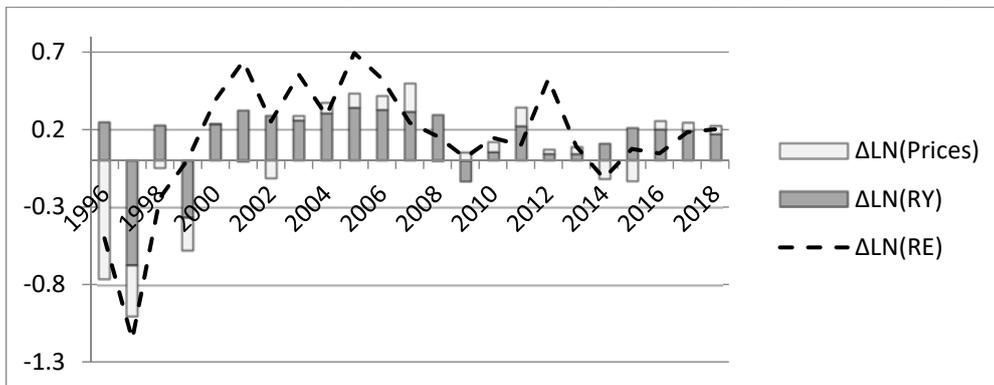
It can be seen from the graph, the contribution of income to the increase in expenditures for agricultural products has been relatively stable over the years. Even in times of crisis and weak economic activity, such as in 1997 and 2009, the magnitude of the negative contribution of this component is not particularly large. This confirms the place of these goods in the hierarchy of needs as essential goods. On the other hand, the impact of prices on their demand is not so clear. For example, in the period of currency shocks in 1996-97, the relative increase in prices of agricultural products compared to the prices of other goods and services had a devastating effect on consumer demand. The same applies for the period 2010-2012, but with a much smaller magnitude. During periods of economic upturn, the relative price level of these goods is stable and even declining compared to the rest, which implies a positive price contribution. In the period 2000-2006, the pre-accession processes accompanying the country’s membership in the EU, the increasing openness of the country and international competition are likely to have a positive effect.

Next, the contributing factors of overall expenditure dynamics for clothing and footwear, water, electricity and fuels, furnishing, household equipment and maintenance, vehicles are analyzed.

In fact, the contribution of prices to the demand for industrial products does not differ significantly from that of agricultural demand in terms of both dynamics and magnitude. The main difference is rooted in the effect of rising income. Any increase in income stimulates the demand for the products of the industry by far more than it applies to agricultural commodities. Improving consumer well-being leads to a shift in demand for goods whose preference has been less met so far. This is in full compliance with the Engel’s law.

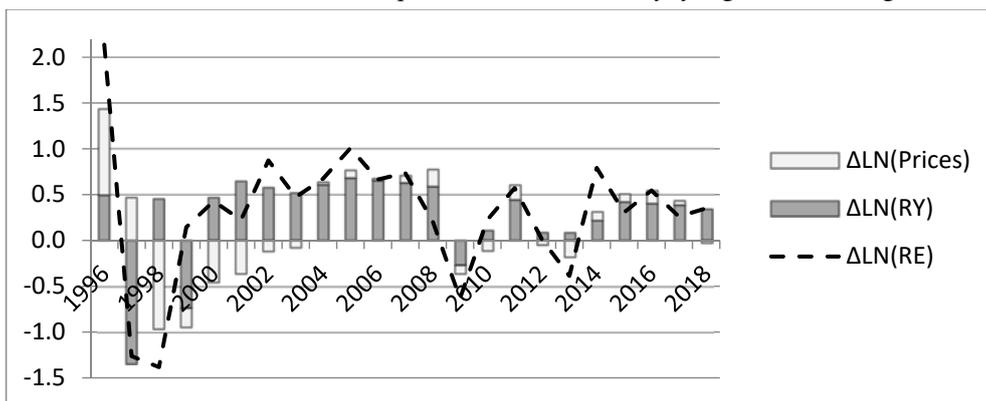
Finally, we pay attention to the fundamental factors driving the demand for services.

Figure 2
Contribution to household expenditures for industrial products, yoy logarithmic change



Source: Own calculations based on Eurostat data, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_10_co3_p3&lang=en.

Figure 3
Contribution to household expenditures for services, yoy logarithmic change⁶



Source: Own calculations based on Eurostat data, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_10_co3_p3&lang=en.

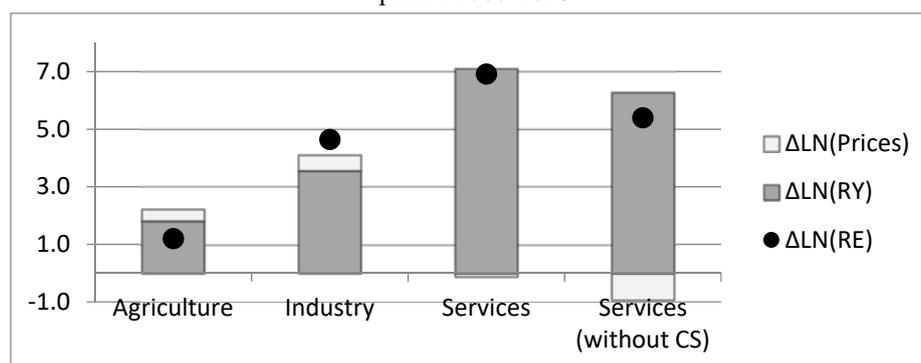
The volatile nature of household expenditures for services is the first thing one can see. The alternation of upswings and downswings is much more common compared to the other two groups. In a favourable economic environment, income growth has a significantly higher contribution than in the case of commodities. The opposite is observed in times of income volatility, when this part of household expenditures is most significantly affected. This is another confirmation of Engel's law since most services are at a higher level in the hierarchy

⁶ The figure is limited in relation to the vertical line in order to provide better comparability with the other two graphs. This limitation was imposed due to the high growth in services expenditures in 1996. However, much of it cannot be explained by the fundamental drivers this year.

of needs, their demand is very susceptible to changes in income. At the same time, the prices of most services prove to be quite flexible during a currency crisis like the one in 1996-97. In order to respond to the decline in demand, service providers are able to reduce prices more easily. Why is this happening? The production of goods is highly dependent on imports, which appreciates significantly in the context of currency depreciation. This relationship is not so strong in the case of services. Due to their labour-intensive nature, services prices are much more dependent on wages, i.e. internal economic factors. For the rest of the period, prices often have a negative contribution.

Obviously, the period of weak economic activity and the volatile exchange rate has a very different effect on the demand for individual groups of goods and services. This, in fact, makes it difficult to properly assess the Baumol’s “cost disease”. To correct this shortcoming, we will use the period 2000-2018. Again, we use Formula 3, this time calculating the differences over the entire period, i.e. the end date versus the starting date.

Figure 4
Contribution to household expenditures by sector of production, logarithmic change for the period 2000-2018



Source: Own calculations based on Eurostat data, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_10_co3_p3&lang=en.

Figure 4 confirms Engel’s law, showing that as income increases consumer spending reorients towards higher-level goods/services in the hierarchy of needs. A more interesting observation is shown after excluding the subgroup of communication services (CS) from all services. W. Baumol himself reformulated and refined his theory by rejecting the notion of all services as stagnant (Baumol, et al., 1985). On the contrary, some of the services are among the fastest-growing and most progressive activities. Another important point is the changed image of slow-developing activities, which can be progressive in the short term due to the introduction of new technologies. A similar case is with communication services, where improvements in information and communication technologies and the regulatory

framework⁷ cause a significant fall in prices after 2008. However, this partly compromises the effect of Baumol's "cost disease" on services. If the communication services are excluded, the validity of his hypothesis on the services can be confirmed. So, due to the slow increase in productivity in services, their prices are relatively higher than goods, which limit their demand growth. The opposite is true for different kinds of goods, especially industrial ones. As Bulgaria joins the EU, international competition increases and some of the commodity prices start to increase by a slower pace or even to decrease compared to the level of inflation. That actually leads to a positive contribution of price to the growth of household expenditures for agriculture and industry products.

6. Conclusion

The current study examined the change in the structure of household expenditures, focusing on the effects of the changes in prices and income. The laws of Engel and Baumol were largely followed, according to the former, as wealth is growing, the structure of consumption changed, while the latter focus on productivity and relative prices. In fact, both laws act simultaneously, exerting different degree and magnitude on the individual groups of goods and services. The overall conclusion of the analysis is that the increase in income has a more significant effect on the structure of household expenditures compared to the effect of changes in prices. The Engel effect outweighs that of Baumol's "cost disease" because the country is still developing and incomes are growing at a significant rate. The low level of saturation of needs also implies a faster change in the structure of consumption as income increases. Once the needs of inferior goods are satisfied, consumption is directed to those of higher levels in the hierarchy of needs.

Based on the analysis performed, some other valuable observations can be added. For example, for some types of goods such as food and non-alcoholic beverages, clothing and footwear, water, electricity and fuels, the relative price elasticity of demand is higher in absolute value compared to the total income elasticity. This puts pressure on the production of these types of goods, since in the case of rising labour costs (respectively wages) an equivalent price increase would limit their demand. Another interesting observation is that the prices of services are proving to be quite flexible in times of economic crisis. This is especially true for periods of exchange rate volatility, as most services are non-tradable and weakly dependent on imports. The question arises as to what the effect of monetary policy would be on the demand for goods and services. It is likely that a policy that leads to a depreciation of the currency would have a more limited effect on the demand for services and a greater effect on the demand for goods. On the other hand, an increase in money supply will lead to an overall increase in prices and a greater effect on goods/services with relative price elasticity close to one. For some products, highly sensitive to price changes and with low total income elasticity, the effect will be a decreasing demand. These dependencies merit

⁷ By virtue of Decision, No 2/03.01.2008 and Decision No 1962/11.09.2008 of Communications Regulation Commission of Bulgaria, a Directive 2002/21/EC of the European Parliament and of the Council is being implemented in practice.

more attention and in-depth analysis that can provide a powerful framework for monetary policy effectiveness in a different environments.

Reference

- Bai, J. (1997). Estimating multiple breaks one at a time, *Econometric theory*, Cambridge University Press, Vol 13, № 3, pp. 315-352.
- Baumol, W. J. (1967). Macroeconomics of unbalanced growth: The anatomy of urban crisis, *The American Economic Review*, Vol.57, № 3, pp. 415-416. <http://piketty.pse.ens.fr/files/Baumol1967.pdf>
- Baumol, W.J., Batey Blackman, S.A., & Wolff, E.N. (1985). Unbalanced growth revisited: Asymptotic stagnancy and new evidence, *American Economic Review*, № 75(4), pp. 806-817. http://www.jstor.org/stable/1821357?seq=1#page_scan_tab_contents
- Bils, M., Klenow, P. J. (2001). The acceleration in variety growth, *American Economic Review*, №91 (2), pp. 274-280.
- Clark, C. (1957). *The conditions of economic progress*, London, Macmillan.
- Damyanov, D. (2019). Household Consumption in Neoclassical Macroeconomics–Assumptions and Reality. *Nauchni trudove*, (3), pp.111-121.
- Decision, No 2 / 03.01.2008 and Decision No 1962 / 11.09.2008 of Communications Regulation Commission of Bulgaria, a Directive 2002/21/EC of the European Parliament and of the Council.
- Engel, E. (1857). Die productions- und consumtionsverhältnisse des königreichs sachsen", *Zeitschrift des statistischen Bureaus des Königlich Sächsischen Ministerium des Inneren*.
- Falvey, R.E., Gemmill, N. (1996). Are services income-elastic? Some new evidence, *Review of Income and Wealth*, Series 42, №3, <http://www.roiw.org/1996/257.pdf>
- Fisher, I. (1930). *The Theory of Interest*, Economic Record, New York: MacMillan.
- Fuchs, V.R. (1968). *The Service Economy*, NY and London: Columbia University Press, NBER №87, <http://papers.nber.org/books/fuch68-1>
- Gualerzi, D. (2012). Toward a theory of the consumption: growth relationship, *Review of Political Economy*, №24 (1), pp. 33-50
- International Labour Organization, Classification of Individual Consumption by Purpose (COICOP) - Extract, <https://www.ilo.org/public/english/bureau/stat/download/cpi/coicop.pdf>
- Ivanova, T. (2015). Estimating the cost of consumption of rich and poor households in Bulgaria, *Izvestia Journal of the Union of Scientists - Varna. Economic Sciences Series*, Union of Scientists - Varna, Economic Sciences Section, issue 1, pages 31-39, November.
- Petkov, P. (2010). *Econometrics with Gretl and Excel*, (Second, supplemented and revised edition), Tsenov Academic Publishing House, Svishtov.
- Radilov, D., Chervenski, G. (2016). VAR - models of shocks to individual final consumption of households, *National Archives*, Vol. 2, CA „D. A. Tsenov”.
- Raleva, St. (2015). Dynamics of domestic demand and economic growth of Bulgaria, Jubilee Scientific Conference “The development of the Bulgarian economy - 25 Years between expectations and realities”, Department of General Theory of Economics at S.A. “D.A. Tsenov”, Svishtov, D.A. A.E. “Tsenov”- Svishtov, p. 217-223.
- Saviotti, P., Pyka (2008). A., Product variety, competition and economic growth, *journal of Evolutionary Economics*, №18 (3), pp. 323-347.
- Schettkat, R., Yocarini, L. (2006) The Shift to Services Employment: A review of the literature, *Structural Change and Economic Dynamics*, vol. 17, issue2, pp. 127-147, <https://www.sciencedirect.com/science/article/abs/pii/S0954349X0500024X>
- Summers, R. (1985). *Services in the international economy*, Inman, R.P. (ed.) *Managing in the Service Economy*, Cambridge: CUP, pp. 27-48.
- United Nations (2018). Classification of Individual Consumption by Purpose (COICOP), *Statistical Papers*, NY, Series M Vol. 99, https://unstats.un.org/unsd/classifications/business-trade/desc/COICOP_english/COICOP_2018_-_pre-edited_white_cover_version_-_2018-12-26.pdf
- Verbeek, M. (2004). *A guide to modern econometrics*, 2nd edition, Chichester, John Wiley & Sons Ltd.

- Witt, U. (2001). Learning to consume –a theory of wants and the growth of demand, *Journal of Evolutionary Economics*, №11 (1), pp. 23-36.
 Yoshikawa, A. (2002). Demand saturation-creation and economic growth, *Journal of Economic Behavior and Organization*, №48, pp. 127-154.

APPENDIX

Table 1

Results of Quandt-Andrews breakpoint test with 15% trimming for equation (1)

	Year	Maximum LR F-statistic [p-values in brackets]	Maximum Wald F-statistic [p-values in brackets]
Food and non-alcoholic beverages	2006	4.030 [0.370]	4.030 [0.370]
Alcoholic beverages and tobacco	2014	95.345 [0.000]	95.345 [0.000]
Clothing and footwear	2009	130.18 [0.006]	130.18 [0.006]
Furnishings, household equipment and routine household maintenance	2014	31.923 [0.000]	31.923 [0.000]
Vehicles and auto parts	2002	26.484 [0.000]	26.484 [0.000]
Water, electricity, gas and other fuels	2012	17.219 [0.000]	17.219 [0.000]
Health	2006	6.344 [0.1383]	6.344 [0.1383]
Transport services	2000	27.939 [0.000]	27.939 [0.000]
Communications	2015	21.464 [0.000]	21.464 [0.000]
Real estate rent	1999	23.782 [0.000]	23.782 [0.000]
Recreation and culture	2004	53.183 [0.000]	53.183 [0.000]
Education	2006	10.238 [0.0236]	10.238 [0.0236]
Restaurants and hotels	2007	16.132 [0.002]	0,68 [25,659]
Miscellaneous goods and services	2009	9.030 [0.041]	9.030 [0.041]

Source: Own calculations based on Eurostat data, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_10_co3_p3&lang=en.

Table 2

Results of autocorrelation and heteroscedasticity tests after adding a dummy variable in equation (2)

	LM Breusch-Godfrey test of 2nd degree for autocorrelation	Breusch-Pagan-Godfrey test for homoscedasticity
Food & non-alcoholic beverages	Obs*R ² =2,215 Prob.Chi-Square=0,3305	Obs*R ² =5,063 Prob.Chi-Square=0,0796
Alcoholic beverages and tobacco	Obs*R ² =0,004 Prob.Chi-Square=0,9982	Obs*R ² =4,536 Prob.Chi-Square=0,2091
Clothing and footwear	Obs*R ² =3,086 Prob.Chi-Square=0,2137	Obs*R ² =6,058 Prob.Chi-Square=0,1088
Furnishings, household equipment and routine household maintenance	Obs*R ² =4,946 Prob.Chi-Square=0,0843	Obs*R ² =2,384 Prob.Chi-Square=0,4967
Vehicles and auto parts	Obs*R ² =1,547 Prob.Chi-Square=0,4612	Obs*R ² =2,066 Prob.Chi-Square=0,5588
Water, electricity, gas and other fuels	Obs*R ² =2,0746 Prob.Chi-Square=0,3544	Obs*R ² =0,870 Prob.Chi-Square=0,8326
Health	Obs*R ² =0,261 Prob.Chi-Square=0,8775	Obs*R ² =3,134 Prob.Chi-Square=0,2087
Transport services	Obs*R ² =0,096 Prob.Chi-Square=0,9530	Obs*R ² =3,151 Prob.Chi-Square=0,3689
Communications	Obs*R ² =1,316 Prob.Chi-Square=0,5178	Obs*R ² =3,383 Prob.Chi-Square=0,3363
Real estate rent	Obs*R ² =4,105 Prob.Chi-Square=0,1284	Obs*R ² =11,221 Prob.Chi-Square=0,0106
Education	Obs*R ² =3,611 Prob.Chi-Square=0,1644	Obs*R ² =5,156 Prob.Chi-Square=0,1607
Recreation and culture	Obs*R ² =0,634 Prob.Chi-Square=0,7284	Obs*R ² =6,593 Prob.Chi-Square=0,0861
Restaurants and hotels	Obs*R ² =1,265 Prob.Chi-Square=0,5313	Obs*R ² =2,865 Prob.Chi-Square=0,4129
Miscellaneous goods and services	Obs*R ² =0,491 Prob.Chi-Square=0,7822	Obs*R ² =4,607 Prob.Chi-Square=0,2029

Source: Own calculations based on Eurostat data, http://appsso.eurostat.ec.europa.eu/mui/show.do?dataset=nama_10_co3_p3&lang=en.

Table 3

Heteroscedasticity test results for equation (3)

	Breush-Pagan-Godfrey test for homoscedasticity
Food & non-alcoholic beverages	Obs*R ² =9,840 Prob.Chi-Square=0,0073
Alcoholic beverages and tobacco	Obs*R ² =0,036 Prob.Chi-Square=0,9821
Clothing and footwear	Obs*R ² =0,121 Prob.Chi-Square=0,9412
Furnishings, household equipment and routine household maintenance	Obs*R ² =0,003 Prob.Chi-Square=0,9984
Vehicles and auto parts	Obs*R ² =0,673 Prob.Chi-Square=0,7142
Water, electricity, gas and other fuels	Obs*R ² =0,869 Prob.Chi-Square=0,6475
Health	Obs*R ² =2,170 Prob.Chi-Square=0,5379
Transport services	Obs*R ² =1,998 Prob.Chi-Square=0,3682
Communications	Obs*R ² =0,177 Prob.Chi-Square=0,9155
Real estate rent	Obs*R ² =0,511 Prob.Chi-Square=0,7747
Education	Obs*R ² =0,305 Prob.Chi-Square=0,8583
Recreation and culture	Obs*R ² =0,152 Prob.Chi-Square=0,9269
Restaurants and hotels	Obs*R ² =1,040 Prob.Chi-Square=0,5945
Miscellaneous goods and services	Obs*R ² =1,010 Prob.Chi-Square=0,6035

Source: Own calculations based on Eurostat data, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_10_co3_p3&lang=en.

Kritika Tekwani¹
Anil Rana²
Rinku Raghuvanshi³

IMPACT OF GST ON HANDICRAFT EXPORTERS⁴

The research paper is devoted to finding out the impact of Goods and Services Tax on handicraft exporters. With the introduction of GST, people are confused with its implications and this study contributes in making clearness among the people, how GST is positive for them. This study concentrates on the ease of doing export business after the introduction of this new tax. This research paper also focuses on the impact of each GST variable (registration, return rates, input tax credit, letter of undertaking/Bond, refund, e-way bill, and reverse charge mechanism) on handicraft exporters. It is a correlational research study. Simple random sampling has been used. Exporters have been randomly identified from different locations in Jaipur. One-Way ANOVA statistical test and multiple- linear regression analysis have been used. There is a notable effect of GST on Jaipur handicraft exporters. This research paper also revealed that each GST variable has a significant impact on exporters of handicrafts with regard to ease of exports. The results of this research paper can also be useful for future researchers. As GST was introduced in 2017, still no such study has been conducted to measure the implication of this tax on registered exporters. The results of this research paper can be beneficial for the Government, Export Promotion Council of Handicrafts, Exporters, and Taxpayers. This research study has concluded the positive impact of this new tax on exporters of handicrafts.

JEL: F1; F23; H20; H21; H25

Introduction

Tax is an important source for collecting revenue. The economy of every nation relies on the structure of tax collection. In India comprehensively, there are two kinds of taxes, including Direct Taxes and Indirect Taxes. Direct taxes include income tax, corporate tax, etc. Indirect taxes include custom duty, GST, etc. As the Indian economy is growing, the Indian Government is making changes in the tax structures and policies to compete with the world economy. Goods and Services Tax was first implemented in France in 1954, after this

¹ Kritika Tekwani is Research Scholar, Management, Bhartiya Skill Development University, e-mail: kritika.tekwani@ruj-bsdu.in.

² Cdr. (Dr.) Anil Rana is Professor, Bhartiya Skill Development University.

³ Dr. Rinku Raghuvanshi is Associate Professor, Bhartiya Skill Development University.

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implementation, various countries have implemented it. In India, it was implemented in 2017, it is not a sudden evolution, but it is the result of many years of study and strategic planning. The main reason behind the introduction of this tax to eliminate the cascading tax effect, which means a tax on tax.

GST

Various indirect taxes have been substituted by this new tax, which includes Central Sales Tax (CST), Value Added Tax (VAT), etc. This new indirect tax came into force from 1 July, 2017. This tax is based on the consumption principle. The GST has its three components, which are given below:

1. CGST stands for Central Goods and Services Tax.
2. SGST stands for State Goods and Services Tax.
3. IGST stands for Integrated Goods and Services Tax.

Basically, GST has four slab tax rates which include 5%, 12%, 18%, and 28%. Recently GST Council has done its 35th GST meeting and various new forms have been introduced for the convenience of the taxpayers (Table 1).

Table 1

GST Forms

Form	Description	Applicability	Turnover	Time Period
GST ANX-1	Outward Supplies and Inward Supplies attracting RCM	Large Taxpayers	More than 5 Cr.	Monthly
		Small Taxpayers	Less than or up to 5 Cr.	Quarterly
GST ANX-2	Inward Supplies	View Simultaneously Only (No Action Required)		
GST RET-01 (Normal)	Outward Supplies (B2B, B2C, Exports, SEZ, Deemed Exporters, etc.)	Large Taxpayers	More than 5 Cr.	Monthly
		Small Taxpayers	Less than or up to 5 Cr.	Quarterly
GST RET-02 (Sahaj)	Outward Supplies (B2C)	Small Taxpayers	Less than or up to 5 Cr.	Quarterly
GST RET-03 (Sugam)	Outward Supplies (B2B, B2C)	Small Taxpayers	Less than or up to 5 Cr.	Quarterly
GST PMT-08	Payment (PMT) of Self-Assessment Tax	All Taxpayers	Less than, More than, or up to 5 Cr.	Monthly

Source: Constructed by Authors

This table shows the different GST forms, which all will be implemented in the financial year 2021. GSTR-3B will be replaced completely by GST PMT-08 in 2021. RET stands for return and ANX stands for annexure.

Exports of Indian Handicrafts

Indian handicrafts are exported to various countries, including Australia, Canada, France, Germany, the USA (United States of America), etc. Handicraft export includes art-metal wares, wood wares, hand-printed textiles, embroidered, crocheted items, shawls, paintings, ceramic products, zari goods, imitation jewellery, attars, agarbatis, etc.

Figure 1



Source: Exports Promotion Council for Handicrafts.

Figure 1 depicts that Indian handicraft is mostly exported to the USA. The share of Indian handicraft exports is 6.91% in the UAE (United Arab Emirates). Similarly, it is 6.66% in the UK (United Kingdom). India exports its handicraft products all over the world. As per the Exports Promotion Council of Handicrafts (EPCH), India exported 3560.89 cr. more in 2018-2019, as compared to the previous year. In 2017-2018 exports had been reduced by 5.59%, but in 2018-2019 exports of handicrafts have been increased by 15.46%. In the year 2019-2020, it has been decreased again from 25548.97 to 25270.14 (in crores).

Exports of Jaipur Handicraft

Jaipur is famous for its tradition, culture, and handicraft. Various handicraft items are exported from Jaipur to different countries, which include tapestry, cushion covers, handmade rugs, umbrella, blue pottery, kantha, quilt covers, silk patola, bandhej, block printing sheets, wooden pen boxes, metal-ware, jewellery, wall hangings, pouf covers, etc.

Literature Review

The handicraft sector has a huge potential in the export market and it generates foreign revenue, which is very important for the development of the economy (Bhushan and Din, 2014). Indian handicraft represents the most important place in the International export market. This study found some problems while doing export. These problems are infrastructure, tools, technique, subsidy, taxation, credit for export, shipping, licensing, etc. The researcher further discussed the strategies for the Government and exporters, to cope-up with these problems (Ghouse, 2012). The researcher considered the artisans of modern India and their contributions. This study also discussed a case study related to craft artisans (Mohsini, 2011). Indian handicraft products are exported to more than 100 International markets. The major markets are Germany, the USA, the UK, Canada, Japan, France, and the UAE. This study suggests that the Government should make the handicraft market systematic and organized for the competitive international market. The researchers used analytical and descriptive methods to find out the role of handicrafts (Mir, Bhushan, 2014). The handicraft sector demands sustainability. This research paper identified the various challenges or obstacles while marketing of handicrafts. The researchers further suggested different marketing techniques be adopted by this sector for future growth. Indian crafts include carpets, jewellery, textile, carved crafts, etc. This research paper explored that artisans are spread all over India. This study reveals that Indian handicraft export was highest in 2007 (Kumar, Rajeev, 2013).

Taxation has a very important role in economic development. The researcher deduced that GST is simple as compared to the earlier tax structure. The researcher found that goods/services became cheaper after the implementation of GST. This research paper is comparative and descriptive (Kumar, 2017). European Countries are increasing the standard rates of indirect taxes above the threshold limit. This study noticed that taxation rates have been increased by some of the European Union countries (Chabot, McMahan, 2013). The researcher discussed the proposed constitutional structure, amendments, and concepts of GST. This research study mentioned that there is a need for two things first is to meet the goals of the new taxation and the second is to focus on the amendments, as per the changes suggested by the states (Dahal, 2010). The researcher discussed the Indian tax system and the journey of GST. The researcher found constructive implications on the growth of the gross domestic product through GST. This research study is descriptive. The researcher found that GST will be benefited to the trader, customer, and Government (Kankipati, 2017). The author forecasted that the proposed system of GST has various obstacles in the formulation of structure. This study also discussed the institutions, which help in the smooth functioning and execution of this new tax system. These institutions are Goods and Services Tax Council and Goods and Services Tax Network. This study found that the success of this indirect tax structure depends on the implementation of it (Mukherjee, 2015). This new tax has an efficient tax structure, which will stimulate India's economy. It is a descriptive study. The objective of this research paper is to focus on the impact of the new indirect tax (Mukherjee, Sen, 2018). Researchers discussed the journey of the Indian indirect tax system since independence. This research study explored the need for GST in India. The researchers described various foreign models of GST, including Canadian, QUEBEC, and Australian. The researcher also discussed the implications of this new tax and found that GST will be helpful in the development of the economy of India (Nayyar, Singh, 2018).

This paper explored that there is a significant impact of GST on shipping companies. The researcher has taken five variables to conduct the study. These variables are awareness level, the applicability of IGST, unavailability of CENVAT (Central Value Added Tax) credit, coverage, and off-shore market. This research study used a one-way ANOVA (Analysis of Variance) statistical test to measure the impact. This study also revealed that the maximum number of respondents are not cleared about the anti-profiteering laws of GST (Rengamani, 2018). People have less understanding of GST in Malaysia. This is due to the deficiency of knowledge about tax policies. The researchers have used one case study related to the relation between GST and consumption patterns. The researchers concluded, that final prices of goods & services have been increased by this tax and it is less beneficial to poor households (Kadir et al., 2016). The researcher identified the various restraints confronted by the registered persons and practitioners after the implementation of this tax. This study also focuses on the attitudes of these parties towards it. This study concluded that there is a significant relation between tax rates and satisfaction levels (Kumar, 2017). The researcher has taken five industries which include automobile, FMCG (Fast Moving Consumer Goods), IT (Information Technology), NBFC's (Non-Banking Finance Corporations), & cement. This research study explored the performance of these companies' returns towards the implementation of GST. The researcher has used a one-way ANOVA technique. This researcher found that there is no significant effect of GST on the Indian stock market (Kushalappa, 2018).

Researchers have taken three dependent variables which include awareness, attitude, and understanding, and one independent variable, which is the level of acceptance towards GST. The researchers found that the acceptance level of GST is more affected by attitude and awareness of local business communities, but it is very less affected by the understanding level of these communities (Asmuni, et al., 2017). The excise duty on cotton fabrics, synthetic textile products has been increased after the implementation of this new tax. The researchers concluded that the effect of GST on textile products depends on how Government taxation policies are introduced and implemented (Borate, Ghorpade, 2019). The majority of industries have a positive impact on this taxation. This study also identified that only two industries have a negative impact. These industries are gems and jewellery, and textile industries. Businessmen, professionals, and students were the target population for this study (Dhakan, Yagnesh, 2018). The textile industry is positively affected by GST. The researchers have used Paired T-test to measure the impact of GST on Bhiwandi textile. This research study found that the GST will be beneficial to the textile industry and this new tax will also help in making it more competitive (Khan, Soni, 2018).

Summary of Literature Review and Research Gaps

Researchers found from the reviewed literature that almost all research implies that GST impacts the economy, income, turnovers, and lots of various things. The results of some studies indicate both the positive and negative effects of this tax. Some studies have been carried out on the impact of GST on the textile and gems and jewellery sector, but not much research has been done on the handicraft sector as a whole. It has also been found that numerous research had been performed to work out the consequences of GST on various

industries, but as per the researchers' best understanding, none of the studies has been done to determine the impact of GST on handicraft exporters.

Objective of the Study

This research paper aims to find out the impact of GST on exporters of handicrafts with regard to ease of exports.

Research Hypotheses

The hypotheses for the impact of GST on handicraft exporters aimed especially on ease of exports, are formulated on the basis of eight factors of GST: Registration, Return, Rates, ITC, LUT/Bond, Refund, EWB, and RCM.

H1: There is a significant impact between registration and ease of exports of handicraft exporters.

H2: There is a significant impact between return and ease of exports of handicraft exporters.

H3: There is a significant impact between rates and ease of exports of handicraft exporters.

H4: There is a significant impact between ITC and ease of exports of handicraft exporters.

H5: There is a significant impact between LUT/Bond and ease of exports of handicraft exporters.

H6: There is a significant impact between refund and ease of exports of handicraft exporters.

H7: There is a significant impact between EWB and ease of exports of handicraft exporters.

H8: There is a significant impact between RCM and ease of exports of handicraft exporters.

The proposed hypotheses are tested through One way ANOVA results and regression results, by comparing $F_{cal.5\%}$ with $F_{table5\%}$, if $F_{cal.5\%} \geq F_{table5\%}$, then it indicates that each factor of GST is putting a significant effect on the ease of exports. Similarly, it has also been tested by p-value ($\leq .050$) with beta and t values.

Scope of the Study

The research paper has focused on the handicraft sector of Jaipur. This study has covered an overview of the Goods and Services Tax and Indian handicraft sector. The focus of this study is to find out the impact of GST on exporters of handicrafts. Researchers have taken the exporters, registered on Exports Promotion Council for Handicrafts (EPCH) Jaipur, because as per the best knowledge of researchers, none of the studies has been conducted yet to find out the impact of GST on EPCH Jaipur exporters.

Methodology

Research methodology this study includes research type, sample size, variables, level of significance, statistical tools, and techniques.

Nature of Study and Type of Research

It is a correlational research study for measuring the relationship between GST and its impact on exporters. This research paper is Exploratory and Descriptive.

Target population and size

Handicraft exporters registered on Exports Promotion Council for Handicrafts (EPCH) in Jaipur are the target population for this study. The sample size for this study is 40 exporters.

Variables

All the variables are self-constructed, including dependent and independent variables, as GST in new tax so; not much study has been done yet.

The independent variable is GST, it has various factors, including Registration, Returns, Rates, ITC (Input Tax Credit), LUT (Letter of Undertaking) /Bond, Refund, EWB (E-way Bill), RCM (Reverse Charge Mechanism). These are the major variables of the GST structure. All the variables are measured by an interval scale. The ease of exports is the dependent variable.

Measurement of Variables

All the variables, including dependent and independent, are measured in an interval scale (Likert scale – five-point scale) shown in Table 2.

Table 2

Likert Scale

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Source: Constructed by Authors

Sampling Technique and Analysis and Interpretation of Data

Simple random sampling has been used. Exporters have been randomly identified from different locations in Jaipur. One-Way ANOVA statistical test and multiple-linear regression analysis have been used. This has been done using SPSS (version 25) and MS Office-Excel. The level of significance is 5% for this study.

One way ANOVA test has been used in this study, because only one independent variable which is GST and it has more than three-factor groups like registration, return, RCM, ITC, LUT, etc. Similarly, all the data sets are in an interval scale. This test is used to find out a significant relationship between the mean (\bar{x}) of the independent variable concerning the mean of a dependent variable. One way ANOVA test has been used to know the impact of the implementation of GST on the Indian stock market (Kushalappa, 2018). The hypotheses

have been tested by using one way ANOVA, whether the impact of GST on ease of exports is significant or not.

Multiple regression analysis is used, where more than two factors of the independent variable are taken towards a dependent variable (Sekaran and Bougie, 2010). In this research paper, multiple linear regression has also been used to find out the percentage of variation in the dependent factor due to independent factors. Multiple linear regression has been taken to measure the impact in terms of percentage.

Tools for Collecting Data

A questionnaire has been used to collect the data. Questions are based on 5 points Likert Scale to collect the interval scale data.

Research Model

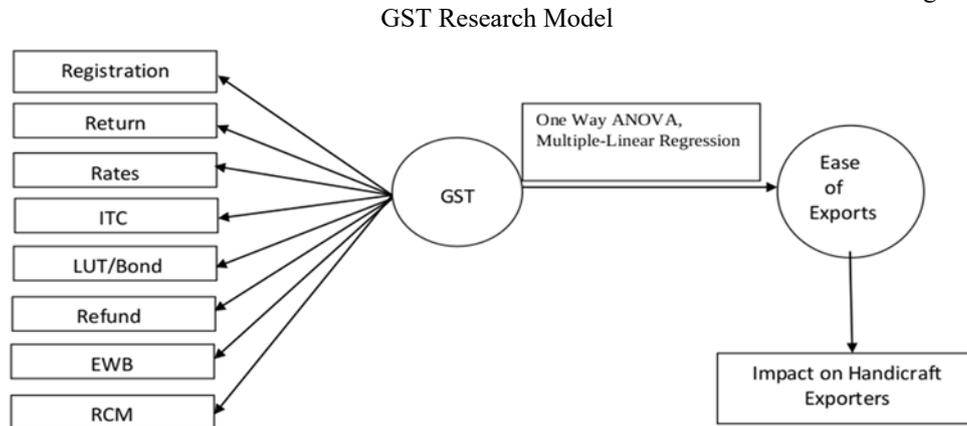
The present study is following the quantitative approach for collecting the data through a self-constructed questionnaire with open and close-ended questions. After an extensive literature review, the hypothesis and measurement model have been constructed. This research study measures the impact of GST on exporters of handicrafts in terms of ease of exports.

As GST is new taxation, this study seeks the impact of it concerning the easiness of exporting the handicraft products. Researchers have taken the ease of export factor because through this factor, the impact can be measured more clearly and as per the researcher's best knowledge, it has been found that this area is unexplored. Ease of export factor contains the questions/statements which are related to ease of doing business after the implementation of GST. These statements are based on some variables, including cascading reduction, productivity enhancement, opportunities, comforts, transparency, organized, working capital, fewer compliances, turnover, e-invoicing, etc.

This study takes the view of the exporters regarding the ease of exports for anticipating the effect of GST. To calculate the impact of GST, researchers have taken variables of GST, which are Registration, Returns, Rates, ITC, LUT/Bond, Refund, EWB, and RCM. These factors are significantly representing the GST. This study individually measures the impact of these GST factors with ease of exports. This study has taken this research model (Figure 2) to see the impact.

The above model has been analyzed by using the one way ANOVA and multiple-linear regression analysis, to see the impact of each GST factor and overall impact of GST on ease of exporting the handicraft products. Through this model testing, this study achieves its objective, which seeks the impact of GST on handicraft exporters concerning ease of exports.

Figure 2



Source: Constructed by Authors

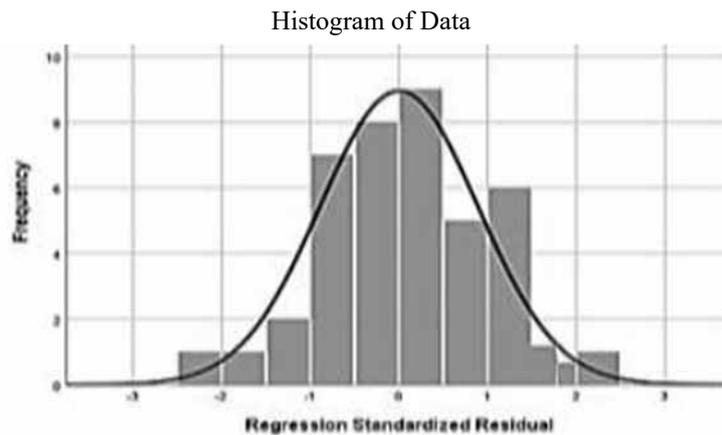
Results of Analysis

This research study focuses on the impact of GST on exporters of handicrafts in Jaipur and the results of the data analysis are given below.

Normality Test

Researchers have used the histogram to test the normality of residuals. Figure 3 depicts the distribution of data. Data plotted on the histogram is showing normal distribution.

Figure 3



Source: Constructed by Authors

Reliability

The questionnaire’s reliability has been checked by α . It has also been tested for each construct of GST, by the grouping of questions belonging to a particular construct. The reliability of each construct is more than 0.75, which is acceptable (Table 3).

Table 3

Variables	Construct	Reliability Test (α)
Independent Variables	Registration	0.87
	Returns	0.88
	Rates	0.90
	ITC	0.81
	LUT/Bond	0.89
	Refund	0.86
	EWB	0.88
	RCM	0.82
Dependent Variables	Ease of Exports	0.91

Source: Constructed by Authors

Descriptive Analysis

Mean, range, minimum, maximum, standard deviation, and variance of each construct are given in Table 4. GST variable is showing the overall mean of 8 variables.

Table 4

	N	R	Min	Max	\bar{x}	Σ	σ^2
Registration	40	3.75	1.25	5.00	3.9500	1.12546	1.267
Return	40	4.00	1.00	5.00	4.0125	1.07708	1.160
Rates	40	4.00	1.00	5.00	3.9125	1.18152	1.396
ITC	40	3.00	2.00	5.00	3.9188	.81922	.671
LUT/Bond	40	3.75	1.25	5.00	4.0500	1.09222	1.193
Refund	40	3.75	1.25	5.00	3.7563	1.06742	1.139
EWB	40	3.50	1.50	5.00	4.0500	1.05490	1.113
RCM	40	3.75	1.25	5.00	3.9063	1.02483	1.050
Ease of Exports	40	3.60	1.40	5.00	4.0725	.96130	.924
GST	40	3.06	1.50	4.56	3.9445	.97357	.948
Valid N (list wise)	40						

Source: Constructed by Authors

Here, R represents the range. The lowest mean is 3.7563 for GST Refund and the lowest standard deviation is 0.81922 for ITC. All the scores range from 3 to 4.

One-Way ANOVA

One-Way Analysis of Variance has been conducted to test the hypothesis at the significance level of 5% (Table 5). F statistic is the calculated value and F critical is the table value. df indicates the degree of freedom (n-1) As the sample size is 40, so total df is 40-1= 39.

Table 5

One-Way ANOVA Results

		Sum of Squares	Df	Mean Square	F (Statistic)	F (Critical)
Registration	Between Groups	27.671	9	3.075	11.021	2.211
	Within Groups	8.369	30	.279		
	Total	36.040	39			
Returns	Between Groups	30.016	11	2.729	12.684	2.151
	Within Groups	6.024	28	.215		
	Total	36.040	39			
Rates	Between Groups	31.371	11	2.852	17.104	2.151
	Within Groups	4.669	28	.167		
	Total	36.040	39			
ITC	Between Groups	27.240	9	3.027	10.319	2.211
	Within Groups	8.799	30	.293		
	Total	36.040	39			
LUT/Bond	Between Groups	28.110	10	2.811	10.279	2.177
	Within Groups	7.930	29	.273		
	Total	36.040	39			
Refund	Between Groups	28.765	10	2.877	11.468	2.177
	Within Groups	7.274	29	.251		
	Total	36.040	39			
EWB	Between Groups	29.241	7	4.177	19.661	2.313
	Within Groups	6.799	32	.212		
	Total	36.040	39			
RCM	Between Groups	32.025	9	3.558	26.593	2.211
	Within Groups	4.014	30	.134		
	Total	36.040	39			
Ease of Exports	Between Groups	33.036	20	1.652	10.448	2.155
	Within Groups	3.004	19	.158		
	Total	36.040	39			

p = 0.000

Source: Constructed by Authors

Multiple Linear Regression Analysis

Table 6 shows the coefficient of correlation(R) is .865, it shows the positive correlation between each independent factors of GST (Registration, Returns, Rates, ITC, LUT/Bond, Refund, EWB, & RCM) with respect to the dependent variable (ease of exports). R² shows the variation in the dependent variable due to the independent variables. Here R² is .748 which means 74.8% variation in the dependent variable (ease of exports) explained by the independent variable GST. Adjusted R² gives a more precise result; it takes only those factors, which are significant. In the above table adjusted R² is .683, so this value shows a

68.3% variation in the dependent variable explained by the independent variable GST. It means the impact of GST is 68.3% on exporters of handicrafts in terms of ease of exports.

Table 6

Regression Analysis

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.865 ^a	.748	.683	.54085

a. Predictors: (Constant), Registration, Returns, Rates, ITC, LUT/Bond, Refund, EWB, RCM

b. Dependent Variable: Ease of Exports

Source: Constructed by Authors

Table 7 shows the significant results of ANOVA, which has been generated through multiple-linear regression analysis. The value of F critical (table value, 5%) is 2.255, which is less than the calculated value 11.526.

Table 7

ANOVA Results

ANOVA ^a						
Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	26.972	8	3.371	11.526	.000 ^b
	Residual	9.068	31	0.293		
	Total	36.040	39			

a. Dependent Variable: Ease of Exports

b. Predictors: (Constant), Registration, Returns, Rates, ITC, LUT/Bond, Refund, EWB, RCM

Source: Constructed by Authors

Table 8 shows the coefficient of regression analysis. All the factors of GST, including registration, returns, rates, ITC, LUT/Bond, Refund, EWB, and RCM, have significant p values that are less than 0.05. This research study has taken unstandardized or raw beta coefficients to measure the impact of GST because all the independent factors are measured on the same scale (Likert five-point scale).

Table 8

Coefficients of Regression Analysis^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.438	.152		2.878	.040
	Registration	.218	.045	.282	4.836	.026
	Return	.216	.051	.252	4.228	.026
	Rates	.169	.053	.184	3.189	.033
	ITC	.127	.048	.141	2.657	.043
	LUT/Bond	.573	.057	.629	10.053	.000
	Refund	.154	.046	.171	3.348	.032
	EWB	.514	.044	.636	11.626	.000
RCM	.297	.047	.360	6.337	.005	

a. Dependent Variable: Ease of exports

Source: Constructed by Authors

The details of the regression equation are as follows:-

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8.$$

Initial equation:

$$Y = .438 + .218X_1 + .216X_2 + .169X_3 + .127X_4 + .573X_5 + .154X_6 + .514X_7 + .297X_8$$

Y = Dependent Variable = Ease of Exports

$$\alpha = .438 (\text{constant})$$

One way ANOVA and Regression equation results are discussed in the discussion section.

Discussions

One-Way ANOVA results:

Table 4 shows the F statistics (F_{cal.}) of registration is 11.021. This statistic is the ratio between the groups and within the groups. The significance value is .000, this value is the p-value. Critical value/ table value for degree of freedom (9, 30) is 2.21 at 5% . Since F critical is less than F statistics, this indicates a significant impact of registration on ease of exports. F statistic (12.684) is less than the critical value 2.151 and the significance level is more than the p-value, this indicates the significant impact of returns on ease of exports. F statistics (F_{cal.}) of GST rates is 17.104. Critical value/ table value for degree of freedom (11,28) is 2.151. Since the F critical is less than F statistic values, this indicates a significant impact of GST rates on ease of exports. F statistics for ITC is 10.319, this is the calculated value. Critical value/ table value for degree of freedom (9, 30) is 2.21 and p-value (0.00). Since the calculated value is greater than the table value, this depicts the significant impact of ITC on ease of exports. The p-value is .000 and F_{cal.}, 5% is 10.279. F statistics (10.279) is less than the critical value of 2.177. It also indicates the significant impact of LUT/Bond on ease of exports. The calculated value of F and p, is 11.468 and .000 respectively. The critical value of F at 5% for the degree of freedom (10,29) is 2.177. This value is less than the F(cal.) value and p-value is also less than 5%. These results show a significant impact of GST refund on ease of exports. The F statistics (F_{cal.}) of EWB is 19.661. Significance value (p) is 0.00. The critical value is 2.313, which is less than the calculated F value. This indicates the significant impact of EWB on the ease of exports. The value of the F statistics is 26.593, this is the calculated value. Critical value/ table value for degree of freedom (9,30) is 2.211 and p-value (0.00). F_{cal.},5% > F_{table},5%, this depicts the significant impact of RCM on ease of exports.

All the GST variables (Registration, Returns, Rates, ITC, LUT/Bond, Refund, EWB, and RCM) have been taken into consideration as a whole and the impact of GST on ease of exports has been calculated. F statistics (F_{cal.}) is 10.448. This statistic is the ratio between the groups and within the groups. Critical value/ table value for degree of freedom (20,19) is 2.155 at 5%. Since the F table value is less than the F calculated value (F_{cal.}, 5% > F_{table}, 5%) and p < α, this indicates the significant and positive impact of GST on ease of exports.

The study by (Kumar, 2017) also finds that tax rates have a significant relation with the satisfaction level of taxpayers. The results of the study by (Khan and Soni, 2018) proved the

positive effect of GST on the textile industry, But not as per the study by (Dhakan and Yagnesh, 2018), this research study is based on the textile gems and jewellery industry. The result of some studies shows the impact of GST on textile depends on how taxation policies are implemented (Borate and Ghorpade, 2019).

Researchers have taken a self-constructed variable to find out the impact. The results of some earlier studies support the results of the current study.

Registration factor is putting significant and positive impact because in GST system registration is now based on the turnover of a business. The process of registration and cancellation of registration is quite simple. The return factor is also putting a significant and positive impact because the Government is providing the return option (monthly or quarterly) as per their turnover. The return process is simple and easier. Rate factor is also making a significant impact on exporters because Government has classified the GST rates as per the value of the goods like if the value of a tapestry (handicraft bed sheet) is less than 1000 then it attracts the rate of 5%, but if the value is more than 1000 then 12% GST will be applicable. ITC is also making a significant and positive impact because in the previous tax regime interstate ITC was not allowed to take, but in this regime interstate ITC can be taken. Registered taxpayers can also take the refund of the unutilized input tax credit through RFD-01. LUT/Bond factor is also making a significant and positive impact on exporters. LUT has been implemented in the GST regime. With the help of LUT, a registered exporter needs not to pay any amount of tax to the Government. The refund factor is also putting a significant and positive impact. The process of IGST refund became fast. GST Council provides a link between the Indian Customs Electronic Gateway and the GST network. EWB is also putting a significant and positive impact on exporters because this e-way bill brings transparency in the system. Similarly, RCM is also making a significant and positive impact on exporters of handicrafts because while paying the RCM to the Government, at the same time it came as an ITC in the GST portal. These statements are in accordance with the majority of exporters while filling the questionnaire.

Regression results

Registration= $\beta_1 = .218$

When the GST Registration increases by one percent, ease of exports increases by 21.80 percent while keeping the other factor constant. Therefore it shows the positive relationship between GST registration and ease of exports. It means the registration factor is putting a 21.80% positive impact on exporters.

Return= $\beta_2 = .216$

There is a positive relationship between GST Return and ease of exports. While keeping the other factor constant, the GST Return increases by one unit, ease of exports extends by 21.60 units. It means the return factor of GST is making a 21.60% impact on exporters in terms of ease of exports.

Rates= $\beta_3 = .169$

The GST Rates increase by one unit, ease of exports increases by 16.90 percent while keeping the other factor constant. Therefore it shows a positive relationship between GST Rates and ease of exports. It means the rate factor is putting a 16.90% positive impact on exporters.

ITC= $\beta_4 = .127$

When the GST ITC increases by one unit, the ease of exports increases by 12.7 units while keeping the other factor constant. There is a positive relationship between GST ITC and the ease of exports. ITC factor of GST is making a 12.70% impact on exporters in terms of ease of exports.

LUT/Bond= $\beta_5 = .573$

There is a positive relationship between GST LUT and the ease of exports. The value of beta is 0.573, it shows the one percent change in LUT, there will be a 57.3 percent change on the dependent variable. LUT/Bond is putting a 57.3% impact on exporters of handicrafts.

Refund= $\beta_6 = .154$

There is a positive relationship between GST Refund and the ease of exports. The GST Refund increases by one unit, ease of exports increases by 15.40 units. The refund factor of GST is making a 15.4% impact on handicraft exporters.

EWB= $\beta_7 = .514$

When the GST EWB increases by one percent, ease of exports increases by 51.40 percent while keeping the other factor constant. Therefore it shows the positive relationship between GST EWB and ease of exports. It means EWB is putting a 51.4% impact on exporters of handicrafts.

RCM= $\beta_8 = .297$

There is a positive relationship between GST RCM and the ease of exports. The GST RCM increases by one unit ease of exports increases by 29.70 percent. The RCM factor of GST is making a 29.7% impact on handicraft exporters in terms of ease of exports.

The regression equation shows the percentage of variation in the dependent variable (ease of exports) with respect to individual independent factors of GST. As per the regression results, it has been found that ITC has less beta value among all the factors. It means ITC is putting less impact among all the factors on exporters of handicrafts.

Testing of Hypotheses

The entire research hypotheses are tested through $F_{cal.5\%} \geq F_{table5\%}$, $p \leq .050$, β , and t values. All results are showing a significant impact on the ease of exports of handicraft exporters (Table 9).

Table 9

Hypotheses Testing

Research Hypotheses	Test Values	Results
H1	11.021 ≥ 2.211, .026 ≤ .050, β=.218, t=4.836	Accepted
H2	12.684 ≥ 2.151, .026 ≤ .050, β=.216, t=4.228	Accepted
H3	17.104 ≥ 2.151, .033 ≤ .050, β=.169, t=3.189	Accepted
H4	10.319 ≥ 2.211, .043 ≤ .050, β=.127, t=2.657	Accepted
H5	10.279 ≥ 2.177, .000 ≤ .050, β=.573, t=10.053	Accepted
H6	11.468 ≥ 2.177, .032 ≤ .050, β=.154, t=3.348	Accepted
H7	19.661 ≥ 2.313, .000 ≤ .050, β=.514, t=11.626	Accepted
H8	26.593 ≥ 2.211, .005 ≤ .050, β=.297, t=6.337	Accepted

Source: Constructed by Authors

Conclusions, Limitations and Future Scope of the Study

This new indirect tax abolished various earlier taxes. It is also applicable in other countries, now India has also the same tax system, which makes India more competitive in the global economy. This research paper also identified that GST put its an impact on various sectors, including textiles. It has also been found that maximum Indian handicraft products are exported to the USA. This study put light on the newly implemented tax and its impact on the handicraft exporters. Researchers have taken the self-constructed research model to know the impact of GST. This research study has measured impact with regard to ease of exports because this factor gives the more clear results of GST implication as a whole. This research study aimed to measure the impact of GST on handicraft exporters using one way ANOVA and multiple regressions by ascertaining the significant impact of eight factors of GST that influence ease of exports. After analysis and interpretation of data, researchers found the there is a significant and positive impact of registration, returns, rates, ITC, LUT/Bond, refund, EWB, and RCM on ease of exports. As per the results of one way ANOVA and multi-linear regression, all the factors of GST are making a positive impact and overall GST is putting a 68.3% impact on the ease of exports of handicraft exporters. This research paper concluded that after the implementation of GST, handicraft exports became easier and GST has a positive impact on handicraft exporters. It has also been observed that among all the variables of GST, ANOVA results show the EWB and RCM have the maximum F values with significant p values. Similarly, multiple-linear regression results show LUT and EWB have the maximum β values with significant p values. All the coefficients of regression are statistically significant. Descriptive statistics have also shown the LUT and EWB are more critical factors. These factors are making more impact on the ease of exports. ANOVA results have also been supported by regression results. All eight GST factors are statistically significant to the prediction. The result of this research paper indicates the positive impact of this taxation on handicraft exporters and it is also supported by the other studies. Handicrafts exporters get their IGST refund faster. In the GST system, no need to pay any amount of IGST, if exporters are exporting under LUT. Similarly, registered taxpayers can take the refund of unutilized ITC by filing the RFD-01 form.

As this is a new tax, some studies have been done yet on this tax. This study will be helpful to know about the GST and its effect on handicraft exporters. Through this study, the future researcher will get a broad perspective of GST and its impact on the handicraft sector. This study is also beneficial to exporters on the advantages of GST as a whole on exports of handicrafts. This study may be benefited to the Government for further amendments in the GST structure as per the facts and findings of this research study. As LUT/Bond, EWB, and RCM are putting more impact on exporters, GST Council can make developments in GST rules.

This research paper has not considered the unregistered handicraft exporters of Jaipur. This study is limited only to the handicraft sector as a whole; it does not focus on textile, ceramic, wooden industries individually. This research paper has focused only on the exporters of Jaipur.

Another research can also be conducted on the attitude of taxpayers towards this new tax. Future researchers can take other factors besides these variables to find out the impact. This study measures the impact in terms of ease of exports; another study can also be conducted to know the impact of GST on the financial performance of business, turnover, growth, etc.

References

- Asmuni, S., Yusoff, S., Ses, N. S. M. (2017). Acceptance towards Goods and Services Tax (GST) among local business communities. – *Journal of Emerging Economics & Islamic Research*, Vol. 5, N 4, pp. 62-72.
- Bhushan, S., Din, T. M. U. (2014). Indian handicraft exports: An economic analysis. – *International Journal of Business Quantitative Economics and Applied Management Research*, Vol. 1, N 3, pp. 104-112.
- Borate, S. S., Ghorpade, N. (2019). Study on impact of GST on textile industry. – *FI.B.M.R. Wakad's Journal of Management Research*, Vol. 6, pp. 51-55.
- Chabot, J., McMahan, M. (2013). The evolution of indirect taxes. – *Canadian Tax Journal/ Revue Fiscale Canadienne*, No. 61 (supp.), pp. 19-30.
- Dahal, R. (2010). Goods and service tax in India – challenges and opportunities. Available at: <http://dx.doi.org/10.2139/ssrn.1596522> [Accessed October 1, 2020].
- Dhakan, V., Yagnesh, D. (2018). An analytical study on perceptive impact of implementation of Goods and Services Tax (GST). Available at: <https://www.researchgate.net/publication/325846238> [Accessed October 15, 2020].
- Export Promotion Council of Handicrafts. (2020). Share of handicraft exports in major countries. – Export Promotion Council of India. Available at: <https://www.epch.in/policies/exportsofhandicrafts.htm> [Accessed November 15, 2020].
- Ghouse, S. M. (2012). Indian handicraft industry: problems and strategies. – *International Journal of Management Research and Reviews*, Vol. 2, N 7, pp. 1183-1199.
- Kadir, J. B., Yusof, Z. B., Hassan, M. A. (2016). Goods and Services Tax (GST) in Malaysia: Behind successful experiences. – *International Journal of Economic Perspectives*, Vol. 10, N 4, pp. 126-138.
- Kankipati, A. (2017). A journey of Goods and Services Tax (GST) and structural impact of GST on the growth of GDP in India. – *Advances in Sciences and Humanities*, Vol. 3, N 5, pp. 50-53.
- Khan, M. S., Soni, R. (2018). Impact of GST on textile hub of Mumbai- Bhiwandi, Dist. Thane. – *Account and Financial Management Journal*, Vol. 3, N 2, pp. 1318-1322.

- Kumar, D., Rajeev, P. V. (2013). Present scenario of Indian handicraft products. – *Asian Journal of Managerial Science*, Vol. 2, N 1, pp. 21-27.
- Kumar, P. (2017). Concept of Goods and Services Tax (GST) in India. – *Airo National Research Journal*, Vol. 7.
- Kumar, S. N. (2017). Attitude of taxpayers, auditors (including Chartered Accountants and Tax Practitioners) towards accepting emerging trends in tax reforms; with special reference to GST (Goods and Services Tax) based Taxation. – *International Journal of Scientific Research and Management*, Vol. 5, N 12, pp. 7730-7740.
- Kushalappa, S. (2018). Impact of implementation of GST on Indian stock market: A study with reference to companies of selected industries. – *IOSR Journal of Business and Management*, Vol. 1, pp. 10-16.
- Mir, L. A., Bhushan, S. (2014). An analysis of current scenario and contribution of handicrafts in Indian economy. – *Journal of Economics and Sustainable Development*, Vol. 5, N 9, pp. 75-78.
- Mohsini, M. (2011). Crafts, artisans, and the Nation-State in India. – *A companion to the anthropology of India*, pp. 186-201.
- Mukherjee, S. (2015). Present state of Goods and Services Tax (GST) Reform in India. – *Tax and Transfer Policy Institute, Working Paper*, N 6.
- Mukherjee, T., Sen, S. (2018). Goods and Services Tax (GST) – One Nation and One Tax: A Review. – *International Research Journal of Management and Commerce*, Vol. 5, N 4, pp. 81-93.
- Nayyar, A., Singh, I. (2018). A comprehensive analysis of Goods and Services Tax (GST) in India. – *Indian Journal of Finance*, Vol. 12, N 2, pp. 57-71.
- Rengamani, J. (2018). Impact of Goods and Services Tax (GST) on the shipping companies in Chennai sector. – *International Journal of Mechanical Engineering and Technology*, Vol. 9, N 8, pp. 827-835.
- Sekaran, U., Bougie, R. (2010). *Research methods for business: A skill-building approach*. – West Sussex: UK John Wiley & Sons Ltd, pp. 175-176.

EFFECT OF THE APPLICATION OF IFRS 15: EVIDENCE FROM BULGARIA

IFRS 15 Revenue from Contracts with Customers is a completely new standard for recognition and evaluation of enterprises' revenue regardless of the industry and type of revenue. The new standard completely replaces current standards related to recognition revenue. The aim of this study is to determine whether the adoption of IFRS 15 has affected Bulgarian companies' revenue and stock prices or not. The period under examination is from 2016 to 2019. The analyzed companies are 16 separate corporate entities from various sectors in Bulgaria. The unit root test, descriptive statistics and paired sample t-test are applied. The results show that IFRS 15 has an influence on the stock prices of the Bulgarian listed companies of the following sectors: manufacturing, wholesale and retail trade, accommodation and food service activities, transportation and storage, real estate activities, construction and the value of stock prices of these companies decrease after standard adoption. IFRS 15 does not have a significant effect on the revenue of the analyzed Bulgarian companies.

JEL: M40; M41; G10; C01; C49

1. Introduction

In May 2014, IFRS 15 Revenue from Contracts with Customers was issued. It established a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers. IFRS 15 supersedes the current standards, including IAS 18 Revenue, IAS 11 Construction Contracts, and their related interpretations. It becomes effective on 1 January 2018 in Bulgaria, with retrospective application, and early adoption is permitted. IFRS 15 establishes principles for reporting useful information to users of financial statements about the nature, amount, timing, and uncertainty of revenue and cash flows arising from an entity's contracts with customers. The core principle of IFRS 15 is that an entity recognises revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services.

The purpose of this study is to determine whether the adoption of IFRS 15 has affected Bulgarian companies' revenue and stock prices or not. In particular, this study aims to

¹ Ani Stoykova, Chief Assistant professor, PhD, Faculty of Economics, Department of "Finance and accounting", South-West University "Neofit Rilski", Bulgaria, e-mail: ani_qankova_st@abv.bg.

analyze the effects of applying the IFRS 15 in the first two years after its adoption in Bulgaria, namely 2018 and 2019 for Bulgarian publicly listed companies. One of the main tasks is to generalise the effects of changes in the revenue and stock prices of sixteen Bulgarian public companies from different industries related to the IFRS 15 adoption.

In this paper, a short summary of IFRS 15 is presented. In order to analyze the dynamics of revenue and stock prices before and after the adoption of IFRS 15 in Bulgaria, an econometric methodology considering unit root test, descriptive statistics and paired sample t-test is applied. Our findings show that there is a difference between the values of the stock prices of the analyzed Bulgarian companies before and after the standard application and they decrease after IFRS 15 adoption. IFRS 15 does not have a significant effect on the revenue of the Bulgarian listed companies of the following sectors: manufacturing, wholesale and retail trade, accommodation and food service activities, transportation and storage, real estate activities, construction.

Limitations of this research are determined in the following aspects:

Time range - this research is restricted in the time interval from 2016- 2019;

Methodological restrictions – they are set by the statistical properties of the researched data. The proposed and used methodology does not claim to be the only possible and applicable when inspecting and proving the research thesis of this study.

Place restrictions – the analysis and the inspection of the research thesis are concentrated on one country – Bulgaria.

2. Literature Review

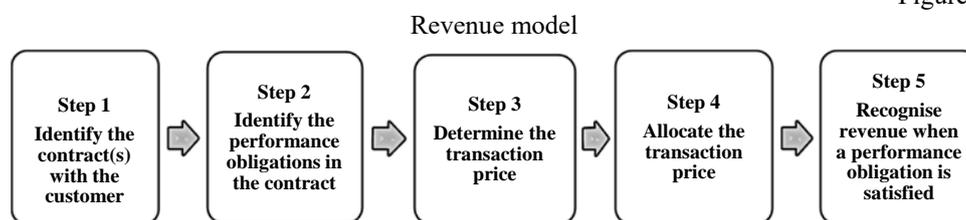
2.1. Summary of IFRS 15

IFRS 15 will improve the comparability of reported revenue over a range of industries, companies and geographical areas globally. The objective of IFRS 15 is to establish principles that an entity shall apply to report useful information to users of financial statements about the nature, amount, timing, and uncertainty of revenue and cash flows arising from a contract with a customer.

The new revenue model would apply to all contracts with customers except leases, insurance contracts, financial instruments, guarantees, and certain non-monetary exchanges. The sale of non-monetary financial assets, such as property, plant and equipment, real estate, or intangible assets will also be subject to some of the requirements of the new model.

IFRS 15 introduces a revenue model in which the core principle is that an entity should recognise revenue to depict the transfer of promised goods or services to the customer in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. To recognise revenue, the following five steps should be applied:

Figure 1



Source: Authors' summaries based on IFRS 15.

Step 1: Identify the contract(s) with the customer – This means establishing what contracts you have with customers. IFRS15 provides clearer guidance on what to do if a contract is assessed as being unlikely to be collectable and also has specific guidance on contract modifications.

Step 2: Identify the separate performance obligations in the contract(s) – A performance obligation can be summarised as “a promise in a contract with a customer to transfer a good or service to the customer.” Key questions here are whether a good or service is “distinct”, “integrated”, or “homogeneous”.

Step 3: Determine the transaction price – The transaction price can be defined as the “amount of consideration to which entity expects to be entitled in exchange for transferring goods or services.” It may be affected by factors including variable consideration, financing components, non-cash consideration, and consideration payable to customers.

Step 4: Allocate the transaction price – This means thinking through the “fair value” of the handset and service components and carrying out a relative fair value allocation between the two. For example, the operator might allocate €100 of the total consideration to the handset performance obligation and the rest to the service.

Step 5: Recognise revenue when (or as) a performance obligation is satisfied – Here the operator decides at what point in time control over the good or service transfers to the customer, and when to recognise the relevant revenue. This can either be over time – for example by measuring progress towards complete satisfaction of the performance obligation – or at a specific point in time (Gruss and Miß, 2016).

This five-step revenue recognition approach is completely new and relatively difficult to understand for the users of financial statement. In addition, it is possible that the new standard (IFRS 15) will not be able to balance the various information needs of users, although this is one of the approaches to the development of international accounting standards: „Standard setters may need to decide whether they prefer (1) to balance the different interests on a standard-by-standard basis, (2) to focus on a specific subset of users when developing new standards, or (3) to address only general needs of users and allow preparers to provide additional information tailored to those specific groups of users that are considered most relevant in the particular circumstances (EFRAG, 2014)“.

2.2. *Review of main recent research papers*

Numerous papers examine the adoption of IFRS 15 Revenue from contracts with customers and analyze its impact on the accounting information in financial statements or the new approaches on revenue recognition and measurement (Peter Raykov 2018; Khamis 2016; Huefner (2016; Vandenberghe et al. 2019; Tong 2014; Richard 2015).

Aladwan (2019) examines whether the early adoption of IFRS 15 that supersede the IAS 18 concerning revenue recognition has affected Jordanian companies' revenue levels and the value of stock price or not. His paper measures revenue and stock prices pre and post the IFRS 15 implementation. The findings revealed that there is a significant quantitative difference between the arithmetic means for both revenue and stock price pre and post the standard application. Further, the results of the study provided conclusive evidence that IFRS 15 has impacted on accountability and quality of information, that reported in the financial statement for Jordanian mining, construction, and engineering companies.

Van and Coetsee (2020) find that IFRS 15 provides an appropriate framework for the revenue recognition of construction contracts and the application of the guidance is based on the correct interpretation of the rights and obligations in construction contracts, which could create uncertainties in practice.

Ergüden (2020) discusses how the presentations, explanations, and footnotes in IFRS-15 standard have been handled in the disclosures of the public companies' independent audit reports by examining seven public tourism companies with content analysis. As a result of the study, unlike all issues taken place generally in the standard, it has been determined that general issues are included in the footnotes examined.

Vaicekauskas (2020) proves that the first-time adoption of IFRS 15 had no material impact on the financial statements of Lithuanian listed companies and most of the companies surveyed applied the standard using a simplified retrospective modified method and did not pay much attention to the disclosure of the first-time adoption.

Spasić and Arsenijević (2017) analyze the possible challenges in the first and each subsequent application of IFRS 15, and to point out the need for good knowledge of revenue recognition criteria not only by accountants but also by users of financial statements. The authors also point to some particular challenges in the implementation of certain solutions to the standard. Altaji and Alokdeh (2019) investigate the impact of the IFRS (15) on the quality of accounting information in terms of relevance and faithful representation. To achieve the study objectives, a questionnaire is designed and distributed randomly on the study sample which includes (100) of external auditors of the Big Four audit companies in Jordan using the descriptive-analytical approach. The study hypotheses are tested through the Simple Regression Test and the One Sample T- Test. The study results indicate a statistically significant impact of the implementation of the IFRS 15 on improving the quality of accounting information from the perspective of external auditors at the Big Four audit companies in Jordan.

Yingzhee et al. (2015) make an overview of Malaysian preparers and auditors' perception on IFRS 15. Results of their study revealed that generally Malaysian accountants surveyed are still not ready to adopt IFRS 15 and they perceived that the standard is not easy to be applied

across different business sectors. Al-Tamimi et al. (2019) reach to the conclusion that the lack of experience and know-how in the accounting and administrative staff working in most mobile phone companies exists. The most important recommendations of the research are the need to provide an efficient accounting and administrative staff with sufficient experience and know-how in the methods of recognising revenues generated by mobile phone companies.

Kraft et al. (2020) examine the effects of mandatory IFRS adoption on accounting-based prediction models of CDS spreads for a sample of 292 firms in 16 countries. They find that mean and median absolute percentage prediction errors are larger for both financial and non-financial firms after mandatory IFRS adoption. Authors also find that in the post-adoption period, prediction errors are larger for firms in countries with weaker institutions, such as low levels of property rights and more restrictive access to credit. Plotnikov and Plotnikova (2018) prove that trade payables must be recognised as an object of accounting. It presents a developed model of accounting reflection of the financial and commercial process of transformation of trade payables in revenue from contracts with customers. The authors conclude that changes in the value of an asset transferred to the customer's control should be reflected in other aggregate income and not affect the amount of revenue. Their study proves the need to clarify the subject of accounting by introducing contractual obligations in its definition.

Filipova et al. (2020) focus on issues related to the implementation of the new IFRS 15 Revenue from Contracts with Customers. The most debatable issues regarding the requirements of the new five-step revenue recognition approach are discussed, as well as the conceptual basis of this approach and its relationship with the IFRS Conceptual Framework and the purposes of the general purpose financial statements. On the basis of manually collected empirical data, two samples of Bulgarian enterprises are examined: the first covers nine firms from different industries (listed on the Large taxpayers and insurers list), and the second – the 4 largest Bulgarian mobile operators. Both quantitative and qualitative approaches are used in order to analyze how IFRS 15 is applied in the sample of companies and the effects of its adoption (on equity and financial results) in the first year of its application – 2018 (as well as the comparative period 2017). The results of the study show that IFRS 15 does not have a significant impact on their financial statements and financial results of the enterprise from the first sample. IFRS 15 adoption is important for mobile operators in Bulgaria, but the complexity of its application (at least initially) creates difficulties for the companies.

3. Data and Research Methodology

3.1. Data

The objective of this study is to determine whether the adoption of IFRS 15 has affected Bulgarian companies' revenue and stock prices or not. In order to examine the impact of IFRS 15 adoption on revenue and stock prices, the values of the annual sales revenue of the companies and the stock price of each company at the end of every year are used. The data is with annual frequency. The examined period is from 2016 to 2019. The sample contains

16 separate corporate entities from various sectors in Bulgaria: manufacturing, wholesale and retail trade, accommodation and food service activities, transportation and storage, real estate activities, construction. All of the companies included in the sample are public firms that listed their common shares on the Bulgarian stock exchange (BSE). In addition, stock indices SOFIX, BGBX40, BGTR30 are based on the market capitalisation of the issues of common shares of the selected Bulgarian companies. The study data was obtained from individual company annual and quarterly financial reports (only for the fourth quarter of 2019) issued by the Bulgarian Stock Exchange (ASE) for the years from 2016 to 2019. The examined period is separated into two sub-periods: the first period – 2016-2017 before the application of IFRS 15 and the second period – 2018-2019 after the application of IFRS 15.

We examine firms from different sectors - for example: manufacturing, wholesale and retail trade, accommodation and food service activities, transportation and storage, real estate activities, construction. Here we have to make three remarks. First, we have chosen exactly these sixteen firms because all of the necessary accounting information is available for the whole examined period that is from 2016 to 2019. Second, we include in the sample only companies that apply IFRS 15. Third, the analyzed companies are public ones and BSE requires its listed issuers to disclose detailed annual and quarterly financial reports. What is more, the accounting data was collected and processed as of 10.02.2020. Table 1 displays all companies included in the sample. Also, the specific sector and subsector of all examined firms are presented.

Table 1

Sample companies

№	Company name	Sector	Subsector	Stock index
1.	SOPHARMA TRADING AD-SOFIA	Wholesale and retail trade; repair of motor vehicles and motorcycles	Wholesale trade, except of motor vehicles and motorcycles	BGBX40 BGTR30
2.	ALBENA AD-ALBENA	Accommodation and food service activities	Food and beverage service activities	SOFIX BGBX40 BGTR30
3.	ZARNENI HRANI BULGARIA AD-SOFIA	Wholesale trade, except of motor vehicles and motorcycles	Wholesale and retail trade; repair of motor vehicles and motorcycles	BGBX40
4.	SOPHARMA AD-SOFIA	Manufacturing	Manufacture of basic pharmaceutical products and pharmaceutical preparations	SOFIX BGBX40 BGTR30
5.	MONBAT AD-SOFIA	Manufacturing	Manufacture of electrical equipment	SOFIX BGBX40 BGTR30
6.	TCHAIKAPHARMA HIGH QUALITY MEDICINES AD-SOFIA	Manufacturing	Manufacture of basic pharmaceutical products and pharmaceutical preparations	BGBX40
7.	SPEEDY AD-SOFIA	Transportation and storage	Postal and courier activities	BGBX40
8.	M+S HYDRAULIC AD-KAZANLAK	Manufacturing	Manufacture of machinery and equipment n.e.c.	BGBX40 BGTR30
9.	ALCOMET AD-SHUMEN	Manufacturing	Manufacture of basic metals	BGBX40

10.	KORADO BULGARIA AD-STRAZHITSA	Manufacturing	Manufacture of fabricated metal products, except machinery and equipment	BGBX40
11.	HYDRAULIC ELEMENTS AND SYSTEMS AD-YAMBOL	Manufacturing	Manufacture of machinery and equipment n.e.c.	BGBX40
12.	ODESSOS SHIPREPAIR YARD AD-VARNA	Manufacturing	Repair and installation of machinery and equipment	BGBX40
13.	NEOCHIM AD-DIMITROVGRAD	Manufacturing	Manufacture of chemicals and chemical products	BGBX40
14.	YURI GAGARIN PLC-PLOVDIV	Manufacturing	Printing of reproduction of recorded media	BGBX40
15.	GALATA INVESTMENT COMPANY AD-VARNA	Real estate activities	Real estate activities	BGTR30
16.	TRACE GROUP HOLD AD-SOFIA	Construction	Civil engineering	BGTR30

Notes: Table 1 displays all companies included in the sample and also the specific sector/subsector and the stock index which is based on the market capitalisation of the issues of common shares of the examined firms (to 10.02.2020).

Source: Authors' summaries based on <https://www.bse-sofia.bg/>.

3.2. Panel Unit Root Test: Summary

The recent literature suggests that panel-based unit root tests have higher power than unit roots tests based on individual time series. We describe the panel unit root test by the following equation:

$$y_i = p_i y_{i,t-1} + x_{it} \delta_i + \varepsilon_{it} \quad (1)$$

Where $i=1,2,\dots,N$ cross-section units, which are observed over periods $t=1,2,\dots,T_i$; x_{it} - exogenous variables, including fixed effects or individual trends; p_i - autoregressive coefficient; ε_{it} - errors, which are assumed to be mutually independent idiosyncratic disturbance.

We may conclude that:

1. If: $p_i < 1$, y_i is considered to be trend stationary;
2. If: $p_i = 1$, then y_i contains a unit root. The null hypothesis assumes a common unit root process.

3.3. T-test: paired two sample for means

The t-Test Paired Two Sample for Means tool performs a paired two-sample Student's t-Test to ascertain if the null hypothesis (means of two populations are equal) can be accepted or rejected. This test does not assume that the variances of both populations are equal. Paired t-tests are typically used to test the means of a population before and after some treatment, i.e. two samples of math scores from students before and after a lesson.

The result of this tool is a calculated t-value. This value can be negative or positive, depending on the data. Assuming that the population means are equal:

- If $t < 0$, $P(T \leq t)$ one-tail is the probability that a value of the t-Statistic would be observed that is more negative than t.
- If $t > 0$, $P(T \leq t)$ one tail is the probability that a value of the t-Statistic would be observed that is more positive than t.
- $P(T \leq t)$ two tail is the probability that a value of the t-Statistic would be observed that is larger in absolute value than t (<https://www.solver.com/t-test-paired-two-sample-means>).

4. Empirical Results

4.1. Unit root test

Table 2 and Table 3 show the results of the Levin, Lin and Chu test (2002) for the time-series for revenue and stock price. The null hypothesis is that the series has a unit root (non-stationary process). It can be seen from the both tables, that the series are stationary at level for both periods. We can reject the null hypothesis and suggest that data is stationary at level for the first period (before IFRS 15 adoption) and for the second period (after IFRS 15 adoption).

Table 2
Group unit root test: Summary for the first period 2016-2017 before the adoption of IFRS 15

Method	Statistic	Prob.	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t**	-4.10965	0.0000	4	57
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.79838	0.0000	4	57
ADF - Fisher Chi-square	35.3062	0.0000	4	57
PP - Fisher Chi-square	64.1920	0.0000	4	60

Source: Authors' calculations.

Table 3
Group unit root test: Summary for the second period 2018-2019 after the adoption of IFRS 15

Method	Statistic	Prob.	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t**	-5.69535	0.0000	4	58
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.69026	0.0000	4	58
ADF - Fisher Chi-square	41.8063	0.0000	4	58
PP - Fisher Chi-square	75.4241	0.0000	4	60

Source: Authors' calculations.

4.2. Descriptive statistics

Table 4 and Table 5 show the descriptive statistics of the examined variables – stock prices and revenue. Table 4 presents that the mean is positive for stock prices before and after IFRS 15 application. The mean of stock prices before the standard adoption is 22,05222, and this value varies between the minimum value of 0,364 and the maximum value of 95. Otherwise, the mean of stock prices after the standard application is 16,76956, and this value is between a minimum value of 0,22, and the maximum value of 87,5. Considering these results, we can conclude that the mean value of stock prices decreases with -5,28266 (-31,51%) after IFRS 15 adoption. This reduction in the value of the stock price is due to the new standard and its new moments. Additionally, for both periods, stock prices are positively skewed, indicating a higher probability of large increases in these series than decreases. The kurtosis values of stock prices before and after the standard adoption are larger than the value of the normal distribution (the kurtosis of the normal distribution is 3), indicating that big shocks are more likely to be present for these variables. The departure from normality is confirmed by the Jarque-Bera test statistics for stock prices for both periods and the null hypothesis of normality at the 5% level for these two variables can be rejected.

Table 4

Descriptive Statistics for the stock prices before and after IFRS 15 adoption

	STOCK PRICE BEFORE	STOCK PRICE AFTER
Mean	22,05222	16,76956
Median	7,7695	7,075
Maximum	95	87,5
Minimum	0,364	0,22
Std. Dev.	27,0179	21,85318
Skewness	1,386967	1,844683
Kurtosis	3,771002	5,564071
Jarque-Bera	11,0522	26,91451
Probability	0,003981	0,000001
Sum	705,671	536,626
Sum Sq. Dev.	22628,98	14804,4
Observations	32	32

Source: Authors' calculations.

On the other hand, Table 5 presents the results for the revenue before and after the standard adoption. The mean is positive for revenue for both periods. The mean of revenue before the standard adoption is 156540,5 and this value is between the minimum value of 150 and the maximum value of 680781. On the other hand, the mean of revenue after the new standard application is 172549,9, and this value is between a minimum value of 151 and the maximum value of 792574. Considering these results, we can conclude that the mean value of revenue increases with 16009,4 (9,28%) after IFRS 15 adoption. In addition, revenue is positively skewed, indicating a higher probability of large increases in these series than decreases before and after the new standard adoption. The kurtosis values of revenue are larger than the value of the normal distribution (the kurtosis of the normal distribution is 3) for both periods, indicating that big shocks are more likely to be present for these variables. The departure

from normality is confirmed by the Jarque-Bera test statistics for revenue for both periods and the null hypothesis of normality at the 5% level for these two variables can be rejected.

These empirical results prove that IFRS 15 does not have a significant effect on the reported sales revenue of the Bulgarian companies from the following sectors: manufacturing, wholesale and retail trade, accommodation and food service activities, transportation, and storage, real estate activities, construction. Thus, an assumption can be made that the companies of sectors mention above are not significantly affected by the new standard. Consequently, these results reconfirm the results obtained of PwC (PwC, 2015). The analyzes made by PwC (PwC, 2015) show that industries that will be affected the most by the new standard are: telecommunications, technology, energy, media and entertainment, construction, IT, automotive, real estate, pharmaceuticals, and healthcare. In our sample, there are only a few companies of these industries and they are affected by IFRS 15 to the certain level. In particular, IFRS 15 affects the stock prices of examined Bulgarian companies.

Table 5
Descriptive Statistics for the revenue for the first period before and after IFRS 15 adoption

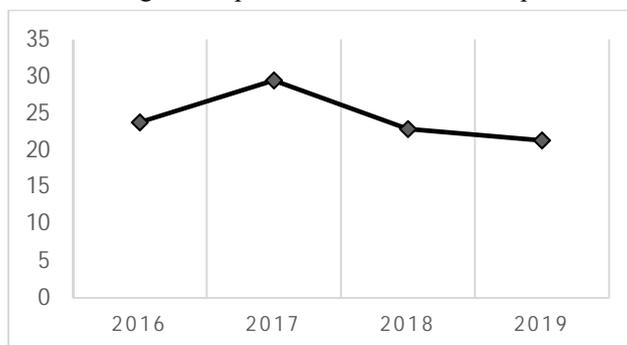
	REVENUE BEFORE (000)	REVENUE AFTER (000)
Mean	156540,5	172549,9
Median	102550,5	108565,5
Maximum	680781	792574
Minimum	150	151
Std. Dev.	168415,7	191308,2
Skewness	1,650984	1,889613
Kurtosis	5,39724	6,426979
Jarque-Bera	22,19968	34,70232
Probability	0,000015	0
Sum	5009296	5521598
Sum Sq. Dev.	8,79E+11	1,13E+12
Observations	32	32

Source: Authors' calculations.

In order to examine the effect of IFRS 15 Revenue from Contracts with Customers on revenue and stock price for the analyzed companies, the average (arithmetic mean) revenue and stock price are calculated. Figure 2 represents the dynamics of the average stock price and the average stock price of the examined companies for 2016-2019. Figure 2 shows that the values of the stock price decrease after the IFRS 15 Revenue from Contracts with Customers inclusion. We can suppose that the new standard has an impact on the values of the stock price of the Bulgarian listed companies on the Bulgarian stock exchange. Consequently, we can make a conclusion that there is a significant difference in the value of stock prices before and after IFRS 15 Revenue from Contracts with Customers application.

Figure 2

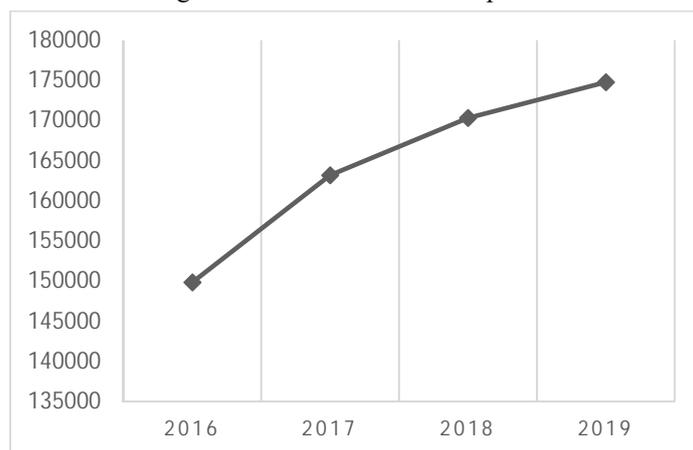
Dynamics of the average stock price of the examined companies for 2016-2019



Source: Authors' summarisation.

Figure 3

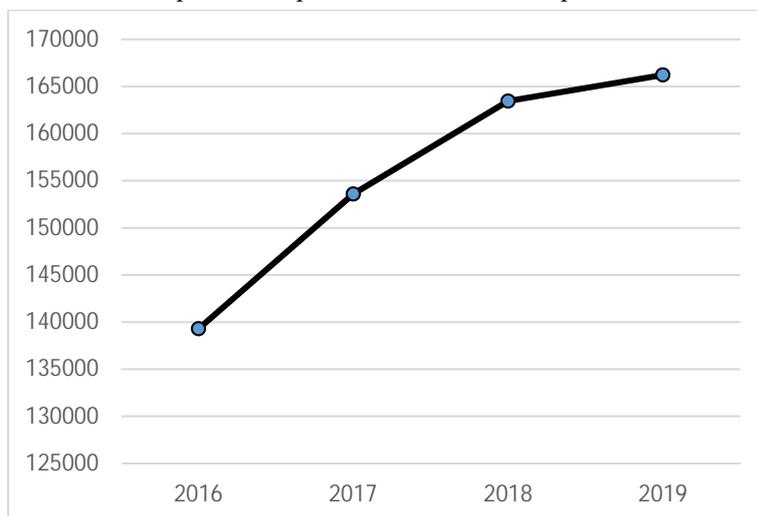
Dynamics of the average revenue of examined companies for 2016-2019 (000)



Source: Authors' summarisation.

Figure 3 represents the dynamics of the average revenue of the examined companies for 2016-2019. IFRS 15 Revenue from Contracts with Customers has an impact on the accountability and quality of information that reported in the financial statement for examined Bulgarian companies. The value of revenue of the examined Bulgarian companies slightly increases after the new standard application, but these companies are not significantly affected by the new standard. We can assume that it is due mainly to the increase in some products and raw materials as water and electricity or because of the use of new smart technologies. This leads to an increase in the total operating expenses of these companies after IFRS 15 adoption.

Figure 4
Dynamics of the total operation expenses of examined companies for 2016-2019 (000)



Source: Authors' summarisation.

Our findings for stock price reconfirm the analysis made by Aladwan (2019). Aladwan (2019) measures revenue and stock prices pre and post IFRS 15 Revenue from Contracts with Customers implementation and his results show that there is a significant difference in the value of revenue and stock prices before and after the new standard inclusion.

4.3. Paired Samples Test

Table 6 shows the results of a test of means differences between and stock prices before and after IFRS 15 adoption. Considering these results, we can conclude that the stock price mean is 22,07221875 before the standard adoption and the mean is 16,7695625 after the IFRS 15 application. As well as, we register a decrease of the mean value of stock prices with (-32%) after 2018. Therefore, we can resume that IFRS 15 has a negative impact on the stock prices of the examined Bulgarian companies. In addition, P (T<=t) two tail (0,008944068) gives the probability that the value of the t-Statistic (2,789601268) is larger than the Critical t value (2,039513446). Since the p-value is less than 0.05, we reject the null hypothesis that there is no significant difference in the means of stock prices before and after the IFRS adoption. Thus, we can make a conclusion that, there is a significant difference in the value of stock prices before and after the new standard adoption.

Table 6

t-Test: Paired Two Sample for Means for stock prices

	STOCK PRICE BEFORE	STOCK PRICE AFTER
Mean	22,07221875	16,7695625
Variance	729,2728919	477,561361
Observations	32	32
Pearson Correlation	0,92452428	
Hypothesized Mean Difference	0	
df	31	
t Stat	2,789601268	
P(T<=t) one-tail	0,004472034	
t Critical one-tail	1,695518783	
P(T<=t) two-tail	0,008944068	
t Critical two-tail	2,039513446	

Source: Authors' calculations.

Table 7 presents the results of a paired t-test for differences between revenue before and after the IFRS 15 application. We can assume that the revenue mean is 156540,5 before the standard adoption and the mean is 172549,9375 after the IFRS 15 application. Consequently, we register an increase of the mean value of revenue with (9,27%) after IFRS 15 adoption. IFRS 15 does not have a significant effect on the revenue of the examined Bulgarian companies. In addition, P (T<=t) two tail (0,003670647) gives the probability that the absolute value of the t-Statistic (-2,869440716) is larger than the absolute Critical t value (2,039513446). Since the p-value is less than 0.05, the null hypothesis that there is no significant difference in the means of stock prices before and after the IFRS adoption is rejected.

Table 7

t-Test: Paired Two Sample for Means for revenue

	REVENUE BEFORE	REVENUE AFTER
Mean	156540,5	172549,9375
Variance	28363857028	36598809644
Observations	32	32
Pearson Correlation	0,992674461	
Hypothesized Mean Difference	0	
df	31	
t Stat	-2,869440716	
P(T<=t) one-tail	0,003670647	
t Critical one-tail	1,695518783	
P(T<=t) two-tail	0,007341295	
t Critical two-tail	2,039513446	

Source: Authors' calculations.

5. Conclusions and Discussions

This paper contributes to prior literature in several ways. First of all, the research explores the effects of the adoption of IFRS 15 on the Bulgarian companies' revenue and stock prices which has not been studied to a large extent. Secondly, the prior researches on the effects of changes in the companies' revenue and stock prices have concentrated on other countries, whereas our research is focused on Bulgaria. To our knowledge this is one of a few papers which examines the impact of IFRS 15 adoption on the information in financial statement in Bulgaria.

The aim of this research is to determine whether the adoption of IFRS 15 has affected Bulgarian companies' revenue and stock prices or not. The examined period is from 2016 to 2019. The sample contains 16 separate corporate entities from various sectors in Bulgaria. The unit root test, descriptive statistics and paired sample t-test are applied. The empirical results prove that IFRS 15 does not have a significant effect on the reported sales revenue of the Bulgarian companies from the following sectors: manufacturing, wholesale and retail trade, accommodation and food service activities, transportation, and storage, real estate activities, construction. Thus, an assumption can be made that the companies of sectors mention above are not significantly affected by the new standard. These results reconfirm the results obtained by PwC (2015) and Filipova et al. (2020).

IFRS 15 affects the stock prices of examined Bulgarian companies. It should be noted here that only the first two reporting periods after the new standard adoption have been examined, and it is possible that companies have not yet assessed the impact of the IFRS 15 on their contracts with customers. In addition, the results obtained can be considered by users of the financial statements as an indication that the Bulgarian public companies included in the sample are not able to capture and reflect any changes connected to the new standard adoption and they do not carefully analyze the impact of IFRS 15 on their revenue.

References

- Aladwan, M. (2019). Fluctuations of Stock Price and Revenue after the Early Adoption of IFRS 15, Revenue from Contracts with Customers. – *Italian Journal of Pure and Applied Mathematics*, 41, p. 691-707.
- Altaji, F., Alokdeh, S. (2019). The impact of the implementation of international financial reporting standards no.15 on improving the quality of accounting information. – *Management Science Letters*, 9, p. 2369-2382.
- Al-Tamimi, L., Sharif, A., Shani, M. (2019). Recognition of Revenue in Mobile Phone Companies Under IFRS 15. – *Restaurant Business*, 118, p. 181-196.
- Deloitte. (2014). IFRS 15 – Revenue from Contracts with Customers: Part 2B – Differences vs. IAS 18. Revenue. – *Technical Research*, 4.
- EFRAG. (2014). The use of information by capital providers – implications for standard setting. Short Discussion Series. Retrieved on 30 September, 2020 from http://old.efrag.org/files/EFRAG%20Output/Implications_for_standard_setting.pdf.
- Ergüden, E. A. (2020). Analysis of Tourism Companies Listed in Istanbul Stock Exchange According to IFRS-15 Standard. – *International Journal of Finance & Banking Studies*, 9 (1), p. 47-57.
- Filipova, F., Georgiev, V., Atanasov, A., Petrova, R., Marinova, R. (2020). Effects Of Applying IFRS15 Revenue From Contracts With Customers In Some Bulgarian Entities For The Period 2017-

2018. – Accounting, 1-2, p. 1-36. Retrieved on 26 September, 2020 from <https://www.ides.bg/media/1738/01-2020-ffkolektiv-part-1.pdf>; https://www.ides.bg/media/1751/02-2020-ffkolektiv-2_part.pdf.
- Gruss, C., Miß, H. (2016). IFRS 15: An accounting change with profound impacts for communications operators—from the P&L to operations, pricing and marketing. – *Communications Review/June 2016*. 1-8. Retrieved on 26 April, 2020 from <https://www.pwc.fr/fr/assets/files/pdf/2016/06/pwccommunication-review-ifs-15.pdf>.
- <https://www.solver.com/t-test-paired-two-sample-means>, Frontline Systems (2020). T-test: Paired two sample for means, (Access Date: 26 April, 2020).
- Huefner, R. J. (2016). The impact of new financial reporting standards on revenue management. – *Journal of Revenue and Pricing Management*, 15, p. 78-81.
- International Financial Reporting Standard 15 Revenue from Contracts with Customers (2014). Published by the International Accounting Standards Board (IASB), May 2014.
- Khamis, A. M. (2016). Perception of Preparers and Auditors on New Revenue Recognition Standard (IFRS 15): Evidence from Egypt. – *Journal of Accounting and Business Dynamics*, 3(2), p. 1-18.
- Kraft, P., Landsman, W., Shan, Z. (2020). Effect of Mandatory IFRS Adoption on Accounting-Based Prediction Models for CDS Spreads. – *European Accounting Review*, p. 1-28. DOI: 10.1080/09638180.2020.1760116.
- Levin, A., Chien-Fu, L., Chia-Shang, J. Ch. (2002). Unit root tests in panel data: asymptotic and finite-sample properties. – *Journal of Econometrics*, Elsevier, 108(1), p. 1-24.
- Plotnikov, V. S., Plotnikova, O. V. (2018). Accounting of IFRS 15 Revenue from Contracts with Customers: A methodological aspect. – *International Accounting*, 21 (23), p. 1358-1372.
- PwC. (2015). Available at: <https://www.pwc.com/sk/en/publikacie/assets/ifs15-leaflet-final.pdf>.
- Raykov, P. (2018). Practical aspects of changes in contracts with costumers. – *Accounting*, 4, p. 1-17. <https://www.ides.bg/media/1609/04-2018-peter-raykov.pdf> (in Bulgarian).
- Richard, N. (2015). IFRS 15: Revenue recognition from contracts with customers.
- Spasić, D., Arsenijević, A. (2017). Some challenges in recognition of revenues in accordance with IFRS 15. – *Ekonomski pogledi*, 19, p. 53-68.
- Tong, T. L. (2014). A review of IFRS 15 Revenue from Contracts with Customers, Retrieved on 26 April, 2020 from [http://www.masb.org.my/pdf.php?pdf=2014-09-15%20Review%20of%20IFRS%2015%20\(TLT\).pdf&file_path=pdf](http://www.masb.org.my/pdf.php?pdf=2014-09-15%20Review%20of%20IFRS%2015%20(TLT).pdf&file_path=pdf).
- Vaicekauskas, D. (2020). First time adoption of IFRS 15 Revenue from contracts with customers: The case of Lithuanian listed companies. – *Buhalterinės apskaitos teorija ir praktika*, 21, DOI: <https://doi.org/10.15388/batp.2020.17>.
- Vandenbergh, D., Adkisson, J., Kitchen, P., Pinkstaff, K. (2019). Changes to revenue recognition in the healthcare industry. Retrieved on 26 April, 2020 from http://rmsus.com/content/dam/mcgladrey/pdf_download/changes_to_revenue_recognition_in_the_health_care_industry.pdf.
- Wyk, M., Coetsee, D. (2020). The adequacy of IFRS 15 for revenue recognition in the construction industry. – *Journal of Economic and Financial Sciences*, 13(1), p. 1-13.
- Yingzhee, L., Devi, S., Mahzan, N. (2015). Perception of Auditors and Preparers on IFRS 15: Evidence from Malaysia. – *Advanced Science Letters*, 2, p. 1781-1785.

SUMMARIES

Assen Slim

WILL THE BRICS BE THE LEADERS IN CENTRAL BANK DIGITAL CURRENCIES?

The study discusses the opportunity for the BRICS to implement a common supranational Central Bank Digital Currency (CBDC). Starting from the observation that many CDBC projects are under study all over the world and that the subject is hardly treated in the academic literature, we have sought to propose a general definition of the concept of CBDC. Based on this definition, both technical and monetary opportunities and constraints are studied in the case of the BRICS supranational CBDC project.

JEL: E42; E49; F33; G21

Tania Karamisheva

MEASURING THE BUSINESS CYCLE IN BULGARIA

The aim of this paper is to estimate the phases of the business cycle in Bulgaria and its degree of synchronisation with the business cycle in the euro area. Applying a structural unobserved components model, consisting of an IS curve, Phillips curve, Okun's law and a monetary policy response function, consistent with the functioning currency board arrangement in Bulgaria, we find that in the period 1999-2004 the Bulgarian economy was operating below its optimal production capacity. The peak of the economic cycle was reached in the middle of 2008, followed by a period of a decline, corresponding to the period of the global financial and economic crisis and a second downturn corresponding to the period of the European debt crisis. Since mid-2016, the Bulgarian economy has operated above potential and this phase continues up to Q3 2019. Another conclusion of our study is that the business cycle in Bulgaria is to a large extent synchronised with the business cycle in the euro area, with the degree of synchronisation increasing after the accession of Bulgaria to the European Union.

JEL: E32; C13

Kateryna Anufriieva

Svitlana Brus

Yevhen Bublyk

Yuliia Shapoval

UKRAINIAN FINANCIAL SYSTEM DEVELOPMENT: THE PATH TO EU

The paper is based on the comparative analysis of the main characteristics and features of the financial system of Ukraine and Bulgaria, and discusses the issues and prospects of building a modern institutional environment to meet the requirements for European integration, to support economic development and to prevent crisis shocks. The study includes an analysis of the characteristics of financial liberalisation, the dynamics of international investment flows, the requirements of the budget process, in particular the formation of the structure of domestic and foreign debt, the peculiarities of monetary and exchange rate policy.

The article determines the characteristic feature of small open economies, that is, the limited development of the institutional environment of the country's financial sector and a dominant banking

sector. The article emphasises that in such terms, the public policy is focused on the development of the banking sector with a gradual increase in its internationalisation. A natural consequence is the large share of state and foreign capital in the financial sector of the economies in transition with the limited development of non-banking and stock market segments. Another feature is the reliance of financial stability on the external financing and inflow of foreign currency, including in the form of external and internal government borrowing and international private transfers.

The mentioned peculiarities of the development of the financial systems of Ukraine and Bulgaria show that the institutional weakness of the financial system is due not only to the negative consequences of several financial and economic crises but also to errors in financial system reform policy. Attempts to build the financial system based on accelerated financial liberalisation, focusing on the banking sector separation of the latter from the real sector of the economy, laid the ground for the institutional weakness of the financial system. The authors stress that the elimination of these fundamental imbalances, supported by modernised approaches to monetary and macroprudential regulation, should strengthen the institutional capacity of Ukraine's financial system, bringing it closer to the requirements of the EU integration.

JEL: E52; E63; F21; G21; G28

Vesselin Mintchev
Venelin Boshnakov

RETURN MIGRATION AND REMITTANCES: RECENT EMPIRICAL EVIDENCE FOR BULGARIA

The article presents a review of recent empirical evidence on a range of issues related to the transfers of funds from Bulgarian migrants, known as migrant remittances. Data for the official indicators as compensation of employees and workers' remittances is utilized from the Bulgarian National Bank, providing these items in the Balance of Payments financial statistics. Furthermore, on the basis of information from a questionnaire survey carried out in 2017, the socio-demographic profile of return migrants supporting their relatives staying in the home country is explored. Possible answers are provided to the question on what drives the active remittance behaviour of returnees during their stay abroad. An outline is suggested regarding the purposes for which remittances are utilized and the main types of businesses they support. Using the method of binary logistic regression, several main determinants of the inclination of the migrant to support those left in the home country are identified and discussed.

JEL: F22; F24; O15

Andrey Nonchev
Marieta Hristova

RETURNING MIGRANTS – SUCCESS OR FAILURE

The article examines the returning Bulgarian migrants in terms of the net result of their migration movements, perceived as successful or unsuccessful. The main criterion for assessing the success of the migration is the self-assessment of remigrants for the degree of achievement of the initial departure goals. The understanding of their quantitative and qualitative dimensions is specified by taking into account the nature of the motives for the initial departure from the country, the reasons and the sustainability of the return. The factors for success or failure, as well as the social profile of successful and unsuccessful remigrants are analyzed. The accomplished upward or downward social mobility of the returned migrants is thematized, taking into account both subjective (self-perceptions

of the returned migrants) and objective indicators for assessing the changes in their socio-economic status and quality of life.

JEL: A14; F22; J61

Ibrahim Mert

THE EFFECTS OF COLLABORATION BETWEEN INTERNAL AUDITING AND FINANCIAL AFFAIRS DEPARTMENTS: A SURVEY CONDUCTED THROUGH THE INTERNAL AUDITING AND FINANCIAL AFFAIRS DEPARTMENTS

All companies have an accounting department, but the internal auditing department is structured when the management of a company is getting more difficult, paralleling to its growing and complexity. It has been studied in this article the function of an internal auditing department, the possible risks, disorders, and collaboration with accounting in order to minimize these points as much as possible. It is clear that the main information source of auditing is accounting records, financial reports, analysis, etc.

The closer collaboration needs to be established for the big size companies because controlling the assets would be more complicated for big companies that have multiple complex departments. For these types of large scale businesses, there are clearly so many objects in order to establish a strict collaboration. How the collaboration can be, what they can provide each other, how they should support their works, where they must act together, and other possible questions can be raised. The answers to these questions should establish all necessary procedures, and strict applications of these procedures would add considerable value to complex organizations.

JEL: M40; M41; M42

Sarika Singh

Ashutosh Muduli

FACTORS INFLUENCING INFORMATION SHARING INTENTION FOR HUMAN RESOURCE ANALYTICS

In the past few years, Human Resource Analytics (HRA) has drawn interest of the academic community and HR practitioners. However, an in-depth analysis of practice and research in HRA, is required. In this research paper, the authors have attempted to revisit the literature in HRA and present a clear understanding of the existing state and the key areas of research. A research gap was identified in ethics and privacy concerns in the acceptance of HRA and a research model was proposed for further research. The objective of the paper is twofold: a) review research in human resource analytics and identify a research gap; b) research proposition and Research model.

JEL: C82

Nikolay Peykov

STRUCTURAL CHANGES OF HOUSEHOLD EXPENDITURES IN BULGARIA – ENGEL’S LAW AND BAUMOL’S “COST DISEASE”

This study examines the change in the structure of household expenditures in the light of different income and price elasticity of demand for certain groups of goods and services. The laws of Engel and Baumol were largely followed, according to the former, as wealth is growing the structure of

consumption changed, while the latter focus on productivity and relative prices. Econometric techniques have been implemented to correctly determine elasticity coefficients, as well as quantitative methods for expressing the contribution of rising income and prices to household expenditure. The results of the analysis show that income growth is a more significant factor for the change in household expenditure patterns in a developing country like Bulgaria. Considerations have also been made about the effectiveness of monetary policy on the consumption of different groups of goods and services.

JEL: D12; O12; P36

Kritika Tekwani

Anil Rana

Rinku Raghuvanshi

IMPACT OF GST ON HANDICRAFT EXPORTERS

The research paper is devoted to finding out the impact of Goods and Services Tax on handicraft exporters. With the introduction of GST, people are confused with its implications and this study contributes in making clearness among the people, how GST is positive for them. This study concentrates on the ease of doing export business after the introduction of this new tax. This research paper also focuses on the impact of each GST variable (registration, return rates, input tax credit, letter of undertaking/Bond, refund, e-way bill, and reverse charge mechanism) on handicraft exporters. It is a correlational research study. Simple random sampling has been used. Exporters have been randomly identified from different locations in Jaipur. One-Way ANOVA statistical test and multiple- linear regression analysis have been used. There is a notable effect of GST on Jaipur handicraft exporters. This research paper also revealed that each GST variable has a significant impact on exporters of handicrafts with regard to ease of exports. The results of this research paper can also be useful for future researchers. As GST was introduced in 2017, still no such study has been conducted to measure the implication of this tax on registered exporters. The results of this research paper can be beneficial for the Government, Export Promotion Council of Handicrafts, Exporters, and Taxpayers. This research study has concluded the positive impact of this new tax on exporters of handicrafts.

JEL: F1; F23; H20; H21; H25

Ani Stoykova

EFFECT OF THE APPLICATION OF IFRS 15: EVIDENCE FROM BULGARIA

IFRS 15 Revenue from Contracts with Customers is a completely new standard for recognition and evaluation of enterprises' revenue regardless of the industry and type of revenue. The new standard completely replaces current standards related to recognition revenue. The aim of this study is to determine whether the adoption of IFRS 15 has affected Bulgarian companies' revenue and stock prices or not. The period under examination is from 2016 to 2019. The analyzed companies are 16 separate corporate entities from various sectors in Bulgaria. The unit root test, descriptive statistics and paired sample t-test are applied. The results show that IFRS 15 has an influence on the stock prices of the Bulgarian listed companies of the following sectors: manufacturing, wholesale and retail trade, accommodation and food service activities, transportation and storage, real estate activities, construction and the value of stock prices of these companies decrease after standard adoption. IFRS 15 does not have a significant effect on the revenue of the analyzed Bulgarian companies.

JEL: M40; M41; G10; C01; C49