The Trade with Industrial Goods Between Bulgaria and the Countries from the European Union: Tendencies of the Bulgarian Industrial Specialization in the Transition to Market Economy

Vesselin Mintchev

Introduction

In the transition of the Central and East European (CEE) countries to market economy Bulgaria takes a special place. Few months after the collapse of CMEA Bulgaria was compelled to declare a moratorium on external debt payments (March 1990). The loss of access to international financial markets and the blockage of foreign investments are among the most unfavorable effects of the Moratorium on the external debt. When an agreement was reached on the debt to the banks from London Club (June 1994) the country had not yet started the structural reforms that it badly needed.

Foreign trade liberalization in Bulgaria was attended by the 'crisis of transition' (Kornai, 1995), similar to the one in the former USSR countries. The negative consequences of the 'opening shock' were further 'alleviated' by the depreciation of the Bulgarian lev in 1994 and 1996 - 1997.

The purpose of the present paper is to outline the contours of the reorientation of the trade with industrial goods between Bulgaria and the European Union during the first five years of the transition - 1990 - 1995, and to introduce the main conventional indicators of foreign trade specialization for the Bulgarian industry[1].

The article is divided into three chapters:

The first chapter presents a general overview of the macroeconomic framework of the transition, as well as of the condition of the external sector of the Bulgarian economy.

[1] This survey is part of the ACE-PHARE project Berko, L., Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

The second chapter analyses the structure and dynamics of the trade with industrial goods between Bulgaria and the European Union during the same period, as for that purpose are used the foreign trade statistics of the OECD, respectively the Standard International Trade Classification (S.I.T.C.), third revision.

The third chapter presents an estimation of the foreign trade specialization of Bulgarian industry, based on well-known conventional indicators - the indicators of the relative structure of export and import, of the position (share) on the European market, of comparative advantages, as well as of intraindustry trade.

The analysis is based on the traditional theory of foreign trade, according to which trade is determined by factor endowments of the partner countries; as well as on modern approaches, according to which the trade with industrial goods among industrial countries is more and more dependent on factors, other than endowments of certain goods. (Dobrinski R., 1995; Landesman M., 1995).

As it was already pointed in the empirical analysis, the OECD foreign trade statistics are used - S.I.T.C., 3-rd revision, 3-digit level of desegregation. (The data is from ACE-PHARE P95-2030-R)

1. Macroeconomic Framework of the Systemic Changes in Bulgaria

1.1 Macroeconomical Framework and the Implementation of the Currency Board Arrangement

The 'crisis of transition' (Kornai, 1995) was and still is extremely serious in Bulgaria. The main macroeconomic indicators have negative trajectories for almost the whole period after the raise of the 'Safety-curtain'. The comparatively good results in 1994 -1995 after 're-echeloning' of the external debt in 1994 were followed by a crisis at the end of 1996 - beginning of 1997. The country fell into a recession, deeper than that in 1991 - the year of the beginning of the reforms (EBRD, 1997). According to estimations of the European Bank for Reconstruction and Development, in 1996 the Gross domestic product (GDP) and the Industrial production decreased respectively by 10.9% and 7.9%. The budget deficit whose monetisation remained high because of the Central Bank's refinancing of commercial banks, varies between 6% and 13% of GDP in the recent years (See Table 1).

The degradation of the economic situation in 1996 forced the implementation of the Currency Board on 1 July 1997. The Currency Board was regarded as the only alternative for improving financial discipline in the country.

If we examine the causes which led to that unfavorable economic situation in Bulgaria, we should mention the state of dependence of Bulgarian economy on ex - CMEA and former-USSR markets, as well as the instability in the Balkan region. In 1991 Bulgaria lost more than a half of its markets. The succeeding years revealed the disability of Bulgarian enterprises to compensate that loss. In 1994 and 1995 the financing of growth through export, based on the prices of electricity and fuels lower than the world prices, aggravated the inherited structural problems of the Bulgarian economy (UN - ECE, 1997, pp. 75-84)

The non-compensated loss of markets and the problems of external indebtedness placed the country in an unfavorable position in comparison not only with the Central European countries and Romania, but also in comparison with some of the former USSR republics.

1.2 External Sector of the Bulgarian Economy

Despite the unfavorable conjuncture in the recent years, Bulgarian economy has kept its open nature. In 1995 the ratio between the foreign trade turnover and the GDP was 80%. The country reoriented its trade to the region of OECD - 50% of the Bulgarian export and almost 47% of the import are with the OECD countries (See Table 2). On the other hand, the share of Central and Eastern Europe (CEE), and especially of Russia in the Bulgarian foreign trade has remained significant. For the first three quarters of 1996 the main trade partners of Bulgaria are Russia (18,7% of the foreign trade turnover), Germany (10,8%), Italy (8,8%), Greece (6%), while, for instance, France has a share of only 3% (Tailbot P., 1997).

The analysis of the trade with industrial goods and the foreign trade specialization of Bulgarian industry in the next two chapters covers the situation before the crisis at the end of 1996. The presentation does not contain estimations of the so-called second 'adjustment under disaster conditions' (Chavigny R., 1996) after the crisis, succeeding the collapse of CMEA; respectively, after the termination of the Agreement on Prices of Fuels, or estimations of the effect of the coming into force of the Agreement on Association of Bulgaria to the European Community.

2. Restructuring of the Trade with Industrial Goods between Bulgaria and the EU Countries.

The restructuring of the trade with industrial goods between Bulgaria and the EU countries depends,

- first, on the foreign trade liberalization accompanying the systemic changes in the CEE countries, including Bulgaria;
- second, on the extremely deep recession of the transition in the country;
- third, on the recession in the European Community in 1993;
- and, lastly, on the coming into force of the Agreement on Association on 1February, 1995.

Germany and Italy are among Bulgaria's prior foreign trade partners. Bulgaria's trade with industrial goods with France and Austria takes a more moderate place (Tables 3 and 4).

2.1 General Condition

The development of the trade with industrial goods with the European Community (12 countries - till Austria, Sweden and Finland joined the union) is dynamic. For the 1990-1995 period the export of industrial goods from Bulgaria to the European Community increased by 318,1%. The growth of the import of industrial goods however is 108,7%. The 'gap' in the dynamics of import - export leads to decrease in the deficit of the industrial

turnover between Bulgaria and the Community. From USD 518 million in 1990 the deficit diminished to USD 162 million in 1995. This can be ascribed to the specificity of the economic situation in Bulgaria - the adjustment of the external sector of the Bulgarian economy is based on a reduction of the import from the Community, because of the gravity of the crisis in the country. The crisis concerning the external debt service forces Bulgaria to revive its export in order to balance its balance of payments.

In 1995, for the first time in the examined period, Bulgarian export of industrial goods to Italy is greater than that to Germany. From the point of view of the Bulgarian demand, Germany does not give up its place of first exporter to Bulgaria – nearly half of the Bulgarian industrial import from the European Community is from Germany. Italy holds second position. Bulgaria has a significant deficit in its industrial turnover with Germany (USD -423 million), while with Italy it has a surplus of about USD 50 million (Tables 3, 4, and 5).

The data in Table 5 confirms the positive trends in the development of 'Manufactured goods, classified chiefly by material' - 06 and 'Miscellaneous manufactured articles' (08). In the same time the country registers a significant deficit in its trade with 'Machinery and transport equipment' (07).

Bulgaria can be expected to manage to keep a balance in its trade with industrial goods with low and average rates of value added. But these are the goods which form the sector of the 'sensitive', respectively - the 'protected' goods. As far as trade with industrial goods of higher rate of value added is concerned, it is obvious that the country will continue registering deficits with most of its West European partners.

Based on the evidence of the trade with industrial goods between Bulgaria and Germany, and to less extent – between Bulgaria and Austria, one could outline the effects of the foreign trade liberalization between countries at different levels of development. The data in Table 5 reveals the significant increase of the existing deficits, as well as the peculiar Bulgarian 'expansion' in the 'sensitive' sectors (clothing and metallurgy). In fact, the industrial turnover between Bulgaria on the one hand, and Germany and Austria on the other, as well as between Bulgaria and the rest of its West European partners is based, as we shall see in the last chapter of this presentation, mostly on the existing comparative advantages of each of the partners. Therefore, the trade between them is interindustry. The trade with very few commodity groups is of intraindustry type (For the pattern of trade between France and CEE see Colin-Sedillot B., 1994).

The more detailed analysis of the bilateral trade with industrial goods between Bulgaria and the European Community as a whole (12 member-countries), as well as between Bulgaria and selected West European partners of its, is of great interest – up to the level of 2- (sub-branch) and 3- (group of products) digit level of desegregation according to the S.I.T.C. for the period 1990-1995.

As a reference point in the analysis we shall use the ten (at 2 digit level of desegregation) and the 20 (at three digit level) most exported and respectively most imported commodity groups in the Bulgarian industrial turnover with the countries from EC, and separately with Germany, Italy, France and Austria. We shall examine consecutively the ***structure***,

dynamics and *degree of penetration*[2] of the most important commodity groups in the Bulgarian turnover with the Community and with the separate partner countries, and we shall use the following methodology:

The *structure* of the turnover by groups of commodities for certain years and the dynamics of that structure are calculated in percent for each year: $c_{ijk}(t) = \frac{X_{ijk}(t)}{X_{ij}(t)}$; and the dynamics – as the difference between: $c_{ijk}(t) - c_{ijk}(t-1)$.

The *dynamics* of bilateral turnover by commodity groups is calculated in percent for each year: $\frac{X_{ijk}(t)}{X_{ijk}(t-1)} - 1$ - for the export, $\frac{M_{ijk}(t)}{M_{ijk}(t-1)} - 1$ - for the import.

The *degree of penetration* shows the share of the import of country j (a member of the EC) from country i (from CEE) of the commodity k into the total import of that commodity into the country j. It is calculated on a yearly basis: $p_{ijk}(t) = \frac{Xijk(t)}{X_{jk}(t)}$, and respectively, its dynamics can be expressed by the difference: $p_{ijk}(t) - p_{ijk}(t-1)$.

2.2. Structure and Dynamics of the Trade with Industrial Goods between Bulgaria and the EC-12, Germany, Italy, France and Austria

2.2.1 Structure (Concentration of products predominating in the export and in the import)

A) Bulgaria - EC-12

The concentration of the Bulgarian export of industrial goods for the countries of the EC is higher than that of the import. In 1991 the top ten groups in the Bulgarian export (under two-digit level of desegregation according to S.I.T.C. – that is, 10 out of 36 commodity groups) form as much as 80,4% of the export (63,84% for the top five groups). At the same time the top ten commodity groups in the import reached the share of 65,38% in the total import of industrial goods from the EC (48,17% for the first five groups) (Table 6). The level of concentration is still significant for the top twenty commodity groups in the export, respectively in the import - 3-digit level of desegregation after S.T.I.C., that is, 20 out of 324 commodity groups. The top 20 in the export form 65,72% of the total export; and the top 20 groups in the import amount to 34,39% of the total import. As far as the top five, respectively, the top 10 groups in the export are concerned (3-digit level of desegregation), their shares in the total export are respectively 45,9% and 56,11%. While the top 5 and respectively the top 10 in the import form 19,55% and 26,23% of the total import (Table 7). The fact that the most exported and the most imported commodity groups are very rarely identical, both under two-digit level of desegregation and under 3-digit level of desegregation, confirms the existence of '*interindustry complemence'* between Bulgaria and the EC countries.

[2] See the papers of M. Andreff and M. Lissowska in ACE-PHARE project - P95-2030-R.

B) Bulgaria – Germany, Italy, France and Austria

The analysis of the bilateral trade with industrial goods between Bulgaria and Germany, Italy, France and Austria expands the picture presented above.

The concentration of the Bulgarian industrial export to Germany and Italy is higher than that of the export to the 12 countries of the EC. The relative share of the top ten groups of commodities (2-digit level of desegregation) in the export to Germany and Italy is respectively 83,4% (70,6% for the top five sections) and 84,7% (71,4% for the top five sections). The share of the top ten groups in Bulgaria's industrial export to France amounts to 82,41% (63,1% - for the top five groups) and 78,34% of the export to Austria.

On the other hand, the level of concentration of Bulgarian import is also high: the top 10 groups in the import (2-digit level of desegregation) from Germany, Italy, and France form respectively 75,48%, 73,01% and 70,69 (respectively 60,7%; 51,5% and 43,43% for the top 5 groups) which is by about 10% less than the relative share of the top 10 groups in the Bulgarian industrial export to those countries. The same applies to the turnover between Bulgaria and Austria – the top 10 of the imported commodities in Bulgaria from Austria take 65,54% of the Bulgarian import from that country (See tables 9, 11, 13, 15).

This tendency is further confirmed by the analysis of the relative share of both the top 20 and the top 10 commodity groups in the export and import under 3-digit level of desegregation. *The concentration of export is significantly higher that that of import.*

So, the respective indices for Germany are 67,88% for the top 20 commodity groups in the export against 35,44% for the top 20 commodity groups in the import (64,86% - 33,41% for the top 10 in the export and the import). For Italy the ratio between the top 20 commodity groups in the export and the top 20 in the import is as follows - 62,25% / 32,07% (51,84% / 25,43% - for the top ten commodities); for France - 67,80% / 35,44% - for the top 20 commodity groups in the export and import and respectively, 61,98% / 28,6% for the top ten groups; and for Austria - 48,44% / 32,16% for the top 20, and 41,85% / 22,2% for the top 10 commodity groups (See Tables 10, 12, 14, and 16).

The data in tables 9-16 also indicates that the concentration of the export and import of industrial goods between Bulgaria on the one hand, and Germany and France on the other, is more imbalanced compared with the trade of Bulgaria with the other two countries from the Community – Italy and Austria. The discrepancy in the concentration of the most exported and the most imported groups of commodities is lowest in the industrial turnover between Bulgaria and Austria.

As a rule, the most exported and the most imported commodity groups do not coincide, which comes to show the existence of *interindustry complemence* between the economy of Bulgaria and that of its West European partners. In the trade with Italy, 3 of the top 10 commodity groups in the export and import coincide - 3-digit level of desegregation. These are:

841 -

845 – Underwear, accessories...

512 – Alcohol, phenol, alcohol-phenol.

In the industrial turnover between Bulgaria and France the commodity groups which coincide are: 778 – 'Other machinery and electrical apparatus' and 747 - ; in Bulgaria's trade with Austria these are: 781 'Automobiles, all kinds of engines' and also 747; and in the turnover between Bulgaria and Germany - only 778 'Other machinery and electrical apparatus'.

On the other hand, *the homogeneity of the industrial turnover* of Bulgaria with its examined West-European partners is impressive. Three of the top ten commodity groups (3-digit level of desegregation) - 673, 841 and 845 are identical in the export to each of the four West-European countries. As for the import, 2 of the top 10 commodity groups in the import, 741 and 781, coincide for each of the four countries. Moreover, 6 of the top 10 commodity groups in Bulgaria's import from Germany and France, as well as 4 of the top 10 commodity groups imported from Germany and Austria, coincide.

2.2.2 Dynamics

The dynamics of the industrial goods, predominating in the export and import of Bulgaria to and from the countries of the EC reflects the degree of *restructuring and adjustment* of the country's trade with industrial goods.

A) Bulgaria – EU-12

The dynamics of the top commodity groups in the export and import is generally higher than the average dynamics of the trade with industrial goods between Bulgaria and the West-European countries. Nevertheless, the data in Tables 6-7 shows that the dynamics of the first two commodity groups (2 -digit level of desegregation), 'Iron and steel' - 67 and 'Articles of apparel and clothing' - 84; as well as of certain groups that are among the top 10 under 3-digit level of desegregation, such as: 'Profiles – iron and steel'- 673; 'Outer male garments' - 842; 841; 845; 'Mechanic equipment' - 744, is lower than the average.

The foreign trade liberalization in Bulgaria is accompanied by reorientation of the country's import towards consumer goods, such as 'Household appliances' - 775; 'Automobiles' – 783, etc.

The *degree of penetration* indicator outlines the influence of a country-exporter of a certain product on the market of the importing country. The analysis of the penetration of Bulgarian industrial goods into the markets of the EC under 3-digit level of desegregation, as well as into the markets of the countries from the EC as a reference zone, shows a significant presence of the Bulgarian non-ferrous metallurgy at these markets. For example, Bulgarian lead ('Lead' - 685) takes 9% of the market of the Community. Bulgaria is probably the only East European country-exporter of fertilizers ('Fertilizers manufactured' - 562) - 4,14% of the market of the EC. This is one of the possible explanations of the fact that the biggest foreign investors in Bulgaria choose exactly these branches – base chemistry (Solvay – Sodi, Devnia); non-ferrous metallurgy (Union miniere), etc. On the other hand, the *degree of penetration* gives an idea of the size of the economy; by this indicator the CEE countries are far behind the new industrial countries.

The characteristics of the most exported commodity groups from Bulgaria to the countries of the Community, based on OECD criteria:

- level of technology;

- orientation;

- level of wages and employment (OCDE, 1993)

show the presence of goods, produced with low and average technologies - 673, 682, 562, 842, 841, 845, 523, 512, 685; natural resource-consuming - 673, 682, 685; labor-consuming - 842, 841, 845; and goods, the production of which engages non-qualified workers - 673, 682, 841, 842, 845, 744, 685 (Table 8). In this sense, foreign investors' interest in the country can be maintained almost only by the low wages and the so called factor endowment.

Bulgaria will probably be able to keep balanced its trade balance of industrial goods with low and average rate of value added. These goods, however, form the sector of the 'sensitive', respectively 'protected' goods, which questions the country's possibility to take advantage of the asymmetry in the Agreement on Association. As for the trade with industrial goods with high rate of value added, Bulgaria will obviously continue accumulating deficits with most of its West European partners.

B) Bulgaria – Germany

The export of two of the top five commodity groups (2-digit level of desegregation), namely the first and the third one, increases with slower rates compared with the total Bulgarian export of industrial goods to Germany, as well as to EC-12 as a whole. These groups are 'Articles of apparel and clothing' – 84 and 'Iron and steel'– 67.

At the same time two other commodity groups, 'Electrical machinery and parts thereof' - 77 and 'Non-ferrous metals' - 68 register an increase, bigger than the average for the export to Germany and the Community.

The analysis of the dynamics of the most exported commodity groups under a 3-digit level of desegregation shows that the export of the top 3 groups - 841, 842 and 845 (these are different types of clothing, which generally form 1/3 of Bulgaria's industrial export to Germany) increases with lower rates than the growth of the total export of industrial goods from Bulgaria to Germany. The rates of export of 'Profiles of steel and iron' – 673 are constant during the examined period. On the other hand, the export of commodities, in which Bulgaria specialized under the agreements of the former CMEA, such as 778 - 'Other machinery and electrical apparatus', 773 - "Equipment for transportation and allocation of electricity'; 774 – 'Electrical medical apparatus and apparatus for radiology' increases significantly which is typical of the trade with these commodities for most of the CEE countries (Tables 9, 10).

The *degree of penetration* of the top 5 commodity groups in Bulgarian export (3-digit level of desegregation) to Germany (zone of reference – the European Community) is between 1 and 4%. These are: clothing - 841 and 842; non ferrous metallurgy - copper (682) and lead

(685), as the latter is the 21-st commodity group, but has a share of 1,2% at the German market (See Table 9 and 10).

The dynamics of the import of industrial goods from Germany differs considerably from that of the export. This is also typical of the trade between Germany and the rest of the CEE countries, and can be used as an indicator of the gravity of the 'crisis of transition' in the region.

The import of two of the top 5 commodity groups in import (2-digit level of desegregation) increases very modestly; these are: 74 – 'General industrial machinery and equipment and parts, n.e.c.' and 77 – 'Electrical machinery and parts thereof', but the import of 72 - 'Machinery specialized for particular industries' decreases. The import of consumer goods increases: 'Road vehicles' (78); and 'Textile yearn, fabrics, made-up articles' (65).

As for the dynamics of the top 20 commodity groups in the import under 3-digit level of desegregation after S.T.I.C., the import of at least half of them diminishes in the course of the examined period 1990-1995. This, as well as the reorientation of Bulgarian demand towards consumer goods, confirms the extreme gravity of the crisis in the country.

C) Bulgaria - Italy

The commodity groups, most exported to Italy under 2-digit level of desegregation are characterized by considerable export dynamics. These are mostly 'Non ferrous metals' (68) and 'Fertilizers manufactured' (56). The export rates of 'Iron and steel' (67) and 'Footwear' (85) remain unchanged.

The study of the export of the most exported groups of commodities under 3-digit level of desegregation reveals dynamics higher than the average for the base chemistry products: 'Fertilizers manufactured' - 562, and non ferrous metallurgy products – lead (685). In 1995 Bulgarian manufactured fertilizers took 24% of the Italian market (zone of reference – the European Community). In the same year Bulgarian lead took as much as 44% (See Tables 11, 12).

Similar to the trade with Germany, the import of most of the major commodity groups of Bulgaria's demand from Italy (2-digit level of desegregation) has negative dynamics or dynamics under the average for the total import from that country. The biggest decrease of import is in 'Machinery specialized for particular industries' (72), and 'General industrial machinery and equipment and parts, n.e.c.' (74). At the same time the import of 'Household apparatus and appliances' (775) increases significantly. In 1995 this group formed more than 11% of Bulgaria's import from Italy. This fact confirms once again the reorientation of the Bulgarian demand from investment towards consumer goods.

D) Bulgaria – France

The dynamics of the top commodity groups in Bulgaria's export to France (2- and 3-digit level of desegregation) is higher than the average for the Bulgarian export to that country. 'Inorganic chemicals' - 523, as well as 'Fertilizers manufactured' (562) are 'expanding'. In 1995 the latter formed 16,99% of the Bulgarian industrial export to France and took 3,02% of the French market (zone of reference – the European Community).

Bulgarian export is characterized by higher than the average import rates in the following commodity groups: 'Road vehicles' (78); 'Electrical machinery and parts thereof' (77); and 'Textile yearn, fabrics, made-up articles' (65). 'General industrial machinery and equipment and parts, n.e.c.' (74) and 'Essential oils and perfume materials' (55) register dynamics below the average. Generally, mostly all of the top 10 commodity groups of the import from France under 3-digit level of desegregation are 'expanding' at the Bulgarian market. The only exceptions are 'Machinery and apparatus for heating and refrigeration' and Pumps (743), whose dynamics is below the average.

E) Bulgaria – Austria

The fastest increase among the top 10 commodity groups of Bulgaria's export to Austria (2-digit level of desegregation) is of 'Power generating machinery and equipment' (71), 'Machinery specialized for particular industries' (72), and 'Non ferrous metals' (68). As for the export dynamics of the top 10 groups under 3-digit level of desegregation, considerable increase can be registered in the export of clothing - 842, 843, of 'Products of rolled iron, iron and steel' (679); as well as of 'Road vehicles – all types of engines' (781).

Lead registers *the highest degree of penetration* among Bulgarian goods - 4,53% of the Austrian market (zone of reference – the market of the EC); followed by Ladies underwear (843) - 1,73% of the market; Profiles of iron and steel (673) - 0,88%, etc.

As for Bulgaria's industrial import from Austria, the following groups of commodities (which are among the most imported under 2-digit level of desegregation) have dynamics above the average:

- Textile yearn, fabrics, made-up articles, n.e.c., and related products (65);

- Road vehicles (78);

-Telecommunications, sound recording and reproducing apparatus and equipment (76);

- Medical and pharmaceutical products (54);

The products whose import increases significantly under 3-digit level of desegregation are the following:

- Medicines - 542;

- Apparatus and household appliances (775);

- Medical apparatus... (774);

(See Tables 15, 16)

3. Initial Tendencies of Specialization of Bulgaria's Industry at the European Market.

The specialization tendencies of the trade with industrial goods between Bulgaria and the countries from the EC could be revealed by indicators such as:

I –Relative structure of export - (t);

II – Relative structure of import - (u);

III – Position (Share) on the international market - (s);

IV – Comparative advantages;

V – The Intra-industry trade indicator.

In this section we shall examine these indicators for the top 10 / 20 groups of commodities of the export and import of industrial goods between Bulgaria and the European Community (12), Germany, Italy, France and Austria. In this case, we shall examine data under 3-digit level of desegregation, and we shall use the West European market as a zone of reference.

3.1. Methodology[3]

Relative structure of export and import:

These indicators are used by B. Balassa. They complement each other. For each product a comparison is made between its share in the export from (import in) the country *i* to the country *j* and the share of the same product in the total export (import) to the country *j*. The indicators allow us to compare the structures of export and respectively, import, and also to eliminate (to a certain extent) the influence of macroeconomic factors on the trade between two countries. The following two types of indicators are regarded:

$$t_{ijk} = \frac{X_{ijk}}{X_{ij}} \Big/ \frac{X_{jk}}{X_{j}}$$

$$u_{ijk} = \frac{M_{ijk}}{M_{ij}} \Big/ \frac{M_{jk}}{M_{j}}$$

If $t>1$, the country *i* has a comparative advantage (in the sense that its export is above the average for the chosen group of countries) in the export of the product κ over the countries used as a reference; in the same manner, if $u<1$, the country *i* has a comparative advantage (that is, the import is below the average of a certain region) in the import of the product κ. The country *i* has a comparative advantage in the trade with product κ, if $t>1$ and $u<1$ are held simultaneously (i.e. if the country exports more and imports less than its average); and a comparative disadvantage, if $t<1$ and $u>1$ (i.e. it exports less and imports more than its average). These indicators enable us to reveal the 'anomalies' in the trade between two countries with regard to the standard for their trade with the world, or with the countries of the EC (in the present study – with regard to EC).

Position (Share) on the international market:

This is an indicator of the international competitiveness of the country *i* for the product *k* (G. Lafay). For each product the balance of countries *i* and *j* is used against the total market of the country *j*. The indicator is as follows:

[3] See the papers of M. Andreff and M. Lissowska in ACE-PHARE project - P95-2030-R.

$$s_{ijk} = \frac{X_{ijk} - M_{ijk}}{X_j + M_j}$$

The higher the value of the indicator - *s>o*, the more favorable is the country's *i* position for the respective product (at the market of the regarded product); the more negative the value of the indicator (*s<0*), the more unfavorable is the position of the country *i* for that product.

This indicator has the advantage to be comparative for the different commodity groups. It allows to estimate the size of the deficit (surplus) of the relative country. An obstacle to its use is its dependence on macroeconomic factors, on the structure of the respective economy, on the pattern of foreign trade policy, and also on the size of the respective economy.

Comparative advantages:

This indicator accounts for the difference between the share of a certain product in the total export of a country i to a country j, and its share in the total import of i from j. The following ratio is calculated:

$$\frac{X_{ijk}}{X_{ij}} - \frac{M_{ijk}}{M_{ij}}$$

The higher the value of the indicator, the bigger the comparative advantage of the country *i* in the trade with country j with the product *k.*

Intra-industry (intra-product) trade

The first indicator of this type is also proposed by B. Balassa. It expresses the ratio between the absolute value of the balance of trade with product κ between the countries *i* and *j*, and the value of the total turnover between them. Grubel and Lloyd emphasized on the importance of taking into consideration the respective weights of the products into the trade between the countries i and j. The indicator is of the following kind:

$$1 - \frac{\left| \frac{X_{ijk}}{X_{ij}} - \frac{M_{ijk}}{M_{ij}} \right|}{\frac{X_{ijk}}{X_{ij}} + \frac{M_{ijk}}{M_{ij}}}$$

The closer the value of the indicator to 1, the more the pattern of trade is intraindustry. And reversely, the closer the value of the indicator to 0, the bigger the specialization of the country i – it is either a predominant exporter or a predominant importer of the respective product.

Under 2-digit level of desegregation for a value of the indicator < 0,33 *an inter-industry trade* is observed; for values of the indicator > 0,77 *an intra-industry trade* occurs. Under 3-digit level of desegregation, when the indicator < 0,10, we have inter-industry type of trade, and when the relative indicator is greater than 0,90 the trade is of intra-industry type.

3.2 Specialization of Bulgarian Export of Industrial Goods to the Countries of the European Union.

A) Bulgaria – European Community (12)

The ratio between the indicators 'Relative share of the export' / 'Relative share of the import' for the most exported groups of industrial goods from Bulgaria to the Community is unbalanced. This applies especially to the following groups: 673, 682, 562, and 842. The ratio is more balanced with goods immediately following the top five ones, with the exception of lead – 11-th group (685).

This analysis is complemented by two more indicators – that of comparative advantages and that of intra-industry trade. For the top 10 commodity groups in the export ***distinct comparative advantages*** can be outlined – the first three commodity groups - 673; 682 and 562, and also the eleventh (Lead- 685); the sixteenth (686) and the seventeenth (672) are an example of inter-industry type of industrial turnover (i.e. the *intra-industry trade* indicator < 10%). The trade only with two of the top 20 groups in the exports,541 and 773 is characterized as intra-industry, that is the *intra-industry trade* indicators for these groups exceed 90% (Table 17)

B) Bulgaria – Germany

For most of the top 10 commodity groups in the export to Germany the ratio: 'Relative structure of the export/ 'relative structure of the import' is imbalanced. These commodity groups are characterized by distinct comparative advantages in favor of Bulgaria. The top 5 industrial goods in the export, which are - 842; 841; 845; 682 and 673 form the significant 'segment' of the inter-industry trade. The trade with commodity groups - 747 (11-th in the series) and 679 (20-th) is of intra-industry type, that is the indicator of intra-industry trade exceeds 90% (Table 18).

C) Bulgaria - Italy

The six most exported groups of industrial goods from Bulgaria to Italy also show a serious imbalance in the ratio between 'Relative structure of the export' - 'Relative structure of the import'. The imbalance lessens after the 13-th group. The top 8 groups have distinctly outlined comparative advantages. The trade with the first three groups in the export - 673, 562, 682; plus the 5-th group - 685; the 6-th - 672 and the 8-th - 523 is of inter-industry type. On the other hand, the trade with group 512 – 9-th in the series, as well as with the 684-th group (17-th in the series) form the intra-industry 'segment' of the top 20 commodity groups in the export to Italy.

D) Bulgaria – France

The top seven commodity groups in Bulgarian industrial export to France have imbalanced 'Relative structure of export' and 'of import'. After the eighth group the ratio is comparatively balanced – with the exception of the 16-th (844) and the 19-th (685) group. The comparative advantages of the top seven commodity groups in export can be outlined. The first 5 of them form the 'sector' of the inter-industry trade with industrial goods between Bulgaria and France - 562; 673; 841; 523; 845. The turnover of commodity group 778 is of an intra-industry type (See Table 20).

E) Bulgaria – Austria

The top six groups of industrial goods in Bulgaria's export to Austria are characterized by considerable imbalance of 'Relative structure of the export' against the 'Relative structure of the import'. For these commodity groups Bulgaria has distinct comparative advantages. They form the inter-industry 'segment' of the trade with industrial goods between the two countries. These are the following commodity groups: 845; 841; 842; 673; 685; 843. Only the 14-th group - 784 distinguishes, as its *intra-industry trade* indicator exceeds 90% (Table 21).

3.3 Characteristics of Bulgaria's Import of Industrial Goods from the European Union Countries

A) European Community (12) – Bulgaria

The examination of the industrial import of Bulgaria from the countries of the Community shows that the ratio of the indicators 'Relative structure of export' and 'Relative structure of import' for the most imported commodity groups in Bulgaria is more balanced than the ratio of these indicators for the most exported groups of industrial goods. Nevertheless, imbalance is registered for the two most imported groups - 783 and 775. The top three commodity groups in import, as well as the 10-th group - 772; the 17-th (786) and the 18-th form the inter-industry trade. As for the intra-industry 'segment, it comprises the 16-th group - 841, and the 20-th group - 773, whose indicators for intra-industry trade exceed 90% (Table 17).

B) Germany – Bulgaria

With the exception of the most imported goods in Bulgaria from Germany, for almost all of the top 20 commodity groups the ratio between the indicators 'Relative structure of export' - 'Relative structure of import' is balanced. Germany has considerable comparative advantages for the first group - 783. An inter-industry turnover is observed for the top 4 commodity groups in Bulgarian import - 783, 781, 782 and 772; as well as for the 14-th group - 784; and for the 19-th group - 742. The trade with the 11-th group (745) and the 20-th group (513) is of intra-industry type (Table 18).

C) Italy – Bulgaria

For the top five commodity groups of Bulgaria's industrial import from Italy, the ratio between the indicators 'Relative structure of export' and 'Relative structure of import' is imbalanced. In the trade with the two most imported in Bulgaria commodity groups, Italy has distinctly outlined comparative advantages. The trade with most of the commodity groups that predominate in the import is of inter-industry type. Among the commodity groups with an *intra-industry trade* indicator above 90% are 747 (9-th group) and 846 (17-th in the series) (Table 19).

D) France – Bulgaria

The structural imbalance of Bulgaria's industrial import from France is than the ratio between the indicators 'Relative structure of export' and 'of import' for the Bulgarian export of industrial goods to that country. France has distinctly outlined comparative

advantages for its top seven goods in the export to Bulgaria. They form the inter-industry 'segment' of the Bulgarian–French industrial turnover. Only the trade with the commodity group 778 (8-th in the series) is of intra-industry type (Table 20).

E) Austria – Bulgaria

The Bulgarian import from Austria is characterized by a serious structural imbalance. This applies most to the four most imported goods in Bulgaria - 542; 745; 742; 775; as well as to the goods at the 8-th position - 513; and at the 9-th position - 774. For the first four goods Austria has distinct comparative advantages. The trade with 775 (4-th position) and 782 (7-th position) is of inter-industry type. Only the trade with commodity group 784 (17-th in the series) is of intra-industry type (Table 21).

Conclusion

With regard to the concentration of both the export and the import of industrial goods, the trade between Bulgaria on one hand, and Germany and France on the other, seems to be more imbalanced than the turnover between Bulgaria and the other two countries from the European Community – Italy and Austria. The discrepancy between the concentration of the most exported and the most imported commodities is lowest in the industrial turnover between Bulgaria and Austria.

The Bulgarian industrial export is concentrated (which means that Bulgaria has advantages) in traditional industries – clothing; ferrous and non-ferrous metallurgy; as well as in energy- and capital- intensive industries – such as, for example base chemistry. The import is characterized by weak dynamics, because of the gravity of the crisis of the transition, and by a reorientation from a demand of industrial equipment towards import of consumer goods - household appliances and automobiles, for which domestic producers are not competitive, or which are not produced in the country at all.

The analysis of the ratio between the indicators 'Relative structure of export' and 'Relative structure of import' reveals Bulgaria's distinctly outlined comparative advantages for the most exported goods; as well as the country's comparative disadvantages in the import. The trade with industrial goods of Bulgaria is based on the country' comparative advantages, respectively comparative disadvantages. It is not of an 'intra-industry' type. *This involves huge expenses for adapting of the Bulgarian economy during the transition to market economy* (Dobrinski R., 1995, Colin-Sedillot B., 1994, Lemoime F., 1994). The 'intra-industry' trade is concentrated in the second half of the top 20 commodity groups in the turnover, under 3-digit level of desegregation. The dissatisfactory volume of foreign investments in the country is one of the reasons for the still insignificant inter-industry industrial turnover.

This pattern of trade with industrial goods between Bulgaria and the European Community places the country's economy into the 'periphery', which is inevitable under liberalization of the trade between partners at different levels of development. The analysis proves that Bulgaria specializes in low- or average technology productions and non-qualified labor force, such as clothing and metallurgy. At the same time the import from West Europe

includes average- and high technology industries, such as automobile production, household appliances and telecommunications.

Bulgaria will most probably manage to keep the equilibrium in its trade balance as far as industrial goods with low and average rate of value added are concerned. However they form the sector of the 'sensitive', respectively, the 'protected' commodity groups, which questions the country's possibility to avail itself of the asymmetry in the Agreement on the Association of Bulgaria to the European Community, which is in force since 1 February, 1995. On the other hand, Bulgaria will continue registering serious deficits in the trade with most of its West European partners with industrial goods with high rates of value added.

Bibliography

Berko L., *Enchevetrement industriel et gravitation commerciale*, (P95-2030-R)

Chavigny R., (1996) *Les perspectives d'integration des pays d'Europe centrale et orientale dans l'Union europeenne: analyse a partir de la specialisation acquise des economies en transition*, Revue d'etude comparatives Est-Ouest, No 4, decembre.

Colin-Sedillot B., (1994) *Les echanges industriels entre la France et les Pays d'Europe centrale et orientale: premieres tendances de la specialisation*, Economie et statistique, No 279-280.

Dobrinsky R., (1995), *Economic transformation and the changing patterns of European Eeast-West trade*, in Dobrinsky R. and M. Landesmann, *Transforming Economies and European Integration*, Edward Elgar.

EBRD (1997) *Transition report update*.

Kornai J., (1995) *Highway and Byways, Studies on Reform and Post-Communist Transition*, The MIT Press.

Landesmann M., (1995), *The pattern of East-West European integration: catching up or falling behind?* in Dobrinsky R. and M. Landesmann, *Transforming Economies and European Integration*, Edward Elgar.

Lemoine F., (1995) *La dynamique des exportations des PECO vers l'Union europeenne*, Economie internationale, No 62.

OCDE - CCET (1997) *Etudes economiques de l'OCDE: Bulgarie*, Paris.

OCDE (1993), *Politiques industrielles dans les Pays de l'OCDE*.

Tailbot P. (1997) *L'economie bulgare en 1996-1997: une crise majeure*, Le Courrier des Pays de l'Est, No 419.

UN - ECE (1997) *Economic Survey of Europe in 1996-1997*, New York and Geneva.

WB (1996) *From Plan to Market*, World Development Report.

Enclosure

Table 1. Main macroeconomic indicators for Bulgaria

	1990	1991	1992	1993	1994	1995	1996 (estimation)	1997 (projection)
GDP,%	-9.1	-11.7	-7.3	-2.4	1.8	2.6	-10.9	-7
Industrial Production, %	-16.0	-27.8	-15.0	-11.8	7.8	8.6	-7.9	na
Consumer price index, %, (at the end of year)	72.5	338.9	79.4	63.9	121.9	32.9	311	591.5
Real Wage, Public sector, %	na	na	17.3	-8.7	-23.2	-4.5	-29.5*	na
Broad money, %	17	125	42	48	79	40	111	na
Budget deficit, % of GDP	na	na	-5.2	-10.9	-5.8	-6.4	-13.4	-6.3
Budget expenditures, % of GDP	65.9	45.6	45.4	48.1	45.7	43	47.6	na
Current account, million USD	-1.180	-406	-801	-1.386	-203	-59	117	65
Trade balance, million USD	na	404	-212	-885	-17	120	209	180
Export of goods, million USD	2.534	2.734	3.956	3.727	3.935	5.344	4.881	na
Import of goods, million USD	3.086	2.330	4.169	4.612	3.952	5.224	4.673	na
Foreign exchange reserves, gold excluded, million USD	na	331	935	655	1.002	1.236	518	na
Gross External Debt, million USD	10.000	11.802	12.548	13.890	11.411	10.229	9.660	na

* - January - September

Source: Transition report update, April 1997, EBRD, p. 39, Transition report 1997 Enterprise performance and growth, EBRD, p. 219, Tailbaut P., L'economie bulgare en 1996-1997: une crise majeure, Le Courrier des Pays de l'Est, No 419, 1997.

Table 2. Foreign - trade partners of Bulgaria - export and import

	1990	1991	1992	1993	1994	1995*
Export to, %						
OECD countries	9.0	26.3	42.4	43.2	47.6	51.2
CEE	80.2	57.7	39.2	35.1	35.6	33.1
Others	10.8	16.0	18.4	21.7	16.8	15.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
Import from, %						
OECD countries	14.9	32.8	43.8	44.8	46.6	46.9
CEE	75.9	48.4	36.3	36.6	41.2	42.6
Others	9.2	18.8	19.9	18.6	12.2	10.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

* - Preliminary data.

Source: Etudes economiques de l'OCDE - Bulgarie, OCDE, 1997, p.30.

Table 3. Export of industrial goods from Bulgaria to the countries of the European Community (STIC 05-08)

	1990	1991	1992	1993	1994	1995
EC-12, million USD	439181	584817	818490	816799	1212685	1836243
Structure, %	100.0	100.0	100.0	100.0	100.0	100.0
Dynamics, average yearly rate of growth, %	-	33.2	40.0	-0.2	48.5	51.4
Germany, million USD	161691	197319	285624	264229	357182	420428
Relative share in the export to the EC-12, %	36.8	33.7	34.9	32.3	29.4	22.9
Dynamics, average yearly rate of growth, %	-	22.0	44.8	-7.5	35.2	17.7
Italy, million USD	90837	102600	174963	161966	268901	432700
Relative share in the export to the EC-12, %	20.7	17.5	21.4	19.8	22.2	23.6
Dynamics, average yearly rate of growth, %	-	12.9	70.5	-7.4	66.0	60.9
France, million USD	37268	67925	75228	76673	87052	129284
Relative share in the export to the EC-12, %	8.5	11.6	9.2	9.4	7.2	7.0
Dynamics, average yearly rate of growth, %	-	82.3	10.8	1.9	13.5	48.5
Austria, million USD	12792	18912	27545	31188	39593	35808
Relative share in the export to the EC-12, %	2.9	3.2	3.4	3.8	3.2	1.9
Dynamics, average yearly rate of growth, %	-	47.8	45.6	13.2	26.9	-9.6

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

Table 4. Import of industrial goods in Bulgaria from the countries of the European Community (STIC 05-08)

	1990	1991	1992	1993	1994	1995
EC-12, million USD	957597	925968	1152434	1188926	1453194	1998476
Structure, %	100.0	100.0	100.0	100.0	100.0	100.0
Dynamics, average yearly rate of growth, %	-3.3	24.5	3.2	22.2	37.5	108.7
Germany, million USD	440856	423142	504455	475583	586902	843587
Relative share in the import from the EC-12, %	46.0	45.7	43.8	40.0	40.4	42.2
Dynamics, average yearly rate of growth, %		-4.0	19.2	-5.7	23.4	43.7
Italy, million USD	231823	206303	198501	223983	292920	386014
Relative share in the import from the EC-12, %	24.2	22.3	17.2	18.8	20.1	19.3
Dynamics, average yearly rate of growth, %	-	7.1	-3.8	44.6	6.8	0.2
France, million USD	86116	116667	201558	98043	115697	149890
Relative share in the import from the EC-12, %	9.0	12.6	17.5	8.2	8.0	7.5
Dynamics, average yearly rate of growth, %	-	35.5	72.8	-51.4	18.0	29.6
Austria, million USD	106734	102261	103318	103348	94739	131116
Relative share in the import from the EC-12, %	11.1	11.0	8.9	8.6	6.4	6.5
Dynamics, average yearly rate of growth, %	-	-4.2	1.0	0.0	-8.3	38.3

Source: L, Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

Table 5. Trade with industrial goods between Bulgaria and the countries of the European Community (STIC - 1- digit level of desegregation)

	EC-12		Germany		Italy		France		Austria	
	1990	1995	1990	1995	1990	1995	1990	1995	1990	1995
	Export, thousand USD									
05	79 650	313 701	14 720	15 521	15 418	82 766	6 461	40 506	1897	1855
06	167 737	866 874	52 778	113 982	49 459	211 235	9 160	33 301	3534	9698
07	77 858	175 308	20 304	78 520	18 491	31 394	8 470	16 086	2313	6583
08	113 936	480 360	73 889	212 405	7 469	107 305	13 177	39 391	5048	17672
	Import, thousand USD									
05	167 223	300 737	71 585	110 366	21 628	34 447	22 901	39 633	11582	24049
06	197 871	505 794	105 656	192 709	36 354	116 882	14 051	28 329	36885	41189
07	502 355	870 446	225 151	468 359	156 818	133 127	41 603	62 378	46626	49837
08	90 148	321 499	38 464	72 153	17 023	101 558	7 561	19 550	11641	16051
	Industrial commodities trade balance, USD thousand									
05	-87 583	12 964	-56 865	-94 845	-6 210	48 319	-16 440	873	-8048	-22194
06	-30 134	360 880	-52 878	-78 727	13 105	94 353	-4 891	4 972	-33351	-31491
07	-424 497	-695 138	-204 847	-389 839	-138 327	-101 733	-33 133	-46 292	-44313	-43254
08	23 788	158 861	35425	140 252	-9 554	5 747	5 616	19841	-6593	1621

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R)

Table 6. Structure and dynamics of the trade with industrial goods between Bulgaria and the countries of the European Community-12, 1990-1995, 2-digit level of desegregation, top 10 commodity groups

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	67	84	68	56	85	65	52	51	74	77
Structure, %, 1995	19.37	17.58	16.00	6.53	4.36	3.99	3.45	3.39	2.93	2.80
Dynamics, %, 1990-1995	288.52	332.88	1885.07	402.86	884.14	186.63	569.13	158.43	76.28	350.46
Degree of penetration, EC, %	0.90	1.37	1.40	4.14	0.99	0.24	0.88	0.19	0.14	0.09
	Import									
Commodity group	78	65	77	74	72	89	84	64	59	55
Structure, %, 1995	16.23	11.51	8.64	6.35	5.44	4.17	4.09	3.25	2.87	2.83
Dynamics, %, 1990-1995	490.80	372.68	257.78	3.67	-36.04	253.62	333.02	227.55	52.29	261.23

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

Table 7. Structure and dynamics of the trade with industrial goods between Bulgaria and the countries of the European Community-12, 1990-1995, 3-digit level of desegregation, top 20 commodity groups

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	673	682	562	842	841	845	523	744	512	685
Structure,%, 1995	14.80	12.65	6.53	6.52	5.40	3.86	1.91	1.55	1.51	1.38
Dynamics,%, 1990-1995	261.88	1842.22	402.86	351.05	366.77	299.05	591.63	19.18	745.17	2530.05
Degree of penetration, EC, %	3.02	3.49	4.14	2.37	2.18	0.89	1.75	0.53	0.71	9.06
	11	12	13	14	15	16	17	18	19	20
Commodity group	522	676	679	778	844	541	686	672	684	773
Structure,%, 1995	1.27	1.20	1.14	1.01	0.95	0.91	0.88	0.87	0.72	0.66
Dynamics,%, 1990-1995	602.67	372.83	470.43	214.17	283.55	143.01	2285.52	494.43	5725.11	918.21
Degree of penetration, EC, %	0.69	0.27	0.39	0.14	0.93	0.27	1.40	0.66	0.13	0.24
	1	2	3	4	5	6	7	8	9	10
	Import									
Commodity group	783	775	781	782	741	778	542	684	784	772
Structure,%, 1995	7.81	4.18	3.77	1.93	1.86	1.47	1.42	1.31	1.31	1.17
Dynamics,%, 1990-1995	3218.19	1215.15	267.94	302.55	-13.91	118.36	126.81	335.27	87.50	121.45
	11	12	13	14	15	16	17	18	19	20
Commodity group	745	845	743	747	541	841	786	844	512	773
Structure,%, 1995	1.02	1.00	0.98	0.82	0.81	0.79	0.77	0.70	0.68	0.59
Dynamics,%, 1990-1995	-18.23	268.67	32.55	132.66	110.83	718.44	126.68	899.93	786.63	287.11

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

Table 8. Characteristics of the most exported industrial goods from Bulgaria to the countries of the EC-12, 1995

	Commodity group	Technology	Orientation	Wages	Qualification
1.	673 - Profiles - iron and steel	Low technology	High resource - consumption	Average wages	Non qualified labor force
2.	682 - Copper	Average technology	High resource - consumption	Average wages	Non qualified labor force
3.	562 - Fertilizers manufactured	Average technology	Economy of scale	High wages	Qualified labor force
4.	842 - Outer male and children garments	Low technology	Labor - consumption	Low wages	Non qualified labor force
5.	841 -	Low technology	Labor - consumption	Low wages	Non qualified labor force
6.	845 - Outer garments and accessories	Low technology	Labor - consumption	Low wages	Non qualified labor force
7.	523 - Inorganic chemicals	Average technology	Economy of scale	High wages	Qualified labor force
8.	744 - Mechanic equipment for manipulations	High technology	-	Low wages	Non qualified labor force
9.	512 - Alcohol, phenol...	Average technology	Economy of scale	High wages	Qualified labor force
10.	685 - Lead	Average technology	Resource - consumption	Average wages	Non qualified labor force

Source: OCDE (1993) Politiques industrielles dans les pays de l'OCDE.

Table 9. Structure and dynamics of the trade with industrial goods between Bulgaria and Germany, 1990-1995, 2-digit level of desegregation, top 10 commodity groups

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	84	68	67	77	74	69	89	85	71	73
Structure,%, 1995	39.76	10.03	8.73	7.09	4.99	3.00	2.87	2.68	2.18	2.10
Dynamics,%, 1990-1995	195.78	563.51	27.53	1409.57	436.75	273.71	166.50	76.74	287.29	11.08
Degree of penetration, EC, %	2.29	0.79	0.41	0.24	0.28	0.27	0.19	0.41	0.25	1.23
	Import									
Commodity group	78	65	74	77	72	76	89	64	87	59
Structure,%, 1995	27.64	13.39	7.06	6.37	6.24	3.46	3.12	3.10	2.80	2.30
Dynamics,%, 1990-1995	651.86	248.92	4.34	83.39	-15.91	425.17	147.24	231.35	39.19	20.61

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

Table 10. Structure and dynamics of the trade with industrial goods between Bulgaria and Germany, 1990-1995, 3-digit level of desegregation, top 20 commodity groups

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	842	841	845	682	673	778	773	744	844	541
Structure, %, 1995	16.99	10.19	9.61	9.41	7.96	2.88	2.68	2.57	1.63	0.94
Dynamics, %, 1990-1995	196.54	211.68	210.43	637.49	35.57	1428.57	29515.79	499.61	111.58	138.51
Degree of penetration, EC, %	4.81	3.83	1.43	2.82	2.11	0.46	1.13	1.10	1.06	0.42
	11	12	13	14	15	16	17	18	19	20
Commodity group	747	772	846	511	741	775	745	784	843	679
Structure, %, 1995	0.89	0.81	0.74	0.62	0.50	0.46	0.43	0.40	0.39	0.34
Dynamics, %, 1990-1995	1214.79	658.35	309500.00	0.00	324.95	267.17	851.06	563.35	-23.40	54.92
Degree of penetration, EC, %	0.35	0.21	0.53	0.20	0.18	0.09	0.30	0.04	0.52	0.13
	1	2	3	4	5	6	7	8	9	10
	Import									
Commodity group	783	781	782	772	786	741	778	542	774	743
Structure, %, 1995	16.77	4.77	2.53	1.53	1.48	1.39	1.36	1.24	1.18	1.16
Dynamics, %, 1990-1995	130.77	147.23	106.68	73.06	20.45	146.23	-43.69	-48.81	-88.90	-69.81
	11	12	13	14	15	16	17	18	19	20
Commodity group	745	775	684	784	747	541	773	744	742	513
Structure, %, 1995	1.09	1.07	0,80	0.76	0.74	0.71	0.69	0.65	0.57	0.55
Dynamics, %, 1990-1995	75.78	72.13	-45.83	-96.03	-54.81	-55.84	14.29	-64.20	-49.68	6700.00

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

Table 11. Structure and dynamics of the trade with industrial goods between Bulgaria and Italy, 1990-1995, 2-digit level of desegregation, top 10 commodity groups

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	67	68	85	84	56	65	51	74	83	52
Structure,%, 1995	20.10	12.86	10.78	10.45	10.22	8.52	4.02	3.55	2.16	2.04
Dynamics,%, 1990-1995	195.94	1841.61	0.00	945.21	5204.80	307.74	66.96	36.97	750.59	695.94
Degree of penetration, EC, %	1.57	1.70	14.56	3.23	24.04	1.08	0.37	0.32	8.60	1.21
	Import									
Commodity group	77	65	85	74	72	84	89	64	66	61
Structure,%, 1995	14.45	12.05	10.12	7.28	7.25	4.92	4.67	4.45	4.04	3.78
Dynamics,%, 1990-1995	691.54	632.43	593.48	-18.40	-63.87	340.89	378.86	91.10	395.61	2185.45

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

Table 12. Structure and dynamics of the trade with industrial goods between Bulgaria and Italy, 1990-1995, 3-digit level of desegregation, top 20 commodity groups

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	673	562	682	841	685	672	744	523	512	845
Structure,%, 1995	14.93	10.22	6.46	5.93	3.62	2.80	2.13	1.97	1.93	1.85
Dynamics,%, 1990-1995	162.05	5204.80	1090.84	772.28	130533.33	480.95	0.15	7725.69	513.20	661.01
Degree of penetration, EC, %	4.05	24.04	2.41	7.16	44.18	4.41	1.89	4.10	1.46	1.60
	11	12	13	14	15	16	17	18	19	20
Commodity group	842	686	541	676	746	513	684	514	679	843
Structure,%, 1995	1.66	1.64	1.43	1.33	1.07	0.85	0.75	0.60	0.59	0.49
Dynamics,%, 1990-1995	3598.45	1742.08	724.87	2222.58	1932.60	502.29	2536.59	-2.88	29.26	35566.67
Degree of penetration, EC, %	3.03	7.02	0.69	0.70	0.77	0.37	0.21	0.34	0.51	3.34
	1	2	3	4	5	6	7	8	9	10
	Import									
Commodity group	775	778	741	512	745	841	784	781	747	845
Structure,%, 1995	11.15	2.55	2.33	2.07	2.00	1.20	1.16	1.15	0.94	0.88
Dynamics,%, 1990-1995	1344.41	1154.72	-41.33	15007.55	-12.32	307.60	102.95	158.57	1910.50	417.61
	11	12	13	14	15	16	17	18	19	20
Commodity group	684	743	843	782	842	844	846	676	542	772
Structure,%, 1995	0.83	0.80	0.80	0.77	0.73	0.63	0.57	0.56	0.50	0.45
Dynamics,%, 1990-1995	368.42	12.76	789.02	60.40	391.29	1900.83	51.69	-8.41	254.98	402.03

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030).

Table 13. Structure and dynamics of the trade with industrial goods between Bulgaria and France, 1990-1995, 2-digit level of desegregation, top 10 commodity groups

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	84	56	67	52	66	77	85	51	82	74
Structure,%, 1995	18.99	17.02	13.88	6.90	6.31	4.89	4.55	3.44	3.25	3.18
Dynamics,%, 1990-1995	346.85	1361.93	406.09	30644.83	1700.00	91.86	803.38	276.86	29.91	101.42
Degree of penetration, EC, %	0.69	3.02	0.23	0.61	0.22	0.07	0.38	0.09	0.18	0.05
	Import									
Commodity group	78	74	77	65	55	54	89	72	59	75
Structure,%, 1995	11.94	8.10	8.04	7.85	7.50	5.78	5.66	5.40	5.32	5.10
Dynamics,%, 1990-1995	134.89	56.03	219.14	128.88	84.02	617.72	365.50	-8.15	3.53	842.00

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

Table 14. Structure and dynamics of the trade with industrial goods between Bulgaria and France, 1990-1995, 3-digit level of desegregation, top 20 commodity groups

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	562	673	841	523	845	842	512	778	776	747
Structure,%, 1995	17.02	13.25	7.33	6.90	5.19	5.03	2.87	2.28	1.19	0.99
Dynamics,%, 1990-1995	1361.93	403.79	417.31	148500.00	457.52	398.01	775.89	48.19	0.00	851.85
Degree of penetration, EC, %	3.02	0.82	1.47	1.98	0.51	1.05	0.64	0.13	0.10	0.14
	11	12	13	14	15	16	17	18	19	20
Commodity group	775	541	744	784	679	844	746	848	685	749
Structure,%, 1995	0.96	0.82	0.69	0.65	0.55	0.51	0.48	0.46	0.40	0.30
Dynamics,%, 1990-1995	1410.98	111.82	-44.49	1992.50	0.00	46.89	1260.87	648.10	0.00	839.02
Degree of penetration, EC, %	0.07	0.08	0.08	0.02	0.08	0.20	0.12	0.39	1.28	0.11
	1	2	3	4	5	6	7	8	9	10
	Import									
Commodity group	781	542	772	741	782	541	747	778	743	784
Structure,%, 1995	6.41	3.45	3.29	3.17	2.58	2.33	2.02	1.91	1.84	1.60
Dynamics,%, 1990-1995	480.91	435.06	254.46	59.01	479.34	1349.79	316.83	272.11	114.96	11.81
	11	12	13	14	15	16	17	18	19	20
Commodity group	512	783	776	679	773	846	675	775	771	841
Structure,%, 1995	1.55	1.18	0.89	0.74	0.73	0.63	0.50	0.47	0.47	0.41
Dynamics,%, 1990-1995	46440	894.38	195.14	66.62	279.31	841.00	1036.36	6.98	1300.00	3731.25

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

Table 15. Structure and dynamics of the trade with industrial goods between Bulgaria and Austria, 1990-1995, 2-digit level of desegregation, top 10 commodity groups

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	84	82	67	69	89	71	72	68	66	74
Structure,%, 1995	29.76	8.62	7.00	5.51	5.36	4.86	4.69	4.33	4.19	4.02
Dynamics,%, 1990-1995	313.99	188.32	76.28	147.37	64.24	1512.04	519.56	364.07	294.47	136.12
Degree of penetration, EC, %	0.47	0.26	0.17	0.09	0.06	0.15	0.10	0.13	0.14	0.05
	Import									
Commodity group	74	77	65	69	78	62	64	76	87	54
Structure,%, 1995	11.27	8.68	8.15	7.60	6.35	5.10	4.77	4.56	4.14	3.92
Dynamics,%, 1990-1995	35.27	93.70	380.31	17.43	137.65	66.14	73.83	363.49	37.18	1290.00

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

Table 16. Structure and dynamics of the trade with industrial goods between Bulgaria and Austria, 1990-1995, 3-digit level of desegregation, top 20 commodity groups

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	845	841	842	673	685	843	679	781	516	747
Structure,%, 1995	10.88	9.24	5.28	4.81	3.32	3.26	1.40	1.29	1.21	1.16
Dynamics,%, 1990-1995	125.65	400.30	1365.89	40.23	0.00	2142.31	1512.90	1217.14	148.85	2680
Degree of penetration, EC, %	0.62	0.83	0.27	0.88	4.53	1.73	0.13	0.01	0.65	0.10
	11	12	13	14	15	16	17	18	19	20
Commodity group	744	844	671	784	743	513	682	512	684	742
Structure,%, 1995	1.07	0.97	0.78	0.73	0.70	0.64	0.45	0.44	0.42	0.39
Dynamics,%, 1990-1995	92.93	11466	73.29	6475	1040	-19.37	37.29	387.50	0.00	4533.33
Degree of penetration, EC, %	0.10	0.17	0.63	0.02	0.06	0.18	0.04	0.20	0.02	0.04
	1	2	3	4	5	6	7	8	9	10
	Import									
Commodity group	542	745	742	775	781	747	782	513	774	846
Structure,%, 1995	3.75	2.80	2.53	2.25	2.11	2.00	1.74	1.71	1.70	1.61
Dynamics,%, 1990-1995	1789.62	398.24	319.34	1329.61	187.45	109.76	30.41	312.15	2832.89	108.93
	11	12	13	14	15	16	17	18	19	20
Commodity group	772	743	741	778	677	783	784	786	675	748
Structure,%, 1995	1.52	1.43	1.16	1.04	0.99	0.90	0.85	0.72	0.71	0.64
Dynamics,%, 1990-1995	-33.19	-15.35	-46.02	-24.71	24.09	345.83	187.89	688.33	-8.79	15.32

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030).

Table 17. Specialization of the trade with industrial goods between Bulgaria and the countries of the European Community-12

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	673	682	562	842	841	845	523	744	512	685
Relative share, %	14.80	12.65	6.53	6.52	5.40	3.86	1.91	1.55	1.51	1.38
I	1275.40	1474.57	17.49	1000.21	921.85	375.28	739.70	224.52	299.42	3831.63
II	21.91	29.10	2.89	56.18	111.46	88.21	102.37	55.64	182.96	0.14
III	-	-	-	-	-	-	-	-	-	-
IV	14.56	12.41	6.52	6.09	4.61	2.87	1.78	1.14	0.83	1.38
V	3.13	3.78	0.29	12.47	25.48	41.00	12.99	41.87	61.91	0.01
	Import									
Commodity group	783	775	781	782	741	778	542	684	784	772
Relative share, %	7.81	4.18	3.77	1.93	1.86	1.47	1.42	1.31	1.31	1.17
I	3.69	25.06	0.93	1.18	20.03	59.03	6.05	53.85	8.72	23.09
II	830.58	348.10	40.54	140.30	220.41	75.40	89.03	15.71	36.97	83.80
III	-	-	-	-	-	-	-	-	-	-
IV	-7.78	-3.87	-3.68	-1.92	-1.70	-0.46	-1.32	-0.59	-0.97	-0.87
V	3.13	3.78	0.29	12.47	25.48	41.00	12.99	41.87	61.91	0.01

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

Table 18. Specialization: Bulgaria - Germany

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	842	841	845	682	673	778	773	744	844	541
Relative share, %	16.99	10.19	9.61	9.41	7.96	2.88	2.68	2.57	1.63	0.94
I	1956.09	1558.61	581.58	1145.70	857.37	185.26	457.87	447.41	431.31	171.49
II	19.77	48.28	63.31	27.18	43.98	45.77	134.00	75.47	92.16	96.63
III	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
IV	16.85	10.00	9.40	9.15	7.52	1.52	1.99	1.92	1.55	0.23
V	1.56	3.72	4.23	5.48	10.50	64.11	40.88	40.53	10.24	86.18
	Import									
Commodity group	783	781	782	772	786	741	778	542	774	743
Relative share, %	16.77	4.77	2.53	1.53	1.48	1.39	1.36	1.24	1.18	1.16
I	0.00	2.68	2.91	83.68	51.59	74.09	185.26	6.86	8.33	6.98
II	1190.13	43.03	146.76	70.42	395.80	212.70	45.77	121.74	362.76	106.22
III	-0.04	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IV	-16.77	-4.49	-2.49	-0.72	-1.40	-0.89	1.52	-1.15	-1.17	-1.11
V	1.56	3.72	4.23	5.48	10.50	64.11	40.88	40.53	10.24	86.18

Source:L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

Table 19. Specialization: Bulgaria - Italy

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	673	562	682	841	685	672	744	523	512	845
Relative share, %	14.93	10.22	6.46	5.93	3.62	2.80	2.13	1.97	1.93	1.85
I	838.04	4978.74	499.99	1483.28	9150.63	913.05	391.67	849.07	301.50	331.62
II	7.16	0.00	24.97	93.74	0.00	0.00	36.54	122.20	1383.56	34.63
III	0.03	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
IV	14.90	10.20	6.30	4.74	3.62	2.80	1.82	1.90	-0.14	0.98
V	0.42	0.00	4.70	35.53	0.00	0.00	25.62	7.00	96.47	64.16
	Import									
Commodity group	775	778	741	512	745	841	784	781	747	845
Relative share, %	11.15	2.55	2.33	2.07	2.00	1.20	1.16	1.15	0.94	0.88
I	1.88	5.91	1.55	301.50	2.96	1483.28	7.83	0.16	22.01	331.62
II	368.16	180.38	141.45	1383.56	150.25	93.74	37.10	23.13	74.68	34.63
III	-0.02	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
IV	-11.14	-2.43	-0.02	0.00	-0.02	0.05	-0.01	-0.01	-0.01	0.01
V	0.42	0.00	4.70	33.53	0.00	0.00	25.62	7.00	96.47	64.16

Source: L. Berko, Enchevetrement industriel et gravitation commerciale, (P95-2030-R).

Table 20. Specialization: Bulgaria - France

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	562	673	841	523	845	842	512	778	776	747
Relative share, %	17.02	13.25	7.33	6.90	5.19	5.03	2.87	2.28	1.19	0.99
I	3189.98	870.19	1557.99	2093.13	535.33	1115.24	672.71	139.81	108.76	145.43
II	0.00	0.00	133.73	157.56	16.85	59.95	382.76	104.11	40.42	420.53
III	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IV	17.02	13.25	6.92	6.70	5.05	4.66	1.31	0.37	0.30	-1.02
V	0.00	0.00	10.57	5.42	5.19	13.79	70.28	91.20	85.73	66.04
	Import									
Commodity group	781	542	772	741	782	541	747	778	743	784
Relative share, %	6.41	3.45	3.29	3.17	2.58	2.33	2.02	1.91	1.84	1.60
I	0.00	0.00	21.98	22.51	0.00	89.29	145.43	139.81	26.95	18.51
II	76.72	185.86	200.30	351.82	219.26	367.65	420.53	104.11	237.08	27.29
III	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IV	-6.41	-3.45	-3.02	-3.01	-2.58	-1.51	-1.02	0.37	-1.60	-0.96
V	0.00	0.00	10.57	5.42	5.19	13.79	70.28	91.20	85.73	66.04

Source: L. Berko, Enchevetrement industriel et la gravitation commerciale, (P95-2030).

Table 21. Specialization: Bulgaria - Austria

	1	2	3	4	5	6	7	8	9	10
	Export									
Commodity group	845	841	842	673	685	843	679	781	516	747
Relative share, %	10.88	9.24	5.28	4.81	3.32	3.26	1.40	1.29	1.21	1.16
II	52.49	16.60	20.89	9.93	0.00	67.10	43.08	61.10	253.87	333.11
I	749.70	1008.49	325.70	1062.51	5467.77	2091.80	161.60	15.25	789.08	118.83
III	0.0044	0.0043	0.0023	0.0019	0.0016	0.0014	-0.0002	-0.0031	0.0001	-0.0029
IV	10.45	9.18	5.17	4.61	3.32	3.19	0.88	-0.83	0.95	-0.84
V	7.62	1.25	3.99	7.92	0.00	4.04	54.10	75.72	34.97	73.61
	Import									
Commodity group	542	745	742	775	781	747	782	513	774	846
Relative share, %	3.75	2.80	2.53	2.25	2.11	2.00	1.74	1.71	1.70	1.61
II	504.45	456.36	496.17	323.19	61.10	333.11	110.02	3378.48	1214.20	436.54
I	16.28	20.39	48.48	0.69	15.25	118.83	3.40	214.16	4.66	21.14
III	-0.0063	-0.0048	-0.0042	-0.0039	-0.0031	-0.0029	-0.0030	-0.0027	-0.0029	-0.0028
IV	-3.39	-2.60	-2.14	-2.23	-0.83	-0.84	-1.70	-1.07	-1.69	-1.54
V	17.17	13.22	26.61	0.99	75.72	73.61	5.30	54.51	1.31	8.01

Source: L. Berko, Enchevetrement industriel et gravitation commerciale,(P95-2030-R).