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Influence of Foreign Direct Investment on the Romanian Manufacturing Industry

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Abstract

The article deals with FDI stock influence on the activities components of manufacturing industry, expressed in terms of changes in the turnover of companies, labour utilization, overall productivity, added value and export. The main conclusion of the analysis is that beneficial changes occurred were, however, still far from those expected, which meant that the structuring and development model of the Romanian manufacturing industry characteristic of the period of centralized economy remains broadly

Keywords: foreign direct investment; greenfield type investment; activity (industrial sector); turnover; employment; productivity; gross value added; export

JEL Classification: F21

Introduction

Prevailing role of the Romanian manufacturing industry in attracting foreign capital gave it the character of main area of manifestation of the impact of FDI, resulted in structural changes more or less profound, assimilation and diffusion, still slow, of technological, managerial and organizational know-how brought by foreign companies, in generating higher requirements on labour professional capabilities in terms of training and attitude towards work.

The substantial contribution of FDI to productive activities in manufacturing industry, manifested in many ways and summed into their competitiveness growth, is crucial to increase the competitiveness of the Romanian economy, given the role of this industry of technical support and driving the other branches of the economy.

Analysis of FDI influence on the manufacturing industry as a whole and its component activities is made in relation to relevant benchmarks - turnover, labour utilization, productivity, value added, export - detailed below.

Influence on Turnover of Companies in the Industry

In the total turnover of companies in Romania recorded in 2014, of 1088 billion lei, industry, with 283 billion, had a share of 26%, surpassed only by trade (wholesale, retail, and auto), whose share was 40%. The other branches of the economy, without financial services, had much lower percentages: Electricity, gas and water - 8%; Transport - 6%; Construction - 6%; Agriculture - 4%; IT and communications services - 4%; Others - 3% (Financial journal. Romanian private capital, 2015, p. 3).

Detailed by CANE Rev. 2 activities components of the manufacturing industry, the FDI companies had a majority share in their turnover in 19 of them; the six activities in which companies with Romanian private capital had the largest share in the total turnover of the business were Food products, Fabricated metal products, Furniture, Waste collection, purification and disposal, Printing and reproduction of recorded media, Repair, maintenance and installation of machinery and equipment. Data on these activities, which allow performing assessments of their competitiveness, are presented in the following table.

Table 1. Hierarchy of CANE Rev. 2 activities of manufacturing industry depending on their turnover in 2014

| CANE | | Turn- | Number | Profit | Share in the | | Share in the number of employees | | |
|---------------|---|-----------------------|-----------------|-----------------|----------------------------------|----------------------|----------------------------------|----------------------|--|
| Rev.2 Code | Activities | over (mil. lei) | of employees | Rate (%) | Romanian private companies | FDI compani es | Romanian private companies | FDI compa nies | |
| 29 | Motor vehicles, trailers and semi- trailers | 56665 | 132236 | 3 | 4 | 96 | 9 | 91 | |
| 10 | Food products | 39110 | 155398 | 3 | 66 | 34 | 82 | 18 | |
| 19 | Coke and refined petroleum products | 20921 | 2891 | 0 | 3 | 97 | 21 | 79 | |
| 22 | Rubber and plastic products | 18902 | 52859 | 9 | 29 | 71 | 50 | 50 | |
| 24 | Basic metals | 17570 | 30553 | 9 | 17 | 83 | 24 | 76 | |
| 25 | Fabricated metal products, except machinery and equipment | 16347 | 85993 | 9 | 51 | 46 | 65 | 29 | |
| 27 | Electrical equipment | 13945 | 38969 | 4 | 18 | 82 | 25 | 75 | |
| 16 | Manufacture of wood and of products of wood, except furniture | 13154 | 52977 | 6 | 42 | 58 | 70 | 30 | |
| 23 | Other non-metallic mineral products | 11633 | 37218 | 6 | 48 | 52 | 70 | 30 | |
| 28 | Machinery and equipment n.e.c. | 11492 | 48899 | 7 | 28 | 72 | 49 | 50 | |
| 14 | Wearing apparel | 9537 | 147165 | 7 | 49 | 51 | 59 | 41 | |
| 11 | Beverages | 9450 | 18395 | 4 | 18 | 82 | 33 | 67 | |
| 31 | Furniture | 9310 | 63515 | 6 | 52 | 48 | 67 | 33 | |
| 20 | Chemicals and chemical products | 9265 | 23460 | 6 | 29 | 62 | 35 | 43 | |
| 38 | Waste collection, purification and disposal, recovery of recyclable materials | 8907 | 38824 | 4 | 60 | 35 | 65 | 14 | |
| 26 | Computers, electronic, optical and electrical products | 6904 | 26429 | 6 | 26 | 74 | 29 | 71 | |
| 30 | Other transport equipment | 6641 | 33441 | 6 | 37 | 61 | 56 | 39 | |
| 13 | Textiles | 5416 | 32304 | 5 | 34 | 66 | 45 | 55 | |
| 15 | Leather and footwear | 5176 | 59413 | 6 | 31 | 69 | 52 | 48 | |
| 17 | Paper and paper products | 3751 | 11831 | 5 | 46 | 54 | 61 | 39 | |
| 21 | Basic pharmaceutical products and pharmaceutical preparations | 3555 | 9132 | 10 | 35 | 56 | 43 | 42 | |
| 18 | Printing and reproduction of recorded media | 3166 | 15066 | 11 | 56 | 27 | 74 | 18 | |
| 33 | Repair, maintenance and installation of machinery and equipment | 2900 | 21152 | 8 | 55 | 33 | 65 | 13 | |
| 32 | Other industrial activities n.e.c. | 1900 | 15082 | 15 | 42 | 58 | 43 | 57 | |

Source: Financial Journal, Romanian private capital, 2015, Table 4

Manufacturing activities where FDI companies have an overwhelming share, of over 80%, in the turnover of each activity are technologically medium-high (Motor vehicles, Electrical equipment), medium-low (Coke and refined petroleum products, basic metals) and low (Beverages). Three of the first four activities from the table occupy a central place in the economy, in that spread their products throughout the economy, in this way inducing elements to increase competitiveness in the beneficiary activities. In all manufacturing activities there are differences between the shares of FDI companies in turnover and number of employees and those for companies with Romanian private capital, which highlights gaps also large between productivities registered by the two categories of companies, which will be analysed in more detail below.

The most illustrative example of the positive impact of FDI on manufacturing activities development is provided by Manufacture of motor vehicles, where the FDI companies have an almost exclusive presence (96%), which increased its share in manufacturing turnover from about 8.2% in 2005 to 13.9% in 2012, and 18.5% in 2014. Increases appreciable were also registered by other activities present in the top hierarchy of the table where, similarly, FDI companies have high shares of their contribution to the turnover of the business.

Influence on Employment

Thanks to higher productivity achieved, the FDI companies from manufacturing operate with substantially fewer employees comparative with Romanian private companies, and one could, therefore, to conclude that they have a relatively less contribution to the use of labour force.

Of the 1,154,202 employees in manufacturing activities in 2014, 499,939 companies were appointed in FDI companies, which represent a share of 43.3%. Motor vehicles activity has the greatest number of employees in FDI companies (120,334), followed at great distance by Manufacture of wearing apparel (60,338 employees).

Analysis based on simple linear regression (of the form: $Y = \alpha + \beta X + \epsilon$, where Y is the dependent variable, namely Employment; α - free term; β - parameter of independent variable; X - the independent variable, namely FDI stock; ε - error term of the equation) of correlation between the FDI stock and employment in manufacturing industry has led to the conclusion that there is a sufficiently close correlation between the two indicators. Calculations using EViews 7.1 program led to the parameters in the following table.

Table 2. Parameters of correlation FDI stock - Employment in manufacturing industry

| Dependent variable: Employment in manufacturing industry | | | | | | | | | | |
|--|-----------|----------|-----------|--------|--|--|--|--|--|--|
| Method: Least squares Period: 2005-2013 Number of observations: 9 | | | | | | | | | | |
| Variable Coefficient Standard error t-Statistic Probability | | | | | | | | | | |
| Y (Resultant: Employment in manufacturing industry – without FDI) | 2412,271 | 171,1540 | 14,09415 | 0,0000 | | | | | | |
| FDI stock in manufacturing industry (Explanatory) | -0,040302 | 0.011065 | -3,642295 | 0,0083 | | | | | | |
| Coefficient of correlation between variables, $R = 0.809072 R$ adjusted = 0,777982 | | | | | | | | | | |

Coefficient of multiple determination, $R^2 = 0.654599 R^2$ adjusted = 0.605256

Durbin Watson statistic = 1,098655 (positively correlated errors)

R parameter value is quite close to 1, which would indicate a medium-high correlation of the two indicators. According to the value of R2, 65.5% of the variation from the mean of the Population employed in manufacturing industry are given by variation from the average of expression Population employed in manufacturing = 2412.271-0.040302xFDI Stock in manufacturing, the remaining of 34.5 % being errors dispersion. In the period under review, the influence of the FDI Stock on Employment in manufacturing is given by the value of Student statistic, -3.642295, so the influence is significantly negative, meaning it is less than that of the constant (Student statistic = 14.09415). I order error is 0.83% for influence of FDI stock in manufacturing, i.e. less than 0.005% for constant.

Analysis of the correlation between the FDI stock in manufacturing and another indicator concerning the use of labour in the industry, namely number of employees, demonstrated a link relatively close between these indicators. Parameters on which the analysis was performed are presented in the following table.

Table 3. Parameters of correlation between FDI stock and Average number of employees in the manufacturing industry

| Dependent variable: Average number of employees in the manufacturing industry | | | | | | | | | | |
|---|--|----------|-----------|--------|--|--|--|--|--|--|
| Method: Least squares Period: 2005-2013 Number of observations: 9 | | | | | | | | | | |
| Variable Coefficient Standard error t-Statistic Probability | | | | | | | | | | |
| Y (Resultant: Average number of employees in the manufacturing industry – without FDI) | 1880,254 | 166,8534 | 11,26889 | 0,0000 | | | | | | |
| FDI stock in the manufacturing industry (Explanatory) | 0,044743 | 0,010787 | -4,147914 | 0,0043 | | | | | | |
| Coefficient of correlation bety | Coefficient of correlation between variables, R = 0.843093 R adjusted = 0.818225 | | | | | | | | | |

Coefficient of correlation between variables, R = 0.843093 R adjusted = 0.818225 Coefficient of multiple determination, $R^2 = 0.710806 R^2$ adjusted = 0.669492

Durbin Watson statistic = 1,126232 (positively correlated errors)

The correlation coefficient between variables R is relatively close to 1, which corresponds to a medium-high correlation of the two indicators analysed. The value of R² indicates that 71.1% of the variation from the mean of the Average number of employees in manufacturing are given by the variation from the mean of expression Average number of employees in manufacturing=1880.254-0.044743xFDI stock in manufacturing. The negative coefficient for explanatory variable FDI Stock means that the Average number of employees in the manufacturing industry depends linearly decreasing of the respective Stock and, therefore, the correlation between the FDI stock in the manufacturing industry and the estimated Number of employees in the same industry is -0.843093. The correlation is equal to the unadjusted R mode, the sign is identical to the coefficient of FDI Stock in manufacturing. Significance of FDI Stock in manufacturing influence is analogous (slightly larger) than that in the case of Employment in manufacturing: Student statistic = -4.147914 (0.43% error). Also, significance of constant is analogous: Student statistic = 11.26889, which means a slightly less significance than that in the case of Employment: the error is slightly higher, but remains lower than 0.005%.

Influence on Productivity

The figures presented in Table 1 on turnover and number of employees registered by the two categories of companies - private and FDI -, highlight significant differences in productivity between the two categories, displayed in the following table, which included also productivity achieved by state companies in some industrial activities in which they still exist.

Table 4. Productivity of Romanian companies, by categories depending on capital nature, 2014 (turnover/number of employees, lei/employee/year)

| CAN | | Productivity (W) | | | | | |
|--------------------|--|------------------|---|--------------------|--|--|--|
| E Rev.2 Code | Activities | State companies | Companies with Romanian private capital | FDI com- panies | | | |
| 29 | Motor vehicles, trailers and semi-trailers | = | 142833 | 456770 | | | |
| 10 | Food products | = | 202571 | 475385 | | | |
| 19 | Coke and refined petroleum products | - | 1034596 | 8884851 | | | |

Table 4 (cont.)

| | T= | | T | Tubic 4 (com.) |
|----|---|--------------------|--------|----------------|
| 22 | Rubber and plastic products | - | 129638 | 1269391 |
| 24 | Basic metals | - | 407337 | 628036 |
| 25 | Fabricated metal products, except machinery and | 94961 | 149155 | 301548 |
| | equipment | 7 4 701 | 149133 | 301346 |
| 27 | Electrical equipment | - | 257647 | 391248 |
| 16 | Manufacture of wood and of products of wood, | | 148986 | 480023 |
| | except furniture | - | 140900 | 460023 |
| 23 | Other non-metallic mineral products | - | 214332 | 541782 |
| 28 | Machinery and equipment n.e.c. | - | 131621 | 338405 |
| 14 | Wearing apparel | | 53820 | 80613 |
| 11 | Beverages | - | 280184 | 628773 |
| 31 | Furniture | - | 113759 | 213216 |
| 20 | Chemicals and chemical products | 161597 | 327244 | 569389 |
| 38 | Waste collection, purification and disposal, | 53324 | 206452 | 559103 |
| | recovery of recyclable materials | 33344 | 200432 | 337103 |
| 26 | Computers, electronic, optical and electrical | _ | 234212 | 272262 |
| | products | - | | |
| 30 | Other equipment of transport | 79545 | 131201 | 310612 |
| 13 | Textiles | - | 126642 | 201216 |
| 15 | Leather and footwear | - | 51950 | 125219 |
| 17 | Paper and paper products | - | 239019 | 439098 |
| 21 | Basic pharmaceutical products and | 222577 | 216701 | 510166 |
| | pharmaceutical preparations | 233577 | 316781 | 519166 |
| 18 | Printing and reproduction of recorded media | 446473 | 159028 | 315265 |
| 33 | Repair, maintenance and installation of | 74790 | 116008 | 348000 |
| | machinery and equipment | 74790 | 110008 | 340000 |
| 32 | Other industrial activities n.e.c | - | 123053 | 128184 |
| | | | | |

Source: Processing achieved by the authors of data from Financial journal. Romanian private capital, 2015. Table 4

Productivity differences revealed by the figures in the table between the activities of manufacturing for the same category of companies - state, with Romanian private capital, and FDI - are normal to an extent, being determined, primarily, by the nature - capital-intensive or labour-intensive - of the activity carried out, the object of this activity - capital goods, intermediate goods, durables or current consumer goods -, and the intensity of market demand for these goods (depending on the selling prices and the achieved turnover). Beyond these limits, the differences are determined in variable extents, by the quality of work organization, employed human factor, companies' management, which can be substantial advantages in competitive struggle on each activity market. Differences in the type of activity and possessing competitive advantages made, for example, that between productivities registered in 2014 by companies with Romanian private capital in activity Coke and refined petroleum products and activity Leather and footwear is a ratio of 19.9: 1. In the case of FDI companies, the same ratio between the same activities is 70.1: 1. For the example of these two activities located at the extremes of the variation interval in productivity, differences between ratios registered by the two categories of companies reveal high capacity of the FDI companies to hold and superior turn to account the competitive advantages they have.

Competitive potential differences between the two categories of companies, revealed by differences in productivity, exist in all manufacturing activities, the highest being recorded at NACE 22. activity Rubber and plastic products (ratio 9.8: 1) and lowest at NACE 32. Other industrial activities (ratio 1.04: 1), as shown in the following figure.

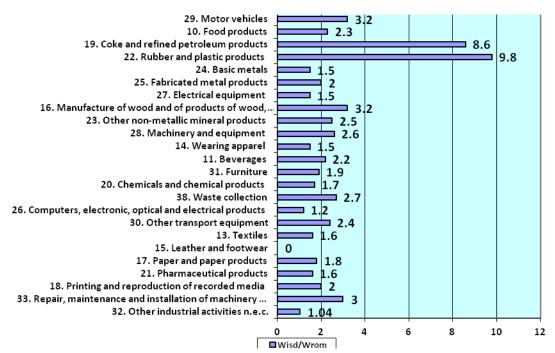


Fig. 1. Ratio of productivities registered by the FDI companies and Romanian private capital companies, by CANE manufacturing activities, 2014

Source: Processing achieved by the authors of data from Financial journal, Romanian private capital, 2015, Table 4

Compared with Romanian state-owned companies, FDI companies recorded, in 2014, differences in productivity significantly higher than those performed compared with Romanian private capital companies, shown in the following figure, which highlights the modest competitive potential of public owned companies, much lower than that of the domestic private capital companies.

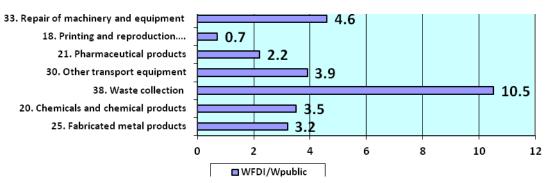


Fig. 2. Ratio of productivities registered by the FDI companies and Romanian state-owned companies, by CANE manufacturing activities, 2014

Source: Processing achieved by the authors of data from Financial journal. Romanian private capital, 2015, Table 4

Contribution of FDI companies to competitiveness growth of the Romanian economy and manufacturing industry is, from the productivity viewpoint, significantly more consistent than that of companies with Romanian private capital and, especially, of the state companies. Through higher productivity they achieved compared to the other two categories of companies, FDI companies intensify competition on the domestic and international markets, and this is the most effective way to promote higher efficiency in the economy and increase its competitiveness. Superior competitive potential of FDI companies is manifested in two

directions - as a key driver in that improves market by removing the less effective or ineffective operators, and as a regulator factor, of balance, on the market, in that it provides better short-term allocation of production factors, and long-term effects - technological spillover, intensified capital accumulation and economic growth. In addition, the power of example provided by FDI companies can act as an effective factor to stimulate local entrepreneurs to assimilate manufacturing, marketing, financial, organizational and managerial good practices of foreign investors, to intensify efforts to develop human capital, and adopt strategies and policies consonant with those applied by these investors in order to position themselves more advantageous on market.

Influence on Value Added

Since there is no domestic or international statistical data on value added at factors cost detailed by manufacturing activities and companies depending on the nature of capital (public, Romanian private, FDI), one cannot make assessments of FDI influence on this indicator for each activity.

FDI companies achieved a share of gross value added (GVA) at factors cost in turnover lower in three sectors of the economy - industry, construction and trade -, a situation seen in the cited publication of Financial journal as surprising, whereas the FDI companies prevail in the overwhelming majority of CANE industrial activities.

The explanation offered by the same source is that FDI companies operate in the middle of their activities specific value chains, in the sense that import parts and components, assemble them in the country and export intermediate goods, which means that GVA achieved in the country is lower. Conversely, companies with Romanian private capital cover large segments of their business specific value chains, which make that the profit (part of GVA) from the sale of final products and VAB to be higher.

Influence on Exports

FDI companies have a key role in the country's foreign trade ties, their contribution representing, in 2014, 70.9% of exports and 64.7% of imports. Most of these figures was covered by manufacturing industry, i.e. 61.8% in exports and 44.1% in imports.

On activities NACE Rev.2 components of the manufacturing industry, the share of FDI companies in their export was, in 2014, of a majority in nine of the ten groups of activities presented in the following table; import contribution of FDI companies has been of a majority in all ten groups, something which highlights the fact that companies with foreign capital were responsible for most of the deficit trade balance which, in some previous years, had reached alarming proportions (for example, in 2007, when coverage of import by export reached the lowest level after 1990, export - 29.5 billion euros, imports - 51.3 billion euros, trade deficit: - 21.8 billion euros). Table covers the years 2010-2014, for which the National Bank of Romania provided data, highlighting changes that have occurred in the respective period and trends that manifested in FDI companies' participation to foreign trade ties of the manufacturing industry.

| | Year | Me- ta- lur- gy | Food, beve- rages, tobac- co | Means of trans- port | Brut oil pro- ces- sing, chemi- cal pro- ducts, rub- ber and plas- tic pro- ducts | Ce- ment, glass, cera- mics | Manu- factu- re of wood pro- ducts, inclu- sive furni- ture | Tex- tiles gar- ments, lea- ther | Computers, electronic, optical and electrical products | Machi- nery and equip- ment | Other manu- factu- ring indus- tries | Total manu- factu- ring indus- try |
|--------|------|--------------------------|--|-------------------------------|---|---|---|---|--|---|---|---|
| | 2010 | 7,6 | 0,9 | 18,7 | 8,2 | 0,4 | 3,4 | 8,3 | 10,2 | 2,9 | 0,6 | 61,2 |
| Share | 2011 | 7,7 | 0,9 | 18,2 | 8,9 | 0,3 | 3,1 | 7,6 | 9,4 | 2,6 | 0,6 | 59,3 |
| in | 2012 | 7,2 | 1,2 | 19,3 | 9,7 | 0,4 | 3,4 | 7,6 | 6,0 | 2,7 | 0,6 | 58,1 |
| export | 2013 | 5,7 | 1,3 | 24,4 | 9,2 | 0,4 | 3,8 | 6,7 | 5,5 | 3,1 | 0,7 | 60,8 |
| | 2014 | 6,2 | 1,6 | 22,8 | 10,0 | 0,3 | 3,9 | 6,8 | 6,2 | 3,3 | 0,7 | 61,8 |
| | 2010 | 3,5 | 2,2 | 10,7 | 9,8 | 0,6 | 0,9 | 4,6 | 7,6 | 1,2 | 0,7 | 41,8 |
| Share | 2011 | 3,5 | 2,1 | 10,9 | 10,6 | 0,5 | 0,9 | 4,6 | 6,5 | 1,3 | 0,6 | 41,5 |
| in | 2012 | 3,3 | 2,3 | 11,7 | 10,8 | 0,5 | 0,9 | 4,4 | 4,5 | 1,3 | 0,6 | 40,3 |
| inport | 2013 | 3,0 | 2,3 | 14,5 | 10,5 | 0,5 | 1,0 | 4,3 | 4,7 | 1,6 | 0,7 | 43,1 |
| | 2014 | 3,2 | 2,0 | 14,3 | 11,1 | 0,5 | 1,2 | 4,4 | 5,0 | 1,7 | 0,7 | 44,1 |

Table 5. Shares of FDI companies FDI in external commercial ties, by activities of the manufacturing industry, 2010 ... 2014 (%)

Source: NBR. Foreign direct investment in Romania, annual issues

The figures in the table reveal that, in the period under review, changes in FDI companies' participation to foreign trade were, generally, insignificant, contribution of these companies failed to notably alter the export structure, which continued to be deficient from the efficiency point of view, the share of low processing, primary, products, with low value-added, continuing to remain high.

The only activities where the share of FDI companies increased during the same period, with more than one percentage point, were Means of transport (+4.1 p.p.) and Crude oil processing, chemicals, rubber and plastic products (1.8 p.p.). Three other activities recorded modest increases, and Computers, electronic, optical and electrical products marked a significant setback (-4.0 p.p.), which has adversely affected export efficiency.

Transposition of figures from the preceding table on technological intensity levels of manufacturing activities confirms that assessment (see table below).

| Technological level | | Share in total export | | | | | Share in total import | | | | | |
|---------------------|------|-----------------------|------|------|------|------|-----------------------|------|------|------|--|--|
| of activity | 2010 | 2011 | 2012 | 2013 | 2014 | 2010 | 2011 | 2012 | 2013 | 2014 | | |
| High | 10,2 | 9,4 | 6,0 | 5,5 | 6,2 | 7,6 | 6,5 | 4,5 | 4,7 | 5,0 | | |
| Medium-high | 21,6 | 20,8 | 22,0 | 27,5 | 26,1 | 11,9 | 12,2 | 13,0 | 16,1 | 16,0 | | |
| Medium-low | 16,2 | 16,9 | 17,3 | 15,3 | 16,5 | 13,9 | 14,4 | 14,6 | 14,0 | 14,8 | | |
| Low | 13,2 | 12,2 | 12,8 | 12,5 | 13,0 | 8,4 | 8,4 | 8,2 | 8,3 | 8,3 | | |
| Manufacturing | 61,2 | 59,3 | 58,1 | 60,8 | 61,8 | 41,8 | 41,5 | 40,3 | 43,1 | 44,1 | | |

Table 6. Shares of FDI companies in external commercial ties, by technological intensity levels of manufacturing activities, 2010 ... 2014 (%)

Source: Processing achieved by the authors of data from NBR. Foreign direct investment in Romania, annual issues

The only group of activities, systematized by their technological intensity, in which occurred, in the period under review, significant changes was the one of medium-high technological level, within which the Means of transport, the group with the most prominent dynamic, actually was a real "locomotive" of exports by its spectacular development. At group of activities with high

No

No

technological level the share of FDI companies in its exports halved in the period under review, further proof of the fact that the interests of foreign capital are not always convergent with those of the Romanian economy, whose competitiveness growth would be substantially supported by increasing exports of technological intensive goods.

Trends on the side of imports – in which the shares of FDI companies are lower at all levels of technological intensity compared with those recorded at export - are congruent with those stated with respect to export, suggesting, indirectly, exports reliance of these companies largely on their imports to support their productive activity in Romania.

Using Granger causality test to extend the analysis of how the FDI stock influences manufacturing activities' export led to the parameters in the following table.

Final Number Quantile Num-Activities or groups of order of of degrees Granger ber of Quantile F of compa-Error activities integraof causality rison values tion freedom Metalurgy 8 0,869680904 F(1,5)0,3385 1 5 Food, beverages, 2 7 2 0,8478 0,426406381 F(2,2)tobacco 2 7 2 11,97451652 F(2,2) 0,0003 Means of transport

Table 7. Granger causality of FDI stock influence on manufacturing activities' export

Yes Refined petroleum products, chemical 5 1 8 2,425179107 F(5,1)0,0139 Yes products, rubber and plastic Cement, glass, 8 5 0,9999 1 0,013583489 F(5,1)No ceramics Manufacture of wood and of 2 7 2 0,413067337 F(2,2)0,8523 No products of wood, except furniture Textiles, wearing 2 7 2 0,9817 0,190206988 F(2,2)No apparel, leather Computers, electronic, optical 2 7 2 0,533159195 F(2,2)0,7759 No and electrical equipment Machinery and 7 2 2 0.751690584 F(2,2)0,6366 No equipment Other 2 1 0,202129413 0,9954 manufacturing 6 F(2,1)No activies

Note: F= (Dispersion without FDI)-(Dispersion with FDI)/(Dispersion with FDI)xFinal order/Degrees of freedom

When F is small, FDI does not stand for Granger cause. This means that FDI is Granger cause only in the case of activities Means of transport and Refined petroleum products, chemical products, rubber and plastic.

In other words, for Means of transport activity export value in year t is influenced by the size of FDI stock in the years t-1 and t-2. In the case of the second activity, export value in the year t is influenced only by the FDI stock in the year t-1.

For all other activities or groups of activities, export value in the year t is not dependent on FDI stock in previous years, the only possible dependence of export of the FDI stock being just for current values.

Conclusions

As the main beneficiary of inflows of FDI over the years, manufacturing has experienced, under the impact of foreign investment, some beneficial structural changes which contributed, surely, to increase the international competitiveness of Romanian products and services, reflected in the spectacular exports' growth in recent years. The main changes were the modest increase of the share in the industrial production total value of sectors of high and medium-high technology to the detriment of medium-low and low technology sectors, stronger specialization of industrial activities on more limited lists of products - set according to the demand in the domestic and international markets -, and increase the quality level of products and services as a prerequisite for successfully facing competition in these markets.

The changes were, however, of small magnitude, far from that desired and expected, the best proof of this is keeping the general characteristics of the Romanian industrial model - overall level of technological intensity of manufacturing activities relatively modest, low factor productivity, energy-intensity still high, capital – labour ratio low, high export share (but declining) of products specific to traditional industries, with low added value.

If the direct effects of FDI were not at the expected level, those indirect – consisting, mainly, in technological and know how brought by foreign investors spillover in the whole economy -, difficult if not impossible to assess in their fullness, cannot be overlooked whereas they contribute, more or less substantially, to increase efficiency of productive activities.

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