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The Opening of Eastern Europe: Regional Variations in the Economic Consequences for Austria.
Some Empirical Results for Manufacturing

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1. Introduction

The opening of Eastern European countries\(^1\) may be regarded - at least from an economic perspective - as the removal of a border. Formerly existing barriers to economic interactions between the Eastern and Western parts of Europe diminished from 1989 on. Eastern European countries are increasingly integrated into the capitalist world economy which will result in new flows of production factors, information and goods. Along with this integration process, an economic transformation is taking place in Eastern Europe shifting the pattern of factor allocation. Finally, a new spatial division of labour is likely to occur in Europe. Eastern European locations will specialize in these economic activities for which it owns absolute or comparative advantages in the price or quantity of production factors, by utilizing internal scale economies, agglomeration effects and/or transaction costs advantages (see in general Krugman 1991). However, reallocation processes will not only happen in Eastern Europe but also in the Western part and may change the pattern of production substantially.

The object of the paper is to analyse some of the economic consequences of the integration of Eastern European countries for the Western part of the continent. Empirical evidence will be given for Austria, with special emphasis laid on regional variations of these consequences. The analysis is limited to manufacturing, economic sectors such as agriculture, tourism, services and trade - which of course are affected by the opening of Eastern Europe, too - will not be considered. The choice of Austria as object of study is motivated by the high potential effects of the opening of Eastern Europe for the country due to its spatial proximity and the traditionally strong economic relations to Eastern Europe.

The paper reports on a study carried out by the authors in 1994. The methodology and main results were already presented elsewhere (see Rammer and Gassler 1994; Gassler and Rammer 1995). In this paper, we confine ourselves to a short overview of the analytical framework and some major findings, dropping all technical details and much of the theoretical discussion. The paper consists of two main sections: In section 2, some of the economic consequences of the opening of Eastern Europe for manufacturing in Austria are discussed, based on a sectoral analysis. In section 3, regional variations in these consequences are analysed using both a sectoral structure approach and a regional structure approach.

\(^{1}\) In this paper, all countries in the former socialist part of Europe are called European Eastern countries, while all countries belonging to the capitalist part of Europe before 1989 are called Western European countries, regardless of their geographical position.
2. Economic Consequences of the Opening of Eastern Europe for Austria: A Sectoral Analysis

The integration of Eastern Europe into the capitalist world economy after a long period of relatively isolated economic and political development has of course tremendous effects both for the Eastern European countries themselves as well as for Western countries. Among others, one consequence concerns shifts in the spatial division of labour between the East and West resulting in the reallocation of production factors, movements of labour, capital and information, and new trade flows. In general, the most important static effects of changes in the European spatial division of labour for Austria (as for all Western European countries) might be summarized as follows (see Aiginger 1993):

- Additional competition on domestic and foreign markets for production of goods which can be produced cheaper in Eastern Europe because of absolute or comparative advantages in input costs. Such products presumably might be labour intensive products, environmental intensive products and low end R&D intensive products as well as agricultural products and raw materials (see Fischer & Rammer 1993; Heitger et al. 1992).

- Additional sales potentials for Austrian products on Eastern European markets, especially for technologically advanced consumer and capital goods where domestic productions in Eastern Europe are not competitive.

- Additional possibilities for reducing labour costs through employing well qualified and cheap workers from Eastern Europe. While direct immigration of workers from Eastern Europe often is prohibited or strongly regulated by Western countries, Austrian firms near to the East-West border might profit from commuters.

- Additional possibilities for Austrian manufacturers to purchase low technology initial goods cheaper from Eastern Europe through subcontracting, job-processing, and self-production on the base of joint-ventures or direct investments.

- Additional locational attractiveness for Austria as country of destination of foreign direct investments by Western firms both in manufacturing and services. Manufacturers may establish a vertical division of labour between Austrian and Eastern European locations using comparative advantages of factor and procurement markets and transactions costs advantages of a central location for gaining scale economies. In the service sector,
marketing divisions may choose Austria as location for their marketing headquarters for Eastern European markets (see Bayer 1994).

In the following, we present a framework for analysing some of the effects mentioned above. The analysis will be restricted to the first and second effect, only. The framework shall allow for the identification of those sectors of the Austrian economy which are either positively (through increasing demand) or negatively (through increasing competition) affected by the opening of Eastern Europe. Three types of affected sectors are distinguished:

- **'Labour cost sensitive sectors':** Labour costs in Eastern Europe countries are extremely low compared to Austrian standards. Although labour productivity is substantially lower, too, there is still a significant difference in efficiency wages (i.e. unit labour costs). Estimates indicate that efficiency wages in Eastern Europe are approximately half of Austrian ones (see Rammer and Gassler 1994; Peneder 1993). It might be expected that Austrian productions which are labour intensive and use a low level of technology, i.e. are in later stages of the product life cycle and mainly compete on the base of product price rather than product quality, will face increasing competition by Eastern European producers, potentially negative effects. This competition may lead to job losses in Austria through relocation and/or closing of production plants.

- **'Environmental cost sensitive sectors':** Eastern European countries also show significantly lower costs for production inputs which are intensively using the environment, i.e. energy, transport, raw materials etc. (see Peneder 1993). In Western European countries, including Austria, there are efforts to reduce pollution and degradation of the environment. Theses efforts are likely to lead to increases in the costs for energy and transport giving Eastern European locations additional advantages in the production of environmental intensive products and put pressure on those fields of production in Austria, which show a high share of energy and transport costs in total costs.

- **'Eastern export profiting sectors':** The diminishing of economic barriers between Eastern and Western Europe opens up new possibilities for trade for both sides. Western firms may profit from the new and large market in Eastern Europe. Market potentials are specially high for those goods which can not be supplied by domestic producers at a qualitative level comparable to Western standards. Increasing exports to Eastern Europe constitute additional income for Western producers which may stimulate growth and result in capacity expansions, new investments and a rise in employment.
a) Identifying 'labour cost sensitive sectors'

In the following, a simple analytical procedure is described aiming to identify those fields of production which use a low level of technology in production and show an unfavourable competitiveness in terms of price (see Aiginger et al. 1993; Peneder and Stankovsky 1993). In a capitalist economy with a competitive labour market, the level of wages being paid reflects the marginal productivity of labour and the average level of qualification of employees. The wage level will tend to be low in those productions which apply relatively much labour and/or relatively little skilled workers while technologically advanced productions pay higher wages because of their demand of higher qualified workers. Therefore, the wage level in a given sector can be used as an indicator for the technological level of production (see Fröhlich 1988).

One of the most accurate indicator for competitiveness in the field of labour costs is the efficiency wage (i.e. unit costs of labour). It is defined as the relation of labour costs to labour productivity for a given production period and a certain production process. For standardized and labour intensive productions - where product quality plays only a minor role for the success on markets and innovations are restricted to process improvements - efficiency wages may be regarded as the most important factor for the competitiveness of a production. A sector will be identified as 'labour cost sensitive' if it meets both of the following prerequisites P₁ and P₂:

\[
P₁: \quad \frac{W_j}{L_j} \leq 0.95 \cdot \frac{\sum_{j=1}^{n} W_j}{\sum_{j=1}^{n} L_j}
\]

\[
P₂: \quad \frac{W_j}{Y_j} \leq 1.10 \cdot \frac{\sum_{j=1}^{n} W_j}{\sum_{j=1}^{n} Y_j}
\]

with \( W_j \), \( L_j \), and \( Y_j \) defined as follows:

- \( W_j \): sum of wages being paid in sector \( j=1, \ldots, n \) in 1991
- \( L_j \): number of employees in sector \( j \) in 1991
- \( Y_j \): value added in sector \( j \) in 1991

In figure 1, all sectors of Austrian manufacturing (on a 3-digit level, 95 sectors in all) which have a wage level of at least 5% below and efficiency wages of at least 10% above the average respective values for total manufacturing in Austrian in 1991 are shown, each sector weighted by the share in total industrial employment. In total, 22% of all manufacturing jobs in Austria are in fields of production which can be characterised as 'labour cost sensitive'. These fields of production mainly cover the manufacturing of textiles, clothing and leather, parts of the timber and metal-working industry and the whole fine-mechanical and optical industry.
b) Identifying 'environmental cost sensitive sectors'

The analytical procedure described below aims to identify those fields of production which use a relatively high amount of production inputs that are polluting or degrading the environment to a larger extent. In general, these inputs may be different sources of energy (coal, gas, oil, electricity), raw materials, transport and so on. The indicator used here is the energy intensity of production, defined as the relation between the total amount of energy used in the production process (measured in monetary units) on the one side, and the value added (as a measure of output) and the number of employees (as a measure of a main input factor), respectively, on the other side. The reasons for choosing only the pecuniary input of energy as a measure for environmental costs of production are, first, the ease of sectoral comparison and, second, the...
fact that regulative actions for reducing environmental pollution often start by introducing taxes on the price of energy inputs.

A sector will be identified as 'environmental cost sensitive' if it meets at least one of the following prerequisites P3 and P4:

\[ P3: \frac{E_j}{Y_j} > \sum_{j=1}^{n} \frac{E_j}{\sum_{j=1}^{n} Y_j} \]

\[ P4: \frac{E_j}{L_j} > \sum_{j=1}^{n} \frac{E_j}{\sum_{j=1}^{n} L_j} \]

where \( E_j \) amount of energy used in sector \( j \) in 1991, measured in monetary terms

Figure 2: 'Environmental Cost Sensitive Sectors' in Austria in 1991 at a 3-digit level

<table>
<thead>
<tr>
<th>Difference between sectoral energy intensity (measured per value added) and average energy intensity in %</th>
<th>Share of sectoral employment in total industrial employment in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difference between sectoral energy intensity (measured per value added) and average energy intensity in %</td>
<td>Share of sectoral employment in total industrial employment in %</td>
</tr>
</tbody>
</table>

Sources: ÖSTAT (Industriestatistik 1991, Arbeitsstättenzählung 1991); calculations by the authors
In figure 2, all sectors of Austrian manufacturing (on a 3-digit level) which have either an energy-value added relation or an energy-labour relation higher than the respective value for the whole Austrian industry are shown, each sector weighted by the share in total manufacturing employment. In total, 13% of all manufacturing jobs in Austria are in fields of production which can be characterised as 'environmental cost sensible'. The sectors identified mainly cover the production of basic materials such as paper, chemicals, fertilizer, synthetic materials, building materials, and basic metals. The production of glass, which is usually regarded as an energy intensive field of production, is not considered due to missing data.

c) Identifying 'Eastern export profiting sectors'

In the following we discuss an analytical procedure for identifying those fields of production within the Austrian production sector which were able to increase their sales to Eastern European countries since their opening to the world economy, making this region to an important market area for their products. As trade figures indicate, the Austrian economy as a whole profited from the increasing demand and the high propensity to import in Eastern European countries. Between 1988 and 1993, exports from Austria to Eastern European countries increased by 60% while imports increased only by 35% (see Stankovsky 1994, 512). Compared to other Western European countries, Austria holds a strong position on Eastern markets. Especially the trade with those four Eastern European countries most advanced in the transformation process (Poland, the Czech Republic, Slovakia and Hungary) shows a huge growth of 103% in exports and 50% in imports between 1989 and 1993, transforming the Austrian trade deficit vis-à-vis those countries in 1989 to a considerable surplus in 1993 (of about 10 billion AS, see Rammer and Gassler 1994). The surplus in exports to Eastern Europe also led to significant positive employment effects for the Austrian economy (see Alzinger 1995). One reason for Austria's prominent position in East-West trade might be the spatial proximity, as trade flow models show that transaction costs represent a major barrier to trade and that vicinity increases trade flows (see Fischer and Rammer 1993; Bröcker and Rohwedder 1990; Hamilton and Winters 1992).

Of course, there are significant sectoral differences in the exploitation of new market possibilities by production sectors. To identify 'Eastern export profiting sectors', three indicators are employed:

• First, the change in the volume of exports to Eastern European countries between 1988/89 and 1992/93 (measuring the level of export-driven growth effects in a sector).
• Second, the relation of changes in exports to changes in imports (measuring if an increase in exports is simply a consequence of trade expansion through integration or a real increase in competitiveness of Austrian firms).

• Third, the share of the volume of exports to Eastern European countries in turnover (measuring the relative importance of Eastern European markets for a sector).

For the empirical measurement of these indicators, Eastern European countries are defined as Poland, the Czech Republic, Slovakia, and Hungary, only. A sector will be identified as being an 'Eastern export profiting sector' if it meets all three of the following prerequisites $P_5$, $P_6$ and $P_7$:

$P_5: \frac{X(92/93)_j}{X(88/89)_j} \geq 1.5$

$P_6: \frac{X(92/93)_j}{X(88/89)_j} > \frac{M(92/93)_j}{M(88/89)_j}$

$P_7: \frac{X(92/93)_j}{T_j} \geq 0.08$

where:
- $X(92/93)_j$ total amount of exports of sector $j$ in 1992 and 1993 from Austria to Eastern European countries (Poland, the Czech Republic, Slovakia, Hungary)
- $M(92/93)_j$ total amount of imports of sector $j$ in 1992 and 1993 by Austria from Eastern European countries (Poland, the Czech Republic, Slovakia, Hungary)
- $X(88/89)_j$ total amount of exports of sector $j$ in 1988 and 1989 from Austria to Eastern European countries (Poland, the Czech Republic, Slovakia, Hungary)
- $M(88/89)_j$ total amount of imports of sector $j$ in 1988 and 1989 by Austria from Eastern European countries (Poland, the Czech Republic, Slovakia, Hungary)
- $T_j$ turnover in sector $j$ in 1991

In addition, sectors with a volume of exports of more than 1 billion AS in 1992/93 are also counted as 'Eastern export profiting sectors', even if they do not meet $P_7$ (but meet $P_5$ and $P_6$).

In figure 3, all sectors of Austrian manufacturing (on a 3-digit level) are shown which increased their exports to Poland, the Czech Republic, Slovakia, and Hungary in total by at least 50% between 1988/89 and 1992/93 without increasing their imports at the same or even a higher rate, and which had an average annual volume of exports to those countries in 1992 and 1993 of at least 4% of their turnover and/or 0.5 billion AS. Again, each sector is weighted by the share in the total number of employees in manufacturing. In total, 28.5% of all manufacturing jobs in Austria are in fields of production which can be characterised as profiting from exports to Eastern Europe.
The sectors identified mainly cover technology intensive productions such as the electric and electronic industry, machinery industry, chemical and pharmazeutical industry, automotive industry, and fine-mechanical and optical industry. Surprisingly, also some sectors already identified as 'labour cost sensitive' or 'environmental cost sensitive' are also identified as 'Eastern export profiting sectors' (paper production, steel production, parts of the clothing and timber industry). These fields of production are expected to loose their strong position on Eastern European markets at least in the medium term, when competitive domestic productions are established in Eastern Europe.
3. Regional Variations in the Economic Consequences of Opening Eastern Europe

In a first attempt, we analyse regional variations in the economic consequences of the integration of Eastern Europe for Austria using a simple sectoral structure approach. For each Austrian region (defined as 99 administrative districts, so-called 'politische Bezirke') the share of employment in each of the three types of potentially affected sectors as well as the balance of positively and negatively affected sectors in total regional industrial employment is calculated (not considering sectors which are identified both as positively and negatively affected, i.e. assuming that both effects are equalized). Figure 4 shows the results for 'labour cost sensitive sectors', figure 5 for 'environmental cost sensitive sectors', and figure 6 for 'Eastern export profiting sectors', while figure 7 shows the balance of jobs in either potentially positively or negatively affected sectors. Employment data refer to the year 1991.

We will not discuss the empirical findings in any detail but stress some of the main findings, only:

- Regions with high shares of employment in 'labour cost sensitive sectors' (figure 4) are first of all peripheral regions either located at the North and East periphery of Austria or in inner-alpine peripheries. These regions are in general characterised by a low rate of industrialization, a high share of female workers in production, a relatively low educated population, and a relatively poor accessibility to the main markets. In terms of per capita income, they may be called less-developed regions for Austrian standards. Therefore, these areas have been in the centre of regional policy in Austria from its beginning. The opening of Eastern Europe is likely to intensify the economic and social problems in this type of region.

- Regions with high shares of employment in 'environmental cost sensitive sectors' (figure 5) represent main parts of the industrial heartland of Austria, but exclude most of the technology oriented urban regions. This type of region is known as 'old industrial areas' and faced serious economic problems from the recession in 1974/75 on resulting in a decline in employment, plant closures and the highest rates of unemployment in Austria in the 1990's. The main reason for its unfavourable economic development is seen in the gradual aging of the dominating basic industries (like mining, steel and paper production, metal-working etc.). Simultaneously, processes of adjustment were blocked by regional barriers on the supply side such as a lack of innovative ability, inflexible regional labour
Figure 4: Regional Employment in 'Labour Cost Sensitive Sectors' in Austria 1991

Employment in 'labour cost sensitive sectors' as a share in total employment in manufacturing (in %)

- 0.00 - 4.99
- 5.00 - 9.99
- 10.00 - 14.99
- 15.00 - 19.99
- 20.00 - 24.99
- 25.00 - 29.99
- 30.00 - 39.99
- 40.00 a.m.

Sources: ÖSTAT (Industriestatistik 1991, Arbeitsstellenzählung 1991), calculations by the authors

Figure 5: Regional Employment in 'Environmental Cost Sensitive Sectors' in Austria 1991

Employment in 'environmental cost sensitive sectors' as a share in total employment in manufacturing (in %)

- 0.00 - 4.99
- 5.00 - 9.99
- 10.00 - 14.99
- 15.00 - 19.99
- 20.00 - 24.99
- 25.00 - 29.99
- 30.00 - 39.99
- 40.00 a.m.

Sources: ÖSTAT (Industriestatistik 1991, Arbeitsstellenzählung 1991), calculations by the authors

Figure 6: Regional Employment in 'Eastern Export Profiting Sectors' in Austria 1991

Employment in 'Eastern export profiting sectors' as a share in total employment in manufacturing (in %)

- 0.00 - 4.99
- 5.00 - 9.99
- 10.00 - 14.99
- 15.00 - 19.99
- 20.00 - 24.99
- 25.00 - 29.99
- 30.00 - 39.99
- 40.00 a.m.

Sources: ÖSTAT (Industriestatistik 1991, Arbeitsstellenzählung 1991), calculations by the authors

Figure 7: Regional Variations in Some Economic Consequences of the Opening of Eastern Europe: Balance of Employment in Potentially Negatively or Positively Affected Sectors in Austria 1991

Difference between the shares of employment in positively and negatively affected sectors (in % of total employment in manufacturing)

-35.00 a.t.
-30.00 - 25.01
-25.00 - 20.01
-20.00 - 15.01
-15.00 - 10.01
-10.00 - 5.01
-5.00 a.m.

markets, and little entrepreneurial activities (see Steiner 1985, 1990; Tichy 1987; Palme 1988, 1989; Geldner 1989). The integration of Eastern Europe into the world economy seems to give further pressure to the ongoing process of restructuring.

• Regions with high shares of employment in 'Eastern export profiting sectors' (figure 6) are primarily the urban centres of Austria, were most of the technologically advanced production activities are located (see Fischer et al. 1994; Gassler 1993; Tödtling 1992). However, many of the regions showing a high share of employment in 'environmental cost sensible sectors' are identified here again. The main explanation therefore is the existence of paper and steel productions in these regions. Steel and paper production are on the one hand very energy intensive but on the other hand could also open up new markets in Eastern Europe at least in the short run.

• The balanced shares of employment in either potentially positively or negatively affected sectors in Austrian manufacturing (figure 7) may be regarded as a first and crude picture of regional 'winners' and 'losers' of the opening of Eastern Europe. Most of the central areas show a positive balance of employment in affected sectors while in most of the less-developed regions employment in potentially negatively affected sectors is predominating. As a larger number of the latter regions are directly bordering to Eastern European countries, this evidence might represent a burden to local cross-border cooperations: If the Austrian population in these regions perceives the current economic problems, such as unemployment, at least partially caused by the opening of Eastern Europe its willingness to cooperation and stronger integration on a local level might be reduced.

One major shortcoming of the findings above is, of course, the assumption that all jobs in potentially affected sectors experience the same degree of affectedness. This assumption is certainly not valid as different sectors within e.g. 'labour cost sensitive sectors' show different wage levels and efficiency wages. Therefore, the effects of increased competition by Eastern European producers will be different, too. For 'environmental cost sensitive sectors' and 'Eastern export profiting sectors' the same holds true (see figures 1-3).

Another major shortcoming stems from the implicit assumption of interregional sectoral homogeneity in the variables relevant for the sector's affectedness to the opening of Eastern Europe. This assumption is again unrealistic as economic sectors on a 3-digit level are still inhomogenous grasping quite different kinds of production with clearly distinguished production functions and locational requirements. Within each sector a spatial division of labour
is likely to occur where each production is located at that location offering the optimal set of locational factors. Furthermore, some variables such as exports to Eastern Europe may vary strongly between individual firms of the same field of production due to differences in firm characteristics independent from production characteristics.

To analyse regional variations of potential economic effects of the opening of Eastern Europe which are independent from the region's sectoral structure of production, we use a simple analysis based on a 'shift-and-share' approach. For each region, the actual value (AV) for each of the indicators described above (i.e. wage level, efficiency wages, energy intensities, growth of exports to Eastern Europe, etc.) is calculated. This value is compared with the structural value (SV) which indicates the expected value if all sectors would behave homogenous in all regions (concerning the relevant indicators). The relation between the real and the structural value is termed residual value (RV) and measures the extent to which the behaviour of the regional economy differs from the behaviour expected by its sectoral structure. Because of lack of data, this analysis could carried out only for indicators measuring 'labour cost sensitivity' and 'environmental cost sensitivity'. All data refer to the year 1991.

\[
\text{AV}_i = \frac{x_i}{y_i} / \left( \sum_{i=1}^{m} \frac{x_i}{y_i} \right)
\]

\[
\text{SV}_i = \left[ \frac{\left( \sum_{j=1}^{n} b_{ij} x_j \right)}{\left( \sum_{j=1}^{n} b_{ij} y_j \right)} \right] / \left[ \frac{\left( \sum_{j=1}^{n} b_j x_j \right)}{\left( \sum_{j=1}^{n} b_j y_j \right)} \right]
\]

\[
\text{RV}_i = \frac{\text{AV}_i}{\text{SV}_i}
\]

with
\[
b_{ij} = \frac{B_{ij}}{\sum_{j=1}^{n} B_{ij}} \quad \text{and} \quad b_j = \frac{B_j}{\sum_{j=1}^{n} B_j}
\]

where
- \(x_i, y_i\) variables for measuring the relevant indicators in region \(i = 1, \ldots, m\) in 1991
- \(x_j, y_j\) variables for measuring the relevant indicators in sector \(j = 1, \ldots, n\) in 1991
- \(b_{ij}\) share of employment of sector \(j\) in total employment in manufacturing in 1991
- \(b_{ij}\) share of employment of sector \(j\) in region \(i\) in total regional employment in manufacturing in 1991
- \(B_j\) number of employees in sector \(j\) in 1991

In table 1, correlation coefficients (Pearson's product-moment correlation coefficient) between AV and SV, AV and the regional share of employment in potentially negatively affected sectors (RE), and RV and RE are reported. Special attention should be paid to the last row of the table representing a measure for regional variations in affectedness independent from the sectoral structure of the regional economy. In the case of 'labour cost sensitivity' there is clear evidence that regions with high shares of employment in potentially negatively affected sectors show a wage level considerably below that one expected because of their sectoral structure. This fact
suggests that sectors with a low wage level pay particular low wages in regions where they dominate the regional economy (at least in the sphere of manufacturing). The same holds true for the level of efficiency wages which tend to be higher in regions already possessing a high share of jobs in 'labour cost sensible sectors'. In the opposite, no evidence was found for an additional affectedness of regions with a high share of employment in 'environmental cost sensitive sectors'.

Table 1: Selected Correlation Coefficients between Actual, Structural and Differential Values of a 'Shift-and-Share-Analysis', and Regional Shares of Employment (RE) in Austrian Sectors Negatively Affected by the Opening of Eastern Europe (1991)

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Wage Level</th>
<th>Efficiency Wages</th>
<th>Energy Intensity I</th>
<th>Energy Intensity II</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV : SV</td>
<td>+0.72</td>
<td>+0.53</td>
<td>+0.58</td>
<td>+0.50</td>
</tr>
<tr>
<td>AV : RE</td>
<td>-0.48</td>
<td>+0.13</td>
<td>+0.51</td>
<td>+0.52</td>
</tr>
<tr>
<td>RV : RE</td>
<td>-0.39</td>
<td>+0.11</td>
<td>+0.03</td>
<td>+0.07</td>
</tr>
</tbody>
</table>

1 Energy in relation to value added
2 Energy in relation to employment

Sources: ÖSTAT (Industriestatistik 1991, Großgewerbestatistik 1991, Arbeitsstättenzählung 1991), calculations by the authors

4. Summary

In this paper, we made an attempt to analyse some of the likely effects of the opening of Eastern Europe on manufacturing in Austria. Special emphasis was laid on the spatial variations in these effects. On the base of a sectoral analysis, three types of production sectors were distinguished, each being affected by the ongoing integration process in a different way. So-called 'labour cost sensitive sectors' might face additional competition due to labour cost advantages of Eastern European producers while 'environmental cost sensitive sectors' might be threatened by lower prices for energy in Eastern Europe. One major type of positively affected productions were summarized as 'Eastern export profiting sectors' which could experience important additional sales potentials on Eastern European markets. The main results of the study reported here emphasize the great importance of the integration of Eastern European countries for the Austrian economy. According to our sectoral analysis, more than 60% of industrial employment are either positively or negatively affected.

Of course, there are considerable spatial differences in the potential consequences as regions are often specialised in specific fields of production. Two clearly distinguishable types of regions could be observed regarding the specialisation on potentially negatively affected sectors:
Peripheral, relatively less-developed regions often have a high share in 'labour cost sensitive' productions while many traditional industrial areas show very high shares in 'environmental cost sensitive' productions. 'Eastern export profiting sectors' are mainly clustered at and surrounding urban centers and at modern industrial districts where some kind of innovative milieu exists.

Our approach for analysing regional variations in the likely economic consequences of the integration of Eastern Europe into the capitalist world economy is only tentative and shows major shortcomings. First, the analysis were restricted only to some consequences of the ongoing process of integration not taking into account a large number of other types of economic and non-economic consequences. Second, not all fields of production within one of the three types of potentially affected sectors mentioned show the same degree of affectedness. Rather there exist substantial differences which also can be seen in figures 1-3. Third, our approach only represents a classification of sectors and makes no attempt to measure any kind of quantitative effects. Finally, regional variations in the affectedness not only stem from the region's sectoral structure. Further factors likely to be important concern regional differences in the access of relevant information for investment in and trade with Eastern Europe, regional differences in relevant firm characteristics such as firm size, corporate status and innovative ability, regional differences in the distance to Eastern Europe resulting in different transaction costs and many more.

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