Varieties, Jobs and EU Enlargement

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Abstract

Two key factors that have so far allowed fast growing economies of central and eastern Europe to cope with their external constraint have been i) the presence of relatively low unit labour costs and ii) the initial undervaluation of the exchange rate. The accession to the EU will inevitably reduce both sources of competitiveness of eastern European exports: real wages are likely to catch-up western European levels and current EU members are pushing these countries to enforce labour market and social regulations that will increase labour costs; moreover, stability of the exchange rate will be a pre-condition for the negotiations over the accession to proceed.

Small open economies can grow faster than their neighbours without running into a balance of payment crises if they succeed in increasing the number of differentiated goods produced domestically. The multiplication of the number of varieties in these countries after trade liberalisation is an unambiguous sign that consumers coming from the empty shelves of the pre-transition era have a strong taste for varieties, and hence that new varieties can create their own demand. But the increase in the number of varieties will involve a furthering of the worker reallocation process as production is still largely concentrated in homogeneous good and scale-intensive industries and enterprise density is significantly lower than in western Europe.

This paper will start by reviewing the changing profile and orientation of trade in transitional economies of central and eastern Europe. Next, developments in enterprise density and the performance of greenfield vs. state and privatised firms will be reviewed in an attempt to assess barriers to the entry and growth of small business. Finally, numerical simulations of a model will be developed which enables to assess the likely impact on employment, unemployment and gross worker flows of reductions in start-up costs.

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1. Introduction

Two key factors that have so far allowed fast growing economies of central and eastern Europe to cope with their external constraint have been i) the presence of relatively low unit labour costs and ii) the initial under-valuation of the exchange rate. The accession to the EU will inevitably reduce both sources of competitiveness of eastern European exports. Real wages are likely to catch-up western European levels and current EU members are pushing these countries to enforce labour market and social regulations that will increase labour costs. Moreover, stability of the exchange rate will be a pre-condition for the negotiations over the accession to proceed.

Small open economies can grow faster than their neighbours without running into a balance of payment crises if they succeed in increasing the number of differentiated goods produced domestically. The multiplication of the number of varieties in these countries after trade liberalisation is an unambiguous sign that consumers coming from the empty shelves of the pre-transition era have a strong taste for varieties, and hence that new varieties can create their own demand. But the increase in the number of varieties will involve a furthering of the worker reallocation process as production is still largely concentrated in homogeneous good and scale-intensive industries and enterprise density is significantly lower than in Western Europe.

This major re-orientation of consumption away from the previous *homogenised* goods towards the type of *differentiated* goods existing in western markets has often been neglected by the literature on transition economics (Boeri, 1997). Indeed, there was a formidable lack of varieties in the pre-transition period, which prevented the socialist-autarkic equilibrium to be jointly determined from the demand and supply side: consumers were strongly rationed in the purchase of varieties (Matsuyama, 1995). Accordingly, we argue in this paper that the "variety effect" can contribute to explain some of the puzzles associated with the pattern of trade flows during the transition process. Notably, it could explain why trade did not collapse in line with output and the major geographical re-orientation of trade with an increased demand for products produced in the West. It also enables to understand why persistent trade specialisation of these countries in energy and capital-intensive industries. It can also help to draw some lessons for the management of the transition process, notably the exchange rate regime.

This paper will start by reviewing the changing profile and orientation of trade in transitional economies of central and eastern Europe. Next, developments in enterprise density and the performance of greenfield vs. state and privatised firms will be reviewed in an attempt to assess barriers to the entry and growth of small business. Finally, numerical simulations a model will be developed which enables to assess the likely impact on employment, unemployment and gross worker flows of reductions in start-up costs.

2. The patterns of trade flows during the transition

This section documents the stylised facts about the pattern of trade flows during the transition. For the sake of statistical comparability, the focus will be on the group of Visegrad countries, Romania and Slovenia.

2.1 Trade did not collapse in line with output

All transition countries experienced after 1989 one of the most marked depressions ever observed in recent economic history. Between 1989 and 1991, GDP declined in Eastern Europe by as much as 30 per cent in countries such as Bulgaria and Romania (Figure 1). Different causes for the output declines have been discussed in the literature[2].

While this transitional depression is a well known and documented fact in the literature, the fact that trade volumes did *not* collapse in line with output has received much less attention. While these countries were experiencing a deep economic depression imports were rather buoyant (Figure 2) throghout the region, with the only exception of Bulgaria.

The asymmetries in output and trade dynamics point to supply-side determinants of GDP falls in transitional economies.

2.2 The collapse of CMEA and unexpectedly rapid trade re-orientation

By 1989, approximately one quarter of trade of central and Eastern Europe was with the former USSR. Intra-regional trade in Eastern Europe accounted for roughly 15-16 per cent of the trade turnover (Figure 3). OECD countries covered already more than 40 per cent of trade flows and the rest of the world another 16 per cent. Six years later, in 1995, the picture had substantially changed. Exports to the Russian Federation were only of the order of 10 per cent, imports from Russia did not reach 15 per cent of total imports and the share of intra-regional trade was well below 10 per cent. The share of trade turnover with the rest-of-the-world also decreased somewhat with respect to the pre-transition era, whilst the developed market economies (mainly the European Union) accounted by 1995 for almost 70 per cent of both exports and imports of central and eastern Europe.

2.3 The persistent specialisation in traditional goods

A third feature of trade patterns has been the persistent trade specialisation of transitional economies in heavy energy-intensive industries and low-skilled segments of the manufacturing sector, in spite of a rather well-educated labour force with lower cost of labour relative to their western counterparts. In order to document this fact, we computed the following revealed comparative advantage (RCA) indicator proposed by Neven (1995):

[2] For example, a disorganisation effect of the previous production and distribution networks (Blanchard and Kremer, 1997; Roland and Verdier, 1999) or the loss of CMEA markets. Nevertheless, the country-by-country patterns suggest that the output fall can be partly explained by taking into account the level of pre-transition distortions and the management of the reform process. For example, in the most advanced transition countries, such as Hungary or Slovenia, a more decentralised decision-making process was already in place before the transition. Some countries also adopted reforms more quickly and fully, thus reinforcing their favourable position. Overall, the larger output declines and late bottoming-out can be found in countries which had the largest pre-transition distortions and have accumulated delays in implementing reforms, such as Romania and Bulgaria.

$$RCA_i = \left(\frac{X_i}{\sum X_k} - \frac{M_i}{\sum M_k} \right) \cdot 100 \qquad (1)$$

where X_i and M_i are, respectively, the exports and imports of product *i*. This indicator is bounded between 100 and (-100). The lower and upper limit of the index can be attained only in the (theoretical) case when there is a complete trade specialisation and there are only two goods. Under real world circumstances, the value of the index rarely exceed 10 (in modules). The higher the value of the index, the stronger trade specialisation[3].

We selected according to this criterion the top-7 and the bottom-7 RCAs for manufacturing products[4], for all countries for which data were available (Table 1). The top-seven products account for 27 to 40 per cent of exports, whilst the bottom-seven for 25 to 30 per cent of imports. Thus, the table covers a significant portion of the trade turnover. We are only focusing on manufacturing products for two reasons. First, agricultural products tend to be highly distorted by strong trade barriers in European markets which affect our measure of comparative advantage. Second, the product variety effects discussed in this paper are mainly related to manufactured products.

By mid-1995, most transition countries were still characterised by a persistent specialisation on homogeneous goods produced by heavy industries. In the Czech Republic the main revealed comparative advantages are in heavy industries and intermediate products such as iron and steel (ISIC 67), non-metallic mineral manufactures (ISIC 66, e.g. glass), metal products (ISIC 69), textile yarns (ISIC 65) or base chemicals (e.g. ISIC 51). The only final consumption product represented among the top-7 RCAs is road vehicles (ISIC 78). All these industries were the core of the former industrial structure. In Slovakia, the bias towards heavy industries was even more marked with the iron and steel sector having an RCA above 10 and accounting, by itself, for 17 per cent of total exports. In contrast, the comparative *dis*advantages are observed in consumer goods or highly differentiated industries, that is, sectors characterised by a large number of varieties, such as office machines (ISIC 75), telecommunications (ISIC 76), machinery (ISIC 72,74 and 77) or pharmaceutical products (ISIC 54). Poland appeared relatively more specialised in final consumption goods, produced in light industries, such as articles of apparel and clothing (ISIC 84), furniture (ISIC 82) or transport equipment (ISIC 79). However, it should be noted that these exports are the result of an intense subcontracting with western firms[5]. Product specification and design (i.e. *the* activities most relevant for product differentiation) are mainly realised by the contractors rather than by the local firms. The other main RCAs follow a pattern similar to that of the Czech Republic.

Only Hungary and Slovenia display the main comparative advantages on light industries and are also able to be significant net exporters in industries such as Electrical machinery (ISIC 77), plastics (ISIC 57) or pharmaceutical products (ISIC 54). This is a clear sign of a more advanced stage of the transition.

Summarising: trade did not collapse in line with output, its geographical orientation changed dramatically, while the sectoral specialisation of transitional economies did not. The model

[3] The RCA index can be interpreted as a "normalised" trade balance (i.e. given that the sum of the RCA indicator across sectors is equal to zero, the comparative advantages are in this way measured under the theoretical condition of a balanced trade). The value of this indicator is also related to the intensity of intra-industry trade. The stronger two-way trade, the lower specialisation, the closer to zero the index (see OECD, 1996 and 1997).

[4] As can be seen from Table 1, the value of the RCA index decreases (in modules) rather quickly, hence there is no loss of information in confining the list to the top-seven and bottom-seven products. More detailed results are, in any event, available from the authors upon request.

[5] See Hoekman and Djankov (1996) for evidence on the role of outward processing trade in the trade relations between the EU and Eastern Europe.

developed in the next section accounts for these facts and enables to make predictions as to the future course of events.

3. Product variety and the transition: a simple model

Surprisingly enough, the literature on transitional economies has overlooked a crucial dimension of structural change, namely the shift from "homogenised" goods to differentiated goods and, in particular, to many different product varieties. Why were varieties lacking before the start of transition? Under central planning, resources were systematically diverted away from final consumption goods, and countries maintained very limited trade relations with western countries, which were confined to exports of raw material or intermediate goods. Moreover, the increase in the number of varieties available to consumers generally requires a multiplication in the number of firms and there were practically insurmountable entry barriers to enterprise creation in these countries[6]. A characteristic of the socialist firms was also a high degree of vertical integration which naturally (even under a market system) does not favour the development of product varieties[7].

One of the first steps of the transition towards a market economy was the opening-up to trade, and hence the lifting of restrictions to the purchase of differentiated goods by domestic consumers. Put another way, demand started to matter in the determination of the equilibrium. Accordingly, a large number of varieties were imported. Domestic production of varieties also has begun, but gradually. The build-up of a network of variety producers is, after all, a time consuming and costly process. Insofar as this process requires new business start-ups, there are large sunk entry costs to be afforded and high failure rates. Entry barriers were particularly high in Eastern Europe because of a lack of market institutions, entrepreneurship, and financial intermediaries channelling resources to new enterprise creation. The stronger entry barriers, the less business start-ups, the slower the development of new varieties.

3.1 Consumption technologies

The effects of the development of varieties on trade and domestic production can be highlighted within a very simple model. The demand plays a major role in our results. Thus, it is useful to start by characterising consumption technologies.

We are mainly interested here in isolating the effects of the increase in the number of products. Hence, we will *not* assume changes over time in consumers' tastes (e.g., intervening at the start of transition) or asymmetries in tastes between the transitional economy (the East) and the rest of the world (the West). We assume, for the sake of simplicity, that there are only two goods -- an homogenised product (*H*) and a differentiated good (*D*). The homogenised good assembles the characteristics of varieties into a lower quality homogenous good. Preferences of the representative consumer[8] are of the standard, CES-type:

$$U = \left[\alpha.H^{\rho} + (1-\alpha).D^{\rho}\right]^{1/\rho}$$

[6] Hungary is a partial exception in this context. Entry was allowed, but only for relatively large firms.
[7] See Feenstra *et al*. (1997) for an evidence of this effect in the case of the exports of Korea and Taiwan.
[8] We allow only for horizontal product differentiation. Thus, there is no problem in modelling the economy as populated by a single consumer.

$$\text{where } D=\left(\sum_{n\in M} x_i^{\theta}\right)^{1/\theta}, 0<\alpha<\frac{1}{2},\ \theta<1,\ -1<\rho<\infty \qquad (2)$$

This specification of the utility function has the advantage of summarising all the relevant information on consumers' preferences in three basic parameters. The parameter ρ characterises the degree of substitutability between homogeneous and differentiated goods, whilst α is a "distributional" parameter, affecting the allocation of the consumer's budget between the two bundles of goods. We assume that consumers prefer varieties to the homogenised good, and hence we restrict the parameter α to be lower than .5. Finally, the parameter θ summarises the extent of "love for varieties" of consumers: the lower θ, the stronger the welfare change associated to the multiplication of varieties available to consumers. As is apparent from (2), the sub-utility function over the differentiated good is also modelled as a CES function, following the standard Dixit-Stiglitz (1977) model. Out of a very large potential number of varieties (*M)*, only *n* goods are produced and are available to consumers.

The utility maximisation problem can, as usual, be split in two stages. At first, the representative consumer decides how to allocate her/his budget between the homogeneous and the composite differentiated good. At the second stage, the consumer decides how to allocate her expenditure over the available varieties.

As customary in the product variety literature, we assume that production technologies allow for increasing returns in both variety and homogenised good productions. This requires that firms have some degree of monopoly power in order to be profitable. We assume further that the extent of increasing returns is larger in homogenised good production than in the production of varieties, insofar as the latter involves higher fixed costs[9].

We will also keep the standard assumption that each variety can be produced by only one (atomistic) firm[10]. Since everything is symmetric in this model, at the equilibrium all varieties will be equally priced. Define this identical price of each variety as *p*. Given the utility function, the consumer will spread her consumption uniformly over varieties, demanding the same amount (say *x*) of each brand. We can therefore rewrite the (relative) demand for the homogenous good as follows:

$$\frac{\mathrm{H}}{\mathrm{D}}=\left[\frac{\mathrm{p}}{\mathrm{P_H}\,\mathrm{n}^{\frac{1-\theta}{\theta}}}\frac{\alpha}{1-\alpha}\right]^{\sigma} \qquad (3)$$

where $\sigma=1/(1-\rho)$ is the elasticity of substitution between the homogenised (*H*) and the composite good (*D*). This shows that increases in the number of varieties (n) produced involve reductions in the consumption of the homogenous good. Put another way, when a large number of varieties

[9] Define by a^i and a^i_l respectively, overhead and unit input requirements in the production of variety *i*. For symmetry we impose that $a^i = a$ and $a^i_l = a_l$ for all i. The homogenised good has a stronger degree of economy of scale than varieties because $a^H > a$ and $a^H_l =< a_l$.

[10] A convincing rationale for this assumption is that imitation involves sunk costs and that firms may engage in ex-post price competition. Under these conditions, imitators would never be able to recoup the sunk-costs at entry. We also rule out the (remote) possibility of having more varieties of the same type being produced prior to the opening to trade. This is because, prior to transition, there are virtually no varieties produced domestically (see below).

becomes available to consumers, P_H must decline in order to sell any given supply of the homogenised good.

The fact that the demand of the composite good increases with n does not mean that the demand for *each* variety increases as well. Insofar as the elasticity of substitution across varieties (σ_x) is higher than σ, (i.e., inasmuch as $\theta > \rho$) the demand for each variety will actually decline with *n*. We will assume henceforth that this is the case. This is quite natural an assumption as typically the degree of substitutability is larger *within* than *between* composite goods.

3.2 Comparing equilibria before and after trade liberalisation

We use the above static framework simply to characterise the impact effect of trade liberalisation. Prior to transition only the homogenised good is produced domestically (e.g., there is only one type of shirts, soft drinks or cars) and consumers have no access to imported varieties. Such an outcome (the fact that only the homogenised good is produced) can be pursued by a (non-benevolent) central planner maximising output along with the Marxian primary accumulation ideology[11]. Thus initially consumers can only have access to *H*.

At the outset of transition, trade is liberalised. This involves a sudden increase in the number of varieties available to eastern residents. Now they can finally spread their consumption over the large number of varieties (n^w) produced in the West. As domestic and foreign consumers have identical preferences, the country is small relative to the West and there are no asymmetries in production technologies[12], varieties can only have the same price[13] at the equilibrium, namely the price initially prevailing in western markets[14] (p^w). Denote by *x* the demand for varieties of a representative consumer; *x* is decreasing in p^w and -- as discussed above -- in the total number of variety producers (n^w). Trade equilibrium at the start of transition will therefore be given by:

$$p^w \cdot x\left(p^w, n^w\right) \cdot = H_x^e \qquad (4)$$

where H_x^e denotes net eastern exports of the homogenised good. In other words, the eastern country must be initially a net exporter of the homogenised good in order to finance imports of varieties. Insofar as varieties start being produced domestically, then also varieties can be exported as trade becomes increasingly of the (horizontal) intra-industry type. But entry of variety is a long process,

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[11] The problem of the planner can be written as follows:

$$\underset{n,H}{Max}\ (n \cdot x + H)$$

$$s.t.\ i)\ n \cdot (a + a_l x) + a^H + a_l^H H \leq L$$

where L is the total amount iof labour resources in the economy (work is considered as a duty, so that the planner can freely dispose of L). This is a two-stage linear programming problem whose solution is at the extreme point *n=0*.

[12] The case where domestic producers of varieties are less efficient than their western counterparts is not treated herein for the sake of simplicity. Under asymmetric technologies, we would expect to have deficits in the trade balance even at the long-run equilibrium.

[13] As in standard monopolistic competition models, this common price of varieties, *p*, will embody a mark-up over operating costs, which is inversely related to the elasticity of demand for varieties, hence to the total number of variety producers.

[14] If n^w is sufficiently large, the opening to trade with the East (the appearance of a new variety) does not alter the equilibrium price of varieties.

as discussed below. Meanwhile, coping with the external constraint forces transitional countries to sell low-price homogeneous goods abroad.

The second event marking the start of transition is the free entry of variety producers. According to the standard Dixit-Stiglitz monopolistic competition model, the optimal number of varieties produced in the East in the long-run will depend on the size of the market, the degree of substitutability across varieties and the sunk costs (F) associated with the creation of new firms. Let L^e and L^w denote the eastern and western populations, respectively. We have then that:

$$n^e = \frac{L^e}{\sigma_x \cdot F} \tag{5}$$

As is apparent from (5) and the symmetry in technologies and preferences, trade in varieties is balanced only when enterprise density in the East converges to the levels prevailing in the West, that is:

$$\frac{n^e}{L^e} = \frac{n^w}{L^w} \tag{6}$$

Insofar as enterprise density in the East is lower than in the West, the country is bound to export the homogenised product.

Summarising, this simple static model predicts that transitional economies initially experience a large trade deficit in differentiated goods, financed via large exports of the homogenised good, and, in the long-run, only trade of the intra-industry type[15].

In order to fully characterise trade equilibrium *after* the transition, we still have to mention what happens to the terms of trade. As variations in p^w associated to the entry of firms in the East are of a second-order magnitude (L^w is large relative to L^e) changes in the terms of trade can only be associated to variations in the production of the homogenised good[16]. The impact effect of trade liberalisation is, as we have shown, a marked decline in P_H. The terms of trade improve only gradually for the transitional economy insofar as an increasing number of varieties is produced domestically. This involves less production, hence higher prices, of the homogenised good.

3.3. The Transition

Increasing the number of firms is a time-consuming process and, especially in manufacturing, may involve significant sunk costs. Moreover, the probability of failure is high. In EU countries failure

[15] A possible extension of our model is to assume that the (total) factor productivity in the production of varieties increases with the number of intermediate inputs available to enterprises. We do not pursue this route herein although – when interpreted in terms of intermediate goods -- the shift towards increasing varieties movement can also be interpreted as a shift from energy-intensive and homogeneous products to light and diversified productions.

[16] As it can be derived from the CES dual price price index for the composite good, the change in the price of the composite good from the initial and the long-run equilibria is given by

$$P_D^0 - P_D^* = p^w \left[\left(\frac{1}{n^w} \right)^{\frac{1-\theta}{\theta}} - \left(\frac{1}{n^e + n^w} \right)^{\frac{1-\theta}{\theta}} \right]$$

rates among entrants are as high as 50 per cent after five years of business[17] (EuroStat, 1996a). Failure rates in transitional economies may be even larger given a lack of entrepreneurship, bad infrastructures to support new business creation, a banking system unable to provide venture capital for new business because highly inefficient and often interlocked with large (and heavily indebted) corporations, and potentially large co-ordination failures. Thus, it seems to be more realistic to model the development of varieties as a lengthy process, involving high sunk costs and many episodes of failure.

The above features of the entry process can be framed in a very parsimonious fashion in a Harris-Todaro type dynamic model, involving labour reallocation from the homogenised good producer to firms producing varieties. A model of this kind is sketched in Annex 1 and provides the support for the numerical simulations discussed below. Workers can move from one sector to the other experiencing intervening non-employment spells[18]. Thus, the decision to leave the homogenised good firm involves some risks. Workers can only be induced to take such risks if there is an insurance providing them income support while not having a job and probabilities of success are not too low. An alternative, but equivalent in terms of the operation of our model, way to read this reallocation process is to consider that homogenised good producers behave as monopolists, reacting to changes in the demand for the homogenised product with cuts in production capacity. However, measures to "buy-out" the workers are required to shed labour, given the power of the workers' councils to appoint and dismiss managers. Models of this kind, embodying political economy barriers to staff reductions, are frequent in the optimal speed of transition literature (Boeri, 1999).

The production of a new variety is modelled as a self-employment choice. This is consistent with the observation in these countries of very large increases in self-employment rates at the outset of transition. The startup of such new activities, involves significant sunk costs, F, which can be financed by investing the unemployment benefits. Many transitional countries have in place startup loans involving the provision of residual unemployment benefit claims as a lump-sums to the workers wishing to try their luck. The workers who succeed in the startup, enjoy the rents associated with the production of varieties (the rents are due to the presence of sunk costs) until they fail. There is indeed an exogenous probability of failure after entry, λ, for all variety producers. Those workers who do not succeed in starting up a new activity, lose their previous period unemployment benefits, but may try once more their luck next period, clearly paying again the sunk costs.

Unemployment benefits are financed via taxes on labour, notably on rents in the production of varieties. Hence they play a twofold role in this model. On the one hand, they induce workers to change jobs (or, equivalently, allow homogenised good producers to restructure their firms). On the other hand, they make for non-employment created in the transition to exert a negative "fiscal externality" on the development of varieties.

There were many gaps in the provision of varieties to be filled at the outset. Many gaps meant easier entry at the outset, although not necessarily easier survival after entry. Thus we model the probability of success as decreasing[19] in the number of varieties produced (in the size of the self-employment pool). In particular, the probability of success is increasing in the deviation of the initial density of firms from its long-run equilibrium (6). Denoting by V the (ex-ante) value of

[17] Cf. the special issue (n.13, 1995) on entry and post-entry behaviour of firms of the International Journal of Industrial Organisation.
[18] See Boeri (2000) for a model allowing for on-the-job search a direct shifts from one firm to the other.
[19] The probability decreases less than proportionally with n as there may be critical mass effects related to the creation of a *mittlestand* of variety producers.

producing a variety, and by e the number of firms paying the sunk entry costs, we have the free-entry condition:

$$\left\{ \begin{array}{l} -F + \delta \ \pi(n^* - n_t)\, V = 0 \ \ if \ e_t > 0 \\ -F + \delta \ \pi(n^* - n_t)\, V = 0 \quad if \ e_t = 0 \end{array} \right\} \qquad (7)$$

where π denotes the probability of success, and δ the discount factor($\delta = 1/1+r$)[20]. Insofar as the stream of profits attainable by entrants declines with *n*, all apprentice businessmen will leave the homogenised good firm *immediately* after trade liberalisation. There is evidence of a veritable explosion in the number of registered entrepreneurs and private entities just after the first systemic reforms (see OECD, 1992, table 6.4).

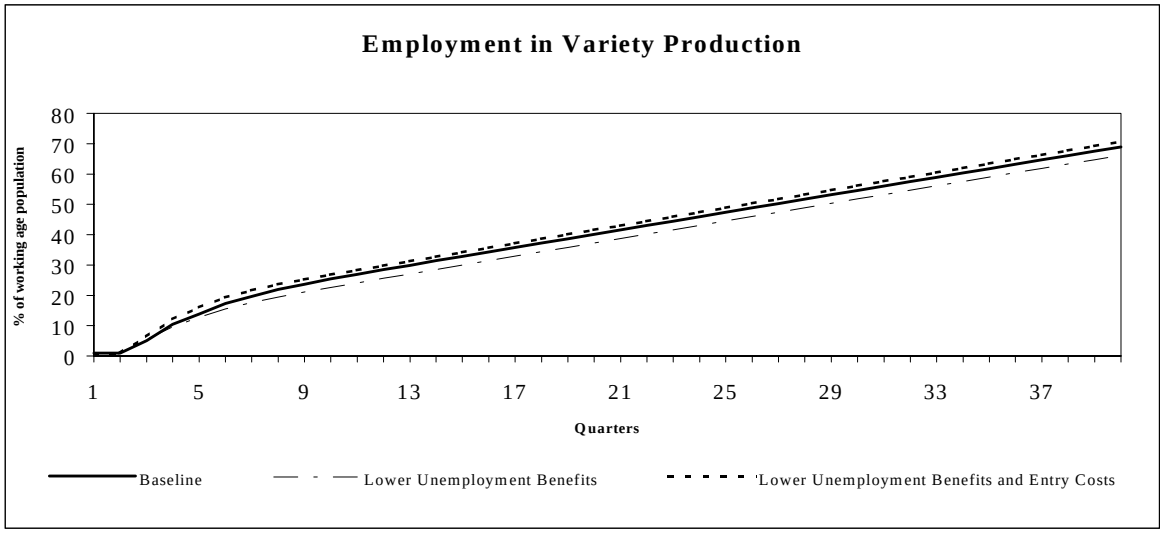
As is apparent from (8), the number of newly registered private entrepreneurs will be larger, the greater n* and the lower F.

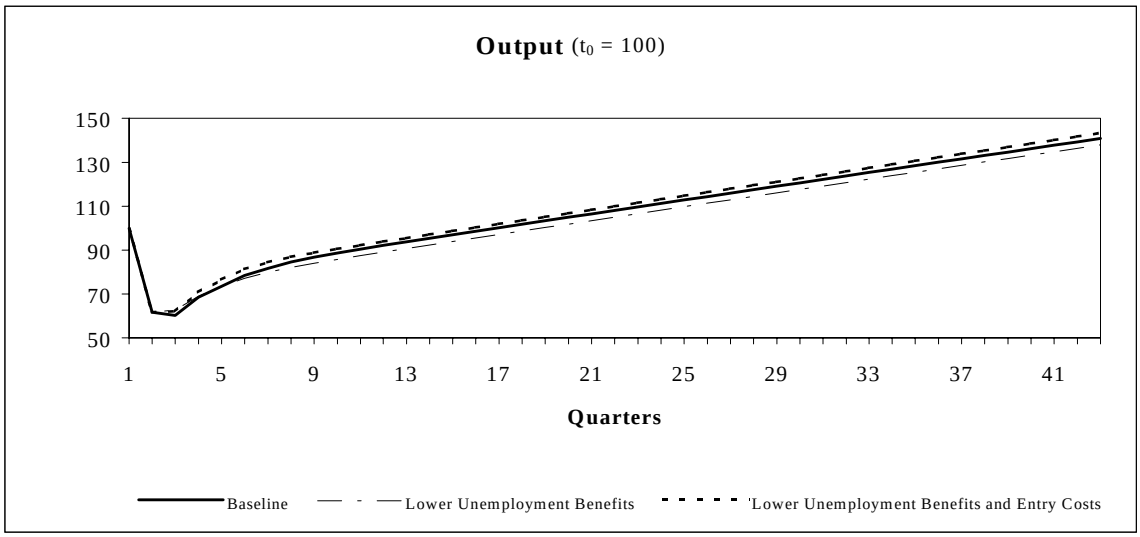
Figure 4 displays numerical simulations of the model. In the baseline scenario (continuous lines), unemployment benefits are set to replace 35 per cent of wages in the homogenised good production. This is broadly in line with the levels currently prevailing in the Visegrad countries. Sunk entry costs match exactly this amount so that those trying to startup their own business can just use the benefit for this purpose. As shown by the top panel, (self)employment in varieties increases rapidly soon after the start of transition; the growth continues afterwards at a slower pace and reaches in five years about 50 per cent of the working age population. From being inexistent at the outset, non-employment also jumps immediately, as workers leave (or laid-off from) the homogenised good producers; then non-employment declines in line with the growth in the number of varieties, which are the engine to job creation. It increases again at later years insofar as the startup of new activities is made more difficult by the filling of most market niches while employment continues to steadily decline in the homogenised good sector. Output follows the U-shaped pattern characterised in the first section of this paper. Output falls originate from two factors: the first is the impact of trade liberalisation on the price of the homogenised good; the second is the decline of employment in H which, in presence of increasing returns to scale, involves more than proportional declines in output.

Two simple experiments are carried out with this model. The first involves a decline in the sunk costs at entry. This causes non-employment to rise (and output to decline) more at the outset than in the baseline. This is because more workers are induced to leave the homogenised good production for self-employment. However, lower entry costs induce faster growth of self-employment (and less non-employment) later on. The second experiment consists of declines in non-employment benefits. In this case we have just the opposite result. Non-employment falls less at the outset than in the baseline, but later is also slower to recover. This is because lower unemployment benefits discourage self-employment choices, hence the structural change required to foster the growth of varieties.

[20] The literature on product variety often makes a number of assumptions which essentially reduce consumption choices to a static decision problem [Grossman and Helpman, 1992]. Following this convention – which may actually be more justified when modelling transitional economies rather than OECD countries – we therefore assume that the pure rate of time preference of consumers equals the market interest rates. This implies that (nominal) spending is constant over time.

Figure 4. Numerical Simulations of the Model.





4 Coping with the puzzles

The model(s) sketched in the previous section accounts for the three stylised facts of transition inspiring this paper.

4.1 Supply-side determinants of the output collapse

The model above generates steep output declines at the outset of transition as a result of trade liberalisation and structural change. The opening to trade reduces the (relative) price of the homogenised good. Structural reallocation causes labour to move away from the H sector and output falls even more than employment, due to the presence of increasing returns to scale[21].

Both effects are larger when the country starts with a very low enterprise density. This is because the price change associated to trade liberalisation is larger in this case and the scope of labour reallocation is larger, given that there are more gaps in the provision of varieties to be filled.

Hence, not only this model accounts for the coexistence of output falls and increasing trade with the West, but also predicts that output falls should be larger in the countries having at the outset the lowest enterprise densities. It also suggests that countries with low unemployment benefits (or high entry costs) should experience lower output (and, above all, employment) losses at the outset, but also slow, if any, recovery afterwards. This seems to fit well with the asymmetries in the patterns of employment and output adjustment in the Visegrad countries vis-à-vis Bulgaria, Romania and the CIS countries.

While our focus is here mainly on the output collapse, this model can also mimic the GDP decline registered in transitional economies at the beginning of the 1990s. The latter stems from the increase in the price of varieties associated with trade liberalisation and failure of national accounts (CPI indexes) to properly measure the variety effect. The latter is typically obtained as a simple weighted (by the consumption shares) average of the prices of the various goods, that is, in our model the (national accounts) consumer price index before trade liberalisation is given by:

$$\hat{CPI} = \alpha \cdot + (1-\alpha) \cdot p \qquad (8)$$

and hence, the recorded change in CPI is:

$$\Delta \hat{CPI} = (p^w - p)(1-\alpha) \qquad \mathbf{(9)}$$

whereas the change in the "true" CPI index, that is, the index which properly takes into account the increase in the number of varieties is:

[21] Rather than ruling out other explanations for the U-shaped output dynamics in these countries, the story behind our model is consistent – if not complementary -- with the work of two additional factors, which may have magnified output losses. First, as suggested by Daianu (1996), the large change in relative prices induced by the transition (e.g., the change in relative prices between homogeneous and differentiated goods induced by the explosion of n) cannot be easily absorbed in a short period. Neither changes in relative prices can be accommodated via exchange rate adjustments. Therefore, the transitional economy is put under a "strain" taking its short-run equilibrium further away from the production frontier. Second, the traditional sectors producing homogenised goods were typically composed of large and extremely integrated firms. This created different sorts of indivisibilities that magnified output losses associated with the shift of resources from the production of homogeneous goods towards the differentiated good sector.

$$\Delta CPI = \left[\alpha \cdot + (1-\alpha) \cdot \left(n^{w}\right)^{\frac{1}{1-\sigma_x}} \cdot p^{w} \right]^{\frac{1}{1-\sigma}} - \alpha - (1-\alpha)\, p \qquad (10)$$

Equation (10) shows that consumer prices may actually decline after trade liberalisation insofar as the effect on the increasing number of varieties available to consumers offsets the increase in the price of each single variety. Table 5 provides a numerical illustration of how the variety effect can produce rather different pictures of the impact on GDP of trade liberalisation. Assuming the counterfactual parameters of our simulation, if one uses (9) real GDP collapses whilst applying (10) a slight increase of the true GDP measure is actually observed.

4.2. The "perverse" trade specialisation

As shown above, the balance of trade for varieties is initially in deficit and improves with the increase in the number of varieties produced domestically. Therefore a transitional country is initially a net exporter of *H* even if at the long-run equilibrium the country increases its specialisation in the differentiated good. The issue is that *H* has to be exported until a critical mass of domestic variety producers is reached.

4.3. The collapse of CMEA and trade reorientation

As discussed in Section 2, trade within the CMEA mainly involved final "homogenised" goods (apart from the imports of energy and raw-materials from the former USSR). After trade liberalisation none of the former CMEA partners had the supply potential to satisfy the demand for differentiated products and excess supply of H.

4. Back to the Evidence

According to our model, the transitional depression is related to shifts in the structure of consumption rewarding differentiated products and inertia of the previous supply structure to adapt to this shock. This explanation of a supply-driven depression is consistent with two facts documented above, namely: i) aggregate investment fell less than output[22], and ii) while GDP and industrial production were collapsing, imports did not fall in the same fashion and actually grew very rapidly after the early transition phase. An important feature of our model is that the demand shift occurs without (exogeneous) changes in the preferences.

Our story is also consistent with the increase in enterprise density registered since 1990 in all transitional economies. Table 4 – drawn from a report recently issued by EuroStat (1996b) -- shows that enterprise density has indeed rapidly increased in central and Eastern Europe, although it is still below the levels prevailing in EU countries**.**

[22] In a demand-driven depression the investment would be expected to fall in line with output. This was not observed in the transition countries where a revival of investment occurred before the output bottomed-out (see on this Rostowski, 1997). It should also be stressed that investment in business startups is poorly recorded by national accounts.

Figure 6 shows that the relation between the enterprise density[23] (corrected for the dormant or dead firms) and the levels of real income per capita (GDP at PPP rates) holds reasonably well on a cross-country including both the transition and the western European countries. The countries more advanced in the transition as the Czech Republic, Hungary and Slovenia are also the countries with the highest GDP per capita and enterprise density. Moreover, the countries where enterprise density was higher from the start (hence, according to our model, the countries that were initially producing more varieties) displayed lower and less protracted declines in output. For example, output fell more in Poland than in Hungary. This is also consistent with the predictions of our model.

The soaring trade deficits that appeared in the early stages of transition and re-appeared again in 1996 and 1997 are also in line with the implications of our model. Insofar as the number of domestic variety producers is far from its long-run equilibrium, increases in real wages (e.g., associated to catch-up effects) translate into increased demand for varieties that, for a large part, are imported. In our model labour supply fixed, but these unit labour cost effects can be modelled as exogeneous changes in marginal costs of H making it more difficult for the country to finance its variety gap. Overall, the only way to sustain real wage growth over the long-run is in the growth of varieties, a growth which creates its own demand.

6. Final remarks

The purpose of this paper was to show that a better understanding of the transition mechanics can be gained by considering a dimension of structural change which has been, thus far, fairly neglected by the literature. We refer to the “shelf-shock” occurred in all transitional economies immediately after the fall of the Berlin wall. A simple model framing this variety effect can contribute to explaining several puzzles of transition. It also has some relevant implications for the design of policies accommodating economic transformation and for the EU enlargement process.

The bottoming-up of transition recession has been in many countries associated to demand from OECD countries of homogeneous goods produced in the East. However, our model suggests that durable growth can only come from the development of many specialised small units in the manufacturing sector, that is, growth in the long-run can only come from an increase in enterprise density.

Although entry is the driving force of long-term economic growth, in the short-run it diverts away resources from production, thereby inducing output losses. These initial losses are larger, the wider the gap between the inherited enterprise density and that prevailing in the long-run. The recovery from the transitional recession is lower the higher the barriers to the entry of new firms. Measures reducing such barriers are likely to significantly speed-up the transition and reduce its costs in terms of forgone output.

After the initial explosion of new business startups, the pace of creation of new firms is slowing down considerably and these countries are still far from reaching enterprise densities comparable to those of OECD countries. Most of the development of a "new private sector" has occurred in “gap-filling” service activities rather than in manufacturing. The environment is still unfavourable to the development of small firms in manufacturing: there are high real interest rates, lack of venture capital, interlocking of banks and large corporations, and an absence of infrastructures for small firms development.

[23] This data comprises all non agricultural enterprises.

Trade liberalisation has been a major shocks for these countries, and one which has been associated with dramatic output falls and a rise of non-employment. There are currently scholars arguing that trade should have been liberalised only gradually. Howewer, opening to trade has played a crucial role in paving the way to the entry of new firms. Trade also promoted sub-contracting in some sectors (e.g. machinery and apparel), which hopefully will be followed by the transfer of know-how and learning and the creation of a critical mass of SMEs sufficiently dynamic and innovative. But much remains to be done in order to reduce barriers to the entry and survival of new firms in transitional economies.

The success of transition, notably of those countries that entering the European Union will likely face increasing pressures for real wage convergence with the EU, will very much depend on how fast is the reallocation of labour from homogenised to diversified good producers.

From an historical perspective, we have shown in this paper that high cost of entry had to be accompanied with rather generous unemployment benefits in order to start the reallocation process on a sufficiently large scale. Non-employment benefits, however, ended-up increasing the social security burden on the active population. A better way to start the process would have been to reduce the obstacles to the startup of new activities and, conditional on that, have lower non-employment benefits in place. Although it is easy to be wise after the events, some lessons are still useful for the countries lagging behind the transition process.

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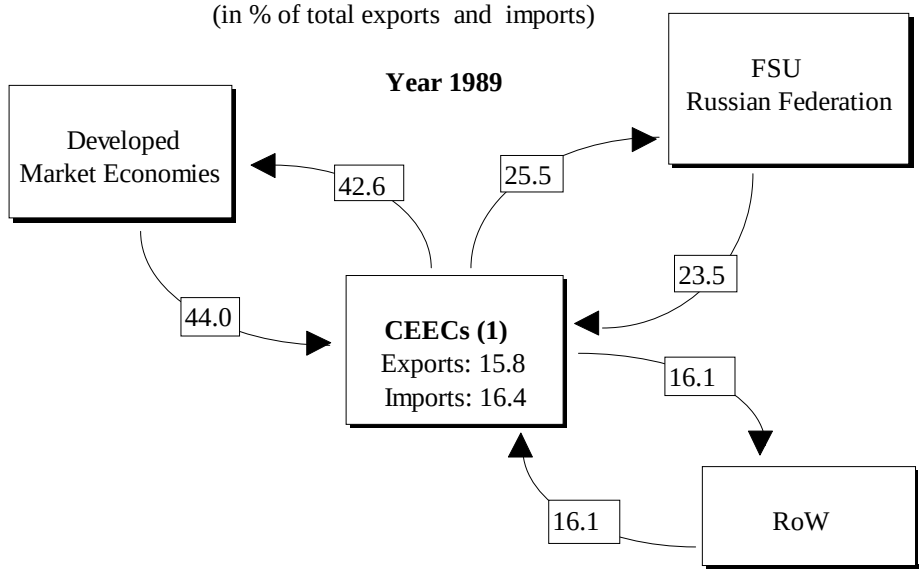
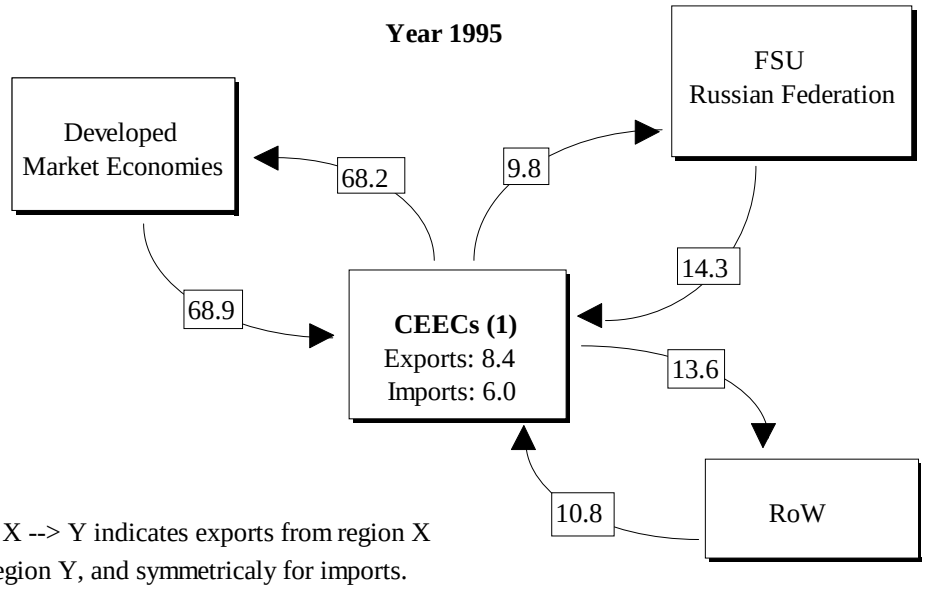
Figure 3. Trade Flows of Central and Eastern Europe
(in % of total exports and imports)



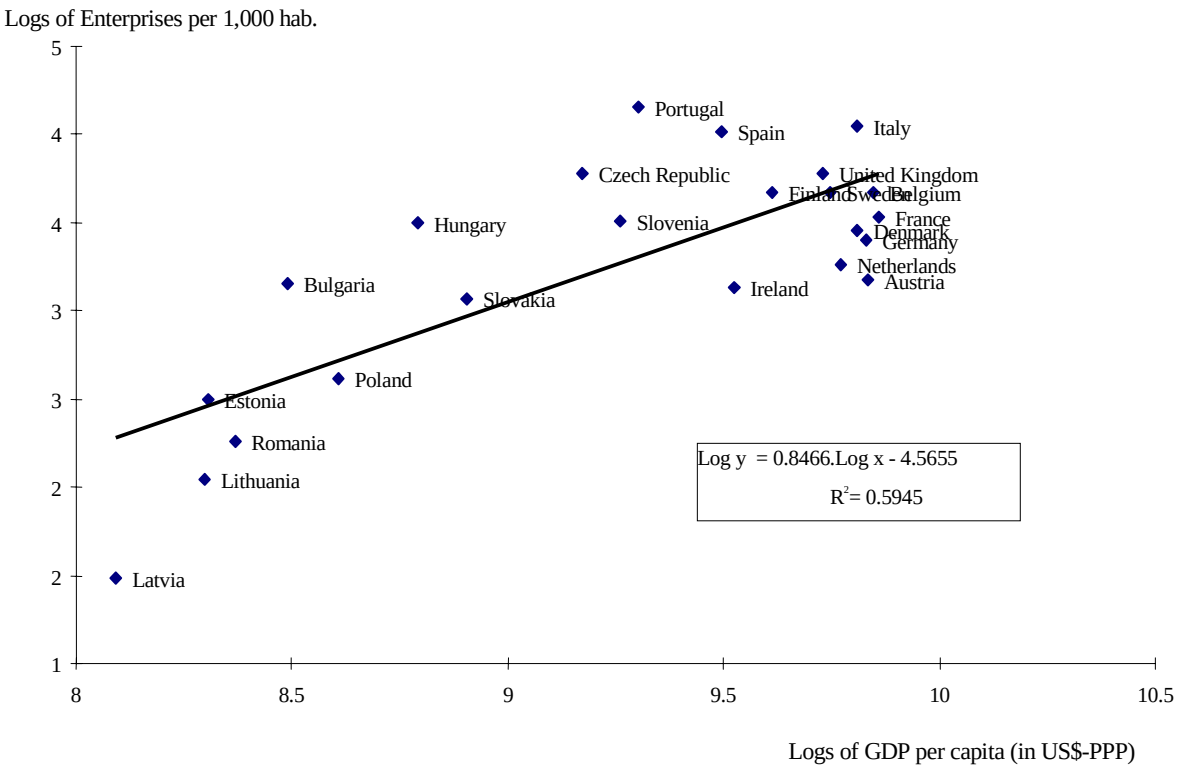


NB: X --> Y indicates exports from region X region Y, and symmetricaly for imports.

(1) Bulgaria, Czech Republic, Slovak Republic, Hungary, Poland and Romania

Source: UN-ECE (1996)

Figure 4. Enterprise density(1) and GDP per capita.



(1) Not including agriculture and adjusted for the non-active

Source: EuroStat(1996.b) and authors' calculations.

Table 1. Manufactured product specialisation in Eastern Europe, 1995.

SITC	Comparative advantages	RCAs (1)	Export share (in %)	SITC	Comparative disadvantages	RCAs (1)	Import share (in %)
	CZECH REPUBLIC						
67	Iron and steel	4.78	9.4	75	Office machines and automatic data proc. mach.	-3.79	4.4
66	Non metallic mineral manufactures, n.e.s.	3.88	5.7	76	Telecommunication and sound recording apparatus	-2.70	3.0
69	Manufactures of metal, n.e.s.	2.96	6.0	74	Other industrial machinery and parts	-2.59	6.5
65	Textile yarn and related products	2.77	4.8	77	Electrical machinery, apparatus and appliances	-2.32	6.0
78	Road vehicles	1.72	8.3	72	Specialised machinery	-2.23	6.3
51	Organic chemicals	1.68	3.4	54	Medicinal and pharmaceutical products	-1.94	3.0
63	Cork and wood manufactures (exc. furniture)	1.14	1.6	87	Professional and scientific instruments	-1.81	2.5
		18.93	**39.2**			**-17.38**	**31.7**
	HUNGARY						
84	Articles of apparel & clothing accessories	5.61	8.04	65	Textile yarn and related products	-3.47	5.73
77	Electrical machinery, apparatus, appliances	2.61	9.72	75	Office machines and automatic data proc. mach.	-2.20	2.75
57	Plastics in primary forms	2.11	3.81	74	Other industrial machinery and parts	-2.11	5.05
85	Footwear	1.11	2.10	64	Paper and paper manufactures	-2.10	3.31
82	Furniture and parts thereof	0.81	1.77	79	Other transport equipment	-1.25	1.45
63	Cork and wood manufactures (exc.furniture)	0.72	1.08	72	Specialised machinery	-1.21	3.33
42	Fixed vegetable oils and fats, crude, ref., frac.	0.40	0.60	89	Miscellaneous manufactured articles, n.e.s.	-1.19	3.24
		13.37	**27.1**			**-13.53**	**25.0**
	POLAND						
84	Articles of apparel and clothing accessories	8.93	10.04	65	Textile yarn,fabrics,made-upart.,related products	-5.18	7.45
82	Furniture and parts thereof	5.30	5.82	74	General industrial machinery & equip., and parts	-4.02	6.06
68	Non-ferrous metals	4.71	5.98	75	Office machines & automatic data proc. equip.	-2.77	2.91
79	Other transport equipment	4.42	4.66	72	Machinery specialized for particular industries	-2.35	4.48
67	Iron and steel	2.44	5.60	54	Medicinal and pharmaceutical products	-2.18	3.16
69	Manufactures of metal,n.e.s.	2.24	4.95	76	Telecommunications & sound recording apparatus	-1.79	2.53
63	Cork and wood manufactures (excl.furniture)	2.19	2.62	58	Artif.resins,plastic mat.,cellulose esters/ethers	-1.56	1.82
		30.23	**39.7**			**-19.85**	**28.4**
	ROMANIA						
84	Articles of apparel and clothing accessories	17.6	19.3	65	Textile yarn, fabrics, made-up art., related products	-7.1	9.2
67	Iron and steel	7.5	10.8	33	Petroleum, petroleum products and related materials	-5.5	12.6
82	Furniture and parts thereof	5.5	6.0	34	Gas, natural and manufactured	-5.4	5.4
85	Footwear	5.1	6.2	72	Machinery specialised for particular industries	-4.7	6.1
56	Fertilizers, manufactured	4.3	4.4	74	General industrial machinery & equip. and parts	-2.6	5.4
04	Cereals and cereal preparations	3.3	3.8	32	Coal, coke and briquettes	-2.6	2.8
24	Cork and wood	2.6	2.7	77	Electrical machinery, apparatus and appliances n.e.s.	-2.3	4.5
		45.9	**53.2**			**-30.2**	**46.0**

	SLOVAK REPUBLIC						
67	Iron and steel	12.5	17.2	75	Office machines & automatic data proc. equip.	-3.2	3.4
66	Non-metallic mineral manufactures,n.e.s.	2.7	4.3	72	Machinery specialised for particular industries	-2.9	4.8
62	Rubber manufactures,n.e.s.	2.5	3.1	74	General industrial machinery & equip.,and parts	-1.9	4.9
65	Textile yarn,fabrics,made-upart, rel. prod.	2.0	4.3	54	Medicinal and pharmaceutical products	-1.3	3.1
84	Articles of apparel and clothing accessories	2.0	3.0	77	Electrical machinery,apparatus & appliances n.e.s.	-1.1	4.7
64	Paper,paperboard,artic.of paper,paper-pulp	1.7	3.9	76	Telecommunications & sound recording apparatus	-1.1	2.0
82	Furniture and parts thereof	1.7	2.1	78	Road vehicles (incl. Air cushion vehicles	-1.0	5.3
		25.0	**37.9**			**-12.5**	**28.3**
	SLOVENIA						
84	Articles of apparel and clothing accessories	5.16	7.92	93	Special transactions not classified accord.to kind	-2.66	2.87
82	Furniture and parts thereof	4.26	5.41	75	Office machines, automatic data-processing equip.	-2.21	2.36
77	Electrical machinery, apparatus, appliances	4.21	9.13	72	Machinery specialised for particular industries	-2.08	3.99
64	Paper, paperboard, paper art.s, paper-pulp	2.59	4.72	57	Plastics in primary forms	-1.46	2.32
63	Cork and wood manufactures,exc..furniture	2.44	3.20	78	Road vehicles incl. air cushion vehicles	-1.13	12.58
54	Medicinal and pharmaceutical products	2.09	3.83	51	Organic chemicals	-0.87	2.25
62	Rubber manufactures n.e.s.	1.51	2.40	59	Chemical materials and products n.e.s.	-0.87	1.35
		22.26	**36.6**			**-11.28**	**27.7**

Notes: For all countries the sectors correspond to the ISIC rev 3, except Poland where ISIC rev 2 was used.
(1) The RCA indicator corresponds to (Xi/ΣXk - Mi/ΣMk).100, see text.
Source: OECD trade Statistics and national sources.

Table 2. Simulation of the impact of liberalisation with different CPI measures

	Variables	***Pre--transition***	***After liberalisation***	*rate of change*
Variety price	p	1.00	1.50	50%
Homogeneous good price	P_H	1.00	1.00	0%
Aggregate elasticity of substitution	σ	1.50	1.50	0%
Elasticity of substitution between varieties	σ_x	10	10	0%
Number of varieties	n	1	50	4900%
preference coefficient betwen H and D	α	0.50	0.50	0%
Wage rate	w	1.00	1.00	0%
Population	L	1000.00	1000.00	0%
Price for the Composite good	P_D	1.00	0.97	-3%
CPI as weighted average of H and p (1)	$\hat{CPI}$	1.00	1.25	25%
CPI incorporating the variety effect (1)	CPI	1.00	0.99	-1%
real GDP using $\hat{CPI}$ (2)	$\hat{GDP}$	1000.00	800.00	-20%
real GDP using CPI (2)	GDP	1000.00	1014.76	1%

(1) See text.
(2) Computed as $w.L / CPI$

Table 3. Comparison of Enterprise Density (number of enterprises per 1,000)

	EU	Central and Eastern Europe[1]
Inhabitants	43	31
Active population	95	64
Non farming population	113	83

(1) Albania, Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.
Source: EuroStat (1996b).