Of Wool and Sheep: The Return to Europe

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David L. Ellison
Department of Political Science
University of California - Los Angeles (UCLA)
Box 951472
Los Angeles, California 90095-1472

Comments Welcome
(Email: dellison@ucla.edu)

Seen with Western eyes, linking the economies of Central and Eastern Europe (CEEC's)[1] to those of the European Union (EU) is generally considered the principal means of securing the future growth prospects and political stability of these former Soviet Bloc countries. The European Union's own strategy of integrating the CEEC economies into the Western sphere gave rise to the Europe Agreements, a gradual process of accession, and eventual membership. While the Europe Agreements included a political component, the principal tool of economic renewal was the trade liberalization protocols they contained and CEEC fulfillment of the broader objectives of market reform required for EU membership and laid out in a later White Paper from the European Commission.[2]

For the countries of Central and Eastern Europe, membership in the European Union is likewise seen as the key to political and economic stability, and ultimately prosperity. The 'return to Europe' is expected to bring rewards surpassing the costs of EU accession, and the governments of Central and Eastern Europe have generally pursued market reforms and the adoption of EU market regulations with a passion. Yet, what these countries should reasonably expect from such political and market linkages is more obscure and a matter of some debate. There is a broad consensus that creating closer economic ties with the EU represents the most promising alternative of future CEEC prospects. Yet given the relatively lackluster performance of European integration in promoting economic growth and reducing unemployment, it is surprising that this alternative is not greeted with more skepticism.

There is a large and growing literature that addresses the consequences of trade liberalization and increased economic integration. Predictions about the benefits countries might expect from greater economic openness and closer association with more advanced regions are generally of two kinds: 1) that economic integration promotes economic growth, greater economic competitiveness, and reduces prices; and 2) that integration promotes convergence in the costs of the factors of production (labor, capital and land), and ultimately in the standard-of-living. Thus, both for the less advanced and the more advanced economies, the benefits of economic integration are generally thought to be greater than the losses. With economic integration, economies should grow more rapidly, there should be an overall increase in the standard-of-living, and less-skilled labor in the less-advanced countries should benefit from rising wages.

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[1] I use the term CEEC's here to refer to the 10 Central and East European countries that have formally applied and are being considered for membership in the European Union. They are the three Baltic states (Latvia, Lithuania and Estonia), the four Visegrad states (Poland, the Czech and Slovak Republics, and Hungary), the two Balkan states (Bulgaria and Romania), and one of the former Yugoslav states (Slovenia).

[2] See the European Commission's White Paper on the "Preparation of the Associated Countries of Central and Eastern Europe for Integration in the Internal Market of the European Union" (Commission, 1995).

Despite these generally rosy predictions about the consequences of economic integration, the likelihood that all countries—and in particular less-advanced countries—will benefit equally from economic integration is a topic of some debate. This debate arises from a number of quarters. For one, many less-developed countries have failed to grow as quickly as one might expect given conventional assumptions about economic growth. For another, there is considerable debate over which factors best explain growth, both in the less and the more developed countries, and thus over how to manage the transition to market economies. For a third, wealth tends to remain concentrated in relatively fixed areas of the world. Finally, little wage convergence has been noted across the countries of Western Europe, and wage differentials persist even within areas that have achieved a relatively high degree of economic integration.[3] These last two facts are particularly surprising given the predictions of convergence within liberalizing regions.

This paper assesses the potential advantages the CEEC's might expect from regional economic integration with the EU. It proceeds in five stages. First, it provides an overview of the literature on trade and regional integration and its predictions for convergence. Second, it provides a brief overview of EU-CEEC trade experience and then analyzes the historical experience of growth and convergence in Western, Central and Eastern Europe. From here, the paper goes on to discuss models used to estimate the consequences of trade between the EU and the CEEC's, and the relative competitiveness of the latter countries with respect to the EU. The third part discusses the methodology and findings of the intra-industry trade models. The fourth part analyzes a second approach within the framework of intra-industry trade that incorporates unit value measures as an approximation of factor intensity. The fifth part analyzes the use of unit value measures in their own right.

Overall, this paper provides evidence that these methodologies greatly exaggerate the positive outlook of the CEEC's regarding their competitiveness vis-à-vis the EU. This does not mean that the consequences of economic integration will necessarily be negative, but it does suggest that more thought needs to be given to the means by which the CEEC's negotiate transition to the market economy, economic integration and in particular, membership with the EU.

I. Trade Liberalization, Economic Growth and Convergence

The predictions of the standard neoclassical economics literature and the Heckscher-Ohlin theory of international trade are relatively sanguine about the prospects of economic integration—especially for less developed countries integrating with more

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[3] Van Mourik (1994), who has completed perhaps the most thorough study of wage convergence within the member countries of the EU, finds that unless one controls for purchasing power parities there has been no wage convergence whatsoever among the countries of Western Europe. Once PPP's (purchasing power parities) are controlled for, Van Mourik does find greater evidence for wage convergence. However, the use of PPP's in this context should be carefully considered. While PPP's adjust for the effects of exchange rates between countries, exchange rates should be considered a measure of the relative competitiveness of an individual economy. If one is concerned, for example, with the issue of "cohesion" across the Member States of the EU, or with competitiveness more generally, then PPP's do not seem a relevant guideline.

advanced regions. Countries that are abundant in labor should see a rise in labor-intensive forms of production, and countries that are abundant in capital should see a rise in capital-intensive forms of production. Thus the more advanced EU Member states should benefit from trade with the less advanced CEEC's via specialization in more capital-intensive forms of production and the CEEC's should likewise benefit via CEEC specialization in more labor-intensive forms of production.

The conventional assumptions of the Heckscher-Ohlin model of international trade are that the free movement of the basic factors of production—capital, labor or goods—is thought to be the principal engine of convergence between countries. Building upon this basic model of trade, the literature on regional integration that is most relevant to the potential experience of the CEEC's addresses two basic points: 1) whether economic integration promotes competitiveness and economic growth, and 2) whether economic integration leads to convergence (either in the relative costs of the factors of production or in the standard of living across countries). Generally speaking, this literature promotes the idea that periods of globalization are associated with rapid growth and economic convergence, while periods of increasing trade restriction or relative economic isolation are associated with slow growth and economic divergence. For the CEEC's then, trade and market liberalization are the best possible path to promoting economic competitiveness and convergence.

Economic Integration and Growth: the central argument here is that trade liberalization promotes economic growth. Newly emerging economies are encouraged to open up to free trade, since this is seen as one of the central means of promoting industrial restructuring and economic competitiveness. Authors such as Sachs and Warner (1995) or Dollar (1992) argue that trade and market liberalization are the surest paths to promoting rapid economic growth. Trade liberalization is thought to promote economic growth in a couple of ways. For one, it should make inputs cheaper. If economies depend on large amounts of foreign inputs, then the reduction or elimination of tariff barriers will make end-products more competitive. For another, opening economies to foreign goods increases competition. This forces companies that may otherwise enjoy a monopoly position to improve their overall competitiveness and forces prices downward. More competitive domestic firms will likewise gain from the increase in the size of the market resulting from trade liberalization. Finally, some authors point to the importance of the process of technological diffusion triggered by foreign investment as a motor of economic growth and convergence.[4] Openness to trade is presumed to drive this process of technological diffusion and development by attracting foreign investment.

Economic Integration and Convergence: There are a considerable number of authors who insist that there is a relationship between economic integration and convergence. This literature focuses either on convergence generally in the standard of living across countries, or more specifically on convergence in wages across countries. Ben-David (1996), for example, notes that convergence in the relative standard of living has occurred across groups of countries with strong trading relations (convergence fails

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[4] In particular, see Grossman and Helpman (1991), but also Zysman and Schwartz (1998), Eichengreen and Kohl (1998).

where countries are not integrated into the same trading networks). Authors typically suggest that the wages of low and unskilled workers will increase in the less advanced countries and will decline in the more advanced countries, while those of highly skilled workers will increase in the more advanced countries and decline in the less advanced countries. Williamson (1997), and Williamson and O'Rourke (1995) point to this type of wage convergence in the European core over the 1870-1913 period, and conclude that it was the result of trade openness and labor migration between these countries. As countries became less open to trade after 1913, and presumably, as labor became less mobile, wages also ceased to converge.

In the modern era, however, labor is thought to be less mobile (Hatton and Williamson, 1997, 1995). While labor mobility may have diminished somewhat, the extent of capital or trade flows in the 20th century have greatly increased. Accordingly, theorists point primarily to the importance of trade liberalization (and less to labor mobility) as a means of producing wage convergence. Leamer (1996), for example, argues that trade liberalization accounts for a large share of wage convergence across the US and the new emerging economies. These findings are supported by similar findings from Wood (1995, 1994) for trade between the more advanced countries of Western Europe and the Newly Industrialized Countries, and by Ben-David (1993), for trade within Western Europe. The wages of skilled workers are said, once again, to increase in more advanced countries and to decline is less advanced countries, while less skilled workers in the more advanced countries should see a deterioration in their wages, while in less-advanced countries, wages should improve.

These authors generally are opposed to trade liberalization. All of them support the view that trade has mutually beneficial effects on economic performance. Trade leads to a more effective allocation of resources between and within countries, and thus is mutually beneficial to all countries that adopt trade liberalization. This does not mean, however, that there are no adjustment costs to trade liberalization. And in fact, this is where some authors focus their efforts. Rodrik (1997), for example, points out that countries should be more aware of and responsive to the costs of trade liberalization in order to stem waves of producer and labor demand for protectionism. Failure to do this will lead countries to miss out on the overall gains of trade liberalization.

All the same, views on the benefits and disadvantages of trade liberalization remain controversial. Berend (1994) argues, that it is not the first-world free market (and free-trading) economies that present the best model for Central and Eastern Europe, but rather the Newly Industrialized Countries (NIC's) and the role played by government in the promotion of economic development. This view reads as an invective against the Hungarian government's failure to protect or subsidize some of the traditional Hungarian economic sectors (in particular agriculture) in the early phases of economic adjustment and restructuring. Trade liberalization in this view was too rapid and too radical an instrument of economic adjustment.

While some authors insist that trade liberalization alone gave the needed boost to the economies of the NIC's, others argue that these countries could not have achieved their unusual levels of economic success had it not been for massive governmental efforts

at economic restructuring.[5] Krugman (1997, 1995, 1994a) insists that the East Asian miracle is largely a fiction (a point brought home by the crash of Asian markets in 1997). According to Krugman, the E. Asian tigers achieved high rates of economic growth through large-scale increases in participation in the labor market (peasants to workers), greatly increasing skill levels (education), and through high levels of physical capital investment (high savings/ high investment). Missing in this formula, according to Krugman, were real improvements in overall productivity.

Yet Krugman's position on this debate is elusive. Having spoken against attempting to promote economic competitiveness and against the interventionist role of government,[6] there is a certain wizardry in what he does. On the one hand, he declares that "competitiveness" is not the key, and should not be the primary goal of individual governments. Governments that concern themselves with competitiveness not only "miss the point", in pursuing policies intended to promote competitiveness they more likely misallocate resources and weaken economic performance.[7] In Krugman's view, since economies naturally specialize in comparative advantages, governments should not concern themselves with "competitiveness" or consider trade a zero-sum game. Trade will be most beneficial without government intervention and its consequences are not zero-sum.

Ironically, Krugman indirectly insists upon the notion of competitiveness when speaking about the Asian miracle. By pointing out that countries failing to make real improvements in efficiency will fail to achieve their ultimate goal of convergence and will never successfully catch up to, or surpass, the US or other advanced industrialized countries, he implicitly insists upon the notion of competitiveness. Less sanguine about the ability of less developed economies to go it alone or to develop "competitive" potential, other authors point to the need for more consistent efforts to build highly skilled laborforces and attempts to promote more technologically advanced or higher value-added types of production. Edwards (1997, 1993), Rodrik (199?) and others openly advocate focusing a greater share of governmental effort on some mix of industrial and/or

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[5] Until the recent collapse of the Asian growth miracle, the growth performance of the advanced industrialized countries was eclipsed for almost two decades by the rapid growth of the newly industrialized countries (NIC's): South Korea, Singapore, Taiwan and Malaysia. The so-called "Asian Tigers" have experienced growth rates well above those to which the advanced industrialized countries have grown accustomed over the postwar period. For some, the positive experience of these countries has been driven solely by trade liberalization and export-led growth (Dollar, 1992; Sachs and Warner, 1995). However, there is likewise a growing body of literature that emphasizes the role played by governments in engineering this growth performance (Krugman, 1997, 1995, 1994; Rodrik, 1995; Young, 1995; Wade, 1990; Amsden 1989).

[6] Krugman, 1994b, 1987.

[7] Krugman is not opposed to the notion that certain types of protection or subsidization might potentially be helpful, but he is opposed to the idea that governments can reasonably make these decisions. Governments are subject to "capture" from interest groups for a number of reasons: governments are placed before mixed incentive structures (both electoral success and the promotion of economic performance); they have high information costs (governments lack expertise, and the experts they hire do not face the same incentive structures that firms do); and finally, some interest groups benefit from organizational advantages (intense interests are more easily collectivized than diffuse interests) which enable them to promote particularist agendas.

educational policy. In their eyes, openness to trade as the principal or sole engine of growth is controversial.

As a result of observations that third world countries do not seem to converge upon first world countries as quickly as one might expect, the more conventional HO model of international trade has come under fire.[8] Wealth is clearly more highly concentrated either in the first world, or even in specific regions. A number of attempts have been made to explain this empirical finding. One set of explanations emphasizes the role of education and variation in levels of skill across countries.[9] Another set of explanations emphasizes the role of increasing returns, in particular where increasing returns are "external" to the firm and arise from regional concentrations of capital. The Krugmanesque model of geographic concentration[10] suggests that some countries could possibly gain from regional integration, while others might lose. Thus the benefits that individual CEEC's might gain from closer association with the EU should be seen as controversial.

In this light, the recommendations of some authors for the countries of Central and Eastern Europe should be seen as problematic. In order to achieve more rapid accession to the European Union, Sachs and Warner (1996), for example, propose that the CEEC's forego claims on EU structural and cohesion funds (the body of redistributive policies intended to finance the restructuring of the less developed regions of the EU) in return for greater trade liberalization, presumably in sectors such as agriculture where the only significant barriers remain. Ironically, these authors recognize that EU membership involves not only a degree of trade and market liberalization, but also a degree of "re"-regulation. As part of EU membership requirements, the CEEC's are expected to adopt the "acquis communautaires", (i.e. the existing body of EU legislation and market regulations). As Sachs and Warner note, and others would concur,[11] these regulations not only serve to increase the costs of economic association, they likewise have the potential to reduce economic efficiency. Beyond this, fulfilling EU membership requirements will necessitate financial resources these countries do not have in abundance. The advisability of relinquishing access to funds that potentially provide an important compensating mechanism for the costs of accession should be considered with caution.

In addition, however, the pursuit of EU membership will result in more than just financial burdens. One fundamental difference between the Asian Tigers, and the countries of Central and Eastern Europe is that the Asian Tigers will continue to enjoy the capacity to determine their own trade and economic adjustment regimes while the CEEC's are progressively losing this advantage as they become more and more firmly integrated into the European marketplace. The terms of the association agreements have already greatly

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[8] Lucas, (1990), Pritchett (1996).

[9] Barro (1997), Barro and Sala-I-Martin (1995)

[10] Krugman (1991).

[11] Koedjik and Kremers (1996), for example, point to a strong correlation, among EU Member States, between lower levels of regulation and higher rates of economic growth. While market liberalization and flexibility in the labor market may have strengthened the US economy and helped to reduce unemployment, the European economies remain far more regulated and much less successful at reducing unemployment.

limited their room for maneuver on such issues as trade management, and integration into the EU's European Monetary Union (EMU) will further limit the use of exchange rate regimes as an additional balancing mechanism. Actual membership will imply the greatest potential restriction on the use of these tools and will likewise include substantial restrictions on the ability to pursue an independent industrial policy. If East Germany is any guide for the future of the Central and East European countries, then EU membership may not be the best alternative. Abandoning monetary and and to some extent fiscal independence may have serious consequences for the development of less advanced economies. The abandonment of a sovereign trade regime or the ability to pursue an independent industrial policy may likewise impede the ability to control economic development.

To what extent the CEEC's can be expected to win or lose from trade liberalization and economic integration is the subject of the remainder of this paper. It is certainly possible that the CEEC's will require far more than trade liberalization in order to achieve their goals of economic growth and ultimately convergence on the Western standard of living. Far greater injections of capital than those afforded by openness to foreign investment may be necessary in order to be able to maintain competitiveness with the Member States of the EU. The next section considers the relative importance of CEEC trade with the EU, and then raises the question whether the long-term experience of other EU integrating states speaks in favor of CEEC prospects.

II. EU-CEEC Trade and Long-Term European Convergence: The Western Link

For the countries of Central and Eastern Europe, the opportunity for economic renewal afforded by the end of Soviet domination is historic. Most assume that those countries that manage to make it into the EU in the first round of membership negotiations[12] are more likely to achieve what countries in the region typically failed to achieve during the previous two centuries—i.e. a general restructuring and strengthening of their economies through a solid anchoring in the Western sphere.[13] While the experience of liberalizing countries such as the NIC's (Newly Industrialized Countries) is informative, to better understand the consequences of economic integration with the EU, it is instructive to consider two issues. This section will first discuss current CEEC trade experience with the EU, and second it will consider the long-term experience of convergence between the CEEC's and other European states, both as EU members and as non-EU members.

The relative importance of trade with the EU for the CEEC's is great. Yet, for the CEEC's, trade with the EU has resulted in mounting deficits and growing concern over the advantages of trade and trade openness. Although between 1991 and 1996, CEEC exports to the EU increased at a dramatic rate, this increase has been paralleled by a steady rise in their trade deficit with the EU, reaching 16.5 billion ECU's for the CEEC's

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[12] The EU limited the first round contenders to a smaller subset of five countries in March 1998 (the Czech Republic, Estonia, Hungary, Poland and Slovenia). However, by March 1999 there was discussion of the possibility of only permitting the membership of two candidate countries (Cyprus and Hungary).

[13] See for example Berend (1997).

in 1996. Assuming that capital-importing makes countries more competitive in the longer term (i.e. via technology transfer and increases in productivity), these imbalances may well be advantageous in the long run. Seen as a share of GDP, these trade deficits are still manageable for most of the CEEC's, amounting on average to only 5.7% of GDP in 1996 (see Table I). Differences between individual CEEC's are large, ranging from 17.7% of GDP in Estonia, 9.7% in the Czech Republic, and 7.2% in Poland, to much smaller figures for countries like Hungary (3.4%), Romania (2.7%) or Slovakia (3.9%).

[Table I about here. Trade deficits as share of GDP]

Overall, trade with the EU accounts for a significant share of economic production in the CEEC's (see Table II). Exports to the EU seen as a ratio to GDP are approximately 20% of GDP in Hungary, the Czech Republic and Slovakia in 1996. Figures are somewhat higher for Estonia, Slovenia and Latvia, where the ratio of exports to GDP is approximately 30% of GDP. Trade with EU Member States also represents a highly significant share of overall trade for the CEEC's (see Table III). On average, approximately 61% of CEEC trade in 1996 was with EU Member States. These figures are somewhat higher for countries such as Hungary, Poland, Slovenia and Estonia.

[Table II about here. Ratios of CEEC exports to EU to GDP]

[Table III about here. Trade with EU as share of total world trade.]

Thus, the EU represents a significant export market for the countries of Central and Eastern Europe and trade liberalization with the EU is of great significance for these countries. Yet, as Ellison (1999) attempts to illustrate, the degree of trade liberalization agreed to by the EU has greatly favored the EU, while placing the CEEC's at a relative disadvantage. Trade in sectors in which the CEEC's had a presumed advantage—coal, steel, textiles, and agricultural products—was largely restricted, while the EU was granted virtually unrestricted access to CEEC markets, except in some of these same "sensitive" sectors where the need for trade restrictions was questionable. Integration into the European Coal and Steel Community is likewise resulting in restrictions on the ability of some of the more competitive polish steel firms to compete with the EU and further restricting their access to EU markets (Keat, 1999).

The long-term experience with convergence in the European arena is likewise instructive with regard to the potential for CEEC convergence on the EU standard of living. As noted above, the strong assumption of the trade liberalization literature is that integration in the European core and the reduction of trade barriers should have led to convergence among these countries.

Experience with convergence across Europe is varied (see Table IV), with some countries exhibiting a remarkable ability to catch up, while others have either failed to do so, or have fallen behind. Within the core group of European countries (those which currently make up the EU plus Norway), there has been substantial convergence over an extended period (1820-1992). Convergence has been much less pronounced for the so-called "*cohesion*" countries[14] or Central and Eastern Europe.

(Table IV about here: Per capita GDP in W., S., and E. Europe)

Between 1820 and 1992, variation in the level of economic development and convergence between the CEEC's and Western Europe illustrates that the CEEC's have lagged considerably behind the current Member States of the EU (in Table IV, W+N+S, excluding Norway). This is a long-term trend dating back to the 1820s. Between 1820 and 1992, the CEE economies fell from 71.1% of the Western average (W+N+S) to roughly 30% of the Western average. There is almost no upward variation over this entire period. There are two great periods during which the economies of Central and Eastern and Western Europe diverge the most: from 1820-1928, and from 1980-1992. Between 1820-1928, per capita GDP in the CEE economies dropped from 71.1% to 51.8% of the Western average. Between 1950 and 1980, this gap remained relatively stable, fluctuating within a band of 50.0% and 47.3% of the Western average. From 1980 to 1992, the gap between Western and Central Europe increased again, with per capita GDP of the CEE economies dropping to 29.7% of the Western average. Standard deviations in GDP per capita between the economies of Western, Central and Eastern Europe tell a similar story.

While the first and last periods (1820-1928 and 1980-1992) exhibit the strongest divergence between these two regions, the first period covers over 100 years.[15] The second period covers only twelve. Part of this latter period of divergence is attributable to the severe economic decline experienced by the CEEC's as a result of the collapse of the former CMEA markets and the ensuing economic restructuring after 1989. But some of this decline occurred prior to 1989. The CEEC's began experiencing negative growth rates in the period from 1986-1990 (see Table V).

(Table V about here. Average Real Growth in the CEEC's and W. Europe: 1960-1997)

Over the period 8120-1992, variation in GDP per capita in the Central and East European economies and the West suggests that some degree of catch-up is possible. Austria and the former Czechoslovakia illustrate this point. In 1950, directly after the

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[14] I use the term "cohesion" countries to refer to those EU Member States that receive funds the largest share of structural and cohesion funds as a result of their lower level of economic development compared to the EU average GDP per capita. These countries are Greece, Ireland, Portugal and Spain.

[15] Doubtless there is somewhat more year to year variation during this period than these statistics illustrate, but the data furnished by Maddison (1995) do not permit greater precision.

Second World War, Austria was relatively close to the per capita GDP of Czechoslovakia (83% and 78% of the EU area average, respectively). More significantly, in 1928, per capita GDP in the *cohesion* countries of Spain and Ireland was between that of Hungary and Czechoslovakia, with Greece just below that of Hungary. Given appropriate conditions, there is no reason to assume that the CEE economies could not have developed apace with the rest of Western Europe. In particular those CEEC's most closely linked to the West (Czechoslovakia, Hungary and Poland) presumably had good chances of approaching the Western average.

The shift in growth patterns emerging out of the era of Soviet control is dramatic. In 1992, Austrian per capita GDP was 2.5 times the size of Czechoslovakian per capita GDP, and 3 times the size of Hungary's. Spain's and Greece's per capita GDP was roughly 2 times the size of Hungary's and Czechoslovakia's. Comparing Czechoslovakia and Hungary to Norway and Finland, there are similar results. While the level of economic development of these northern countries was comparable to that of Czechoslovakia and Hungary in the 1800's, Norway and Finland have been relatively successful in converging with the core countries of Western Europe. Italy's experience has been similar to that of Norway and Finland.

Sachs and Warner insist that there are a number of reasons why, with closer integration with the EU, the CEEC's perform very well: 1) historically the CEEC's exhibited per capita incomes that were not far from that of parts of Western Europe, and 2) smaller states that undertake closer economic integration with larger states tend to grow faster (1996:1). Yet, contrary to what these authors claim, the experience of Spain, Portugal and Greece does not confirm this view. Thus far, not all of the *cohesion* countries have been able to achieve similar aspirations. Though these countries grew at favorable rates in the latter half of the 1980s, such growth did not continue on into the 1990s. On average, growth rates in this region, apart from the stellar example of Ireland, dropped from approximately 4% per year to 1-2% per year (see Table V above).

While it is tempting to view the favorable growth rates of the *cohesion* countries in the second half of the 1980s as resulting from European integration, it is important to note that the growth rates of this region have exceeded the European average since at least the 1960s. In fact, these countries grew much more rapidly during the period 1960-1975 than is currently the case. As noted above in Table V, from 1961 to 1975, the 5-year average annual growth rate of real GDP exceeded the European average by considerably more than during the period from 1981-1990. Only in the 1991-1995 period has the differential begun to increase again in favor of the *cohesion* countries, though this figure is alone the result of Ireland's favorable economic performance. Excluding Ireland, the 5-year average annual growth rate for the *cohesion* countries remains below the European average. As Spain and Portugal gradually acceded to the European Union, their rate of economic development first declined, and then improved for a few years after they had formally become EU members in 1986. In the 1990's, however, their rate of economic growth fell below the EU average. The rate of economic growth in Greece has actually declined steadily since it became a member in 1981. More importantly perhaps, even the comparatively positive growth performance of Ireland does not exceed its earlier growth performance prior to achieving EU membership in 1973.

Over the 1820-1992 period, the *cohesion* countries have experienced almost no real improvement in their position compared to Western Europe. While experiencing significant divergence from the West European level and hitting their low point in approximately 1950, by 1992 the *cohesion* countries only succeeded in arriving at a point very close to their original position in 1820. More importantly, most of the improvement experienced by the *cohesion* countries occurred once again between 1960 and 1973. During this period, Spain, Portugal and Greece all experienced dramatic improvements compared to the European average. Convergence slows once again for all of these countries between 1980 and 1992.

Given the predictions of the convergence theorists, and especially at a time when barriers between the countries of the EU are falling, one would expect the opposite result. Maddison relies on a culturally-based argument to explain the growth experience of Spain and Portugal, noting their cultural similarity and proximity to the then European Community (1995: 75). Yet it is curious that this region should grow more slowly after formally joining the EU, and Maddison's argument clearly neglects this fact. Given the relative isolation of these countries and the predictions of trade liberalization theorists, one would have predicted a very different experience.

Williamson (1995), and Williamson and O'Rourke (1995) strongly suggest that at least part of the convergence between countries over the period 1870-1913 was the result of relative openness. While the *cohesion* countries largely failed to converge with the European core over the 1870-1913 period, according to these authors, these countries were relatively closed off from the rest of Europe during this period. Oddly enough, our figures suggest that these countries experienced considerably more convergence between 1913 and 1973, during a period or relative isolation and protectionism, in particular for the *cohesion* countries.

The experience of the CEEC's is even less favorable than the experience of the *coehsion* countries. While the CEEC's compare favorably to the European average annual rate of growth from 1961-1975, their performance begins to decline significantly as of 1975 and is actually negative in the years prior to the collapse of the Soviet Bloc (see Table V above). While their performance goes further into a tailspin from 1991-95, as noted above, this is partly the result of the upheavals that accompanied the collapse of the former Soviet Bloc and the period of economic restructuring that followed. On the whole though, the Central and East European countries have diverged strongly from the development path of the European core.

For individual CEEC's (as for the *cohesion* countries), it is unclear whether there will be any real convergence in GDP per capita as a share of the EU average with economic integration. For the 10 applicant countries of Central and Eastern Europe, any potential convergence is clouded by the fact that the CEEC's suffered a serious period of initial economic decline after the opening in 1989. In many cases the extent of economic decline has been greater than that experienced by western countries during the Great Depression and most of these countries still have not regained the level of economic development they enjoyed as of 1989 (see Table VI). The Bulgarian and Romanian economies were perhaps the hardest hit by this adjustment process, and are still far below

their 1989 levels. Only Poland has actually been able to improve upon its 1989 level of economic development.

(Table VI: about here. Real GDP in Transition Countries, 1989-1996)

Based on cursory perusal of the evidence, convergence and divergence are typically long-term phenomena. Change has not been that great in either direction over considerably long periods of time. Thus whatever outcome countries might promise themselves from closer integration, progress is typically slow. Based on these figures, the role of membership in the European Union in producing economic growth should be carefully considered. Maddison finds that the *cohesion* countries have gained from their closer association with the European Community, both through trade and capital movements, as well as through European Community transfers and the adoption of economic policies. In his view, this has shown itself most clearly in a catching up of productivity levels and an increase in trade (1995: 85).

Yet, this should be weighed carefully not only against the periods of rapid economic growth that preceded membership, but also against the comparatively poor performance in unemployment rates currently being experienced by these countries. Spain, for example, exhibits regional unemployment rates of over 30%.[16] Moreover, unemployment in Spain has worsened over the past decade rather than improved. Until those advantages mentioned by Maddison make their impact felt on real GDP growth and increased levels of employment, the benefits of membership should be considered with caution.

Attention should also be paid to the experience of the former EFTA countries which have experienced both convergence among themselves over the 1820-1992 period, and have maintained a level of economic development similar to that of the European core without actually being members of the European "club" of six, nine or twelve (Table IV above). This last fact suggests that it is possible to remain outside the privileged group of EU countries and achieve both high rates of economic growth and a comparable degree of economic convergence.

III. Trade Flows, Measurement and Intra-Industry Trade

As the data presented above suggest, while convergence is hypothesized as the likely outcome of trade liberalization and economic integration, empirical evidence is harder to come by.[17] The attention of many authors has focused on the role of linking economies of the East to what some refer to as *International Production Networks* (IPN's). Zysman and Schwartz (1998) and others insist that increasing levels of integration into European IPN's will promote the economic development of these countries. These authors suggest that the link to Western Europe is the key to the

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[16] European Commission, 1996: 136.
[17] Edwards (1993) provides an excellent overview of this literature.

development of the Central and Eastern European economies,[18] and suggest in particular that this link will lead to the diffusion of technology through foreign investment and linkages between Western and Eastern firms,[19] gradually leading to improvements in CEEC competitiveness.

In an attempt to measure and assess this phenomenon of integration, many of these authors have focused their attention on the measurement of intra-industry trade (IIT) between the countries of Central and Eastern Europe and the EU. Trade flows between countries are typically thought to be of two types: "inter"- or "intra"-industry (either between or within individual economic sectors). The neo-classical model of trade assumes that trade is of the inter-industry type. Countries specialize in production processes based on their relative factor endowments (or on their so-called "comparative advantage"). Ideally, countries trade in order to obtain goods they produce less efficiently than other countries (or not at all), in exchange for goods they produce more efficiently. Thus, based on this model, countries should trade more with countries that differ in their relative factor endowments or share of natural resources, and should trade less with countries that are similar.

Trade is likewise typically thought to be inter-industry in nature because countries are expected to exhibit sectoral specialization in either capital-, labor- or land-intensive production processes based upon their relative factor endowments. Countries which have greater endowments of capital should specialize in the production of goods that are capital-intensive in nature (or which require capital-intensive forms of production). Countries that have greater endowments of labor should specialize in the production of goods that require labor-intensive forms of production (and so on). Given that different types of goods (clothing as compared to cars) tend to require production processes that vary in their relative use of factor intensities, countries are thus assumed to allocate comparatively more resources to specific economic sectors depending on their relative comparative advantage. Thus, the composition of trade should differ across countries based on relative factor endowments. Countries are expected to trade more intensively between individual economic sectors rather than within individual economic sectors, and countries should likewise trade more intensively with countries that differ in their relative shares of land, labor and capital, and in their relative levels of economic development.

These theories, however, stand in marked contrast to the empirical findings. Countries that are comparatively advanced trade more with each other than with countries that are less advanced, and countries trade more with countries that are similar in the relative factor endowments than with countries that differ in this respect. Moreover, the phenomenon of intra-industry trade, or trade within individual economic sectors, is quite frequent between the more advanced countries.[20] Economists have attempted to explain these findings with the theory that trade between the more advanced countries is driven by

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[18] See also Eichengreen and Kohl (1998), Landesmann (1995), Landesmann and Burgstaller (1997), Aturupane et al (1997), Wolfmayr-Schnitzer (1997), and Döhrn (1998).

[19] In particular, see Zysman and Schwartz (1998), and Eichengreen and Kohl (1998).

[20] Grubel and Lloyd (1974) were among the first to point out what is now a commonplace in the literature—namely that intra-industry trade is a frequent occurrence between the more advanced economies—and to offer explanations for why this might be the case.

the phenomenon of product differentiation and the exploitation of increasing returns arising from economies of scale. Firms that specialize in the production of one good and which are able to gain from size advantages that permit higher levels of productivity per unit of output are said to benefit from "economies of scale". The potential to exploit greater economies of scale arising from increases in the scope of the market will propel countries specializing in the production of such goods to engage in trade.

The measurement of intra-industry trade (IIT) has interested observers of economic integration—especially between more and less developed countries—for obvious reasons. Partly because of the fact that the more developed countries tend to have higher levels of intra-industry trade, relative levels of intra-industry trade have become a proxy measure either for the level of development, or for the capacity of countries to become more developed. Furthermore, given that the presence of increasing returns, as noted above, may potentially disadvantage less advanced countries, measures of IIT are foremost of interest because they presumably provide information on the relative competitiveness of individual countries and their overall ability to catch up with the more advanced countries. Increases in the level of IIT tend to be viewed as an indication that the economies of individual countries have the potential to catch up to more advanced countries in their relative levels of economic development, and as an indication of the relative level of competitiveness.

However, there are a couple of reasons why the measurement of IIT might fail. For one, even if the existence of so-called "intra-industry" trade can be measured empirically, this does not mean that trade cannot be the result of cost advantages or more conventional HO-comparative advantage type assumptions. Within the auto industry, for example, some trade involves the outsourcing of component production, in particular of those components that require more labor-intensive production processes. Thus trade within this sector could be of the comparative advantage type, or "vertical" in nature, yet the intra-industry trade measure would be unable to capture this. Outward processing trade—the export of semi-finished goods for further processing and later re-import for sale or additional processing—constitutes a form of intra-industry trade which presumably is based on cost considerations, and not necessarily on a strategy of product diversification.

While HO trade theory generally suggests sectoral specialization, it is entirely possible that the use of one set of factors can be substituted for another (e.g. that labor can be substituted for capital). Cars can be made with much labor and little capital input, or with much capital input and little labor. All that is likely to vary from country to country is the level of productivity and the relative wage. The incentive to invest in one or the other enterprise will depend on the relative return to capital, which in turn will depend on the relative productivity of labor vs. that of capital. As such intra-industry trade can be the result of variation in the exploitation of capital/labor ratios. As a result, it is entirely possible that countries will exhibit high levels of intra-industry trade without being developed, and without having significant development capacity. The phenomenon of intra-industry trade, in this sense, might simply disguise low-cost production as product diversification.

Moreover, given the above, it is not clear that intra-industry trade will successfully measure the degree of, or potential for, economic progress. The incorporation of the CEEC's into larger *international production networks*, does not necessarily entail "economic advancement" potential, since by economic advancement one tends to think primarily in terms of gains in productivity (or technological progress). To the extent that intra-industry trade disguises the relative importance of cost factors and relative factor intensity, it is impossible, of course, to determine from the intra-industry trade index itself whether this western "linkage" actually benefits these countries in terms of improvements in overall competitiveness.

Generally speaking, analysts concur that the average level of IIT has increased in the CEEC's. However, little attempt has been made in this literature to test some of the more general assumptions of the model of intra-industry trade. By and large authors simply assume that tests for intra-industry trade accurately estimate either the degree of economic progress these countries have made, their level of competitiveness, or their ability to advance in the future. Landesmann (1995), for example, notes that the share of intra-industry trade increased over the period 1989-1993, for Hungary and the Czech Republic, while for Poland and Bulgaria the share stagnated, and declined slightly for Romania. Landesmann and Burgstaller (1997) likewise argue that significant convergence can only be measured by "price/quality gaps", and suggest that there has been more significant convergence along these price/quality gaps for the more advanced CEEC's, in particular for the Czech Republic, Hungary, Poland and Slovenia.

Other authors contest the meaningfulness of these findings. Döhrn (1998) finds similar increases in intra-industry trade for the former CMEA countries over the period 1988-1994, but suggests that the technology transfer component of investments in these sectors and their real contribution to the productivity of the CEEC economies is suspect. Aturupane et al. (1997), on the other hand, criticize the intra-industry trade model by suggesting that it overemphasizes the extent and nature of intra-industry trade. They suggest that some 80-90% of what is commonly referred to as intra-industry trade is "inter-sectoral" in nature. Their findings suggest that broad measures of intra-industry trade may in fact overestimate the degree of convergence between more and less-advanced economies. According to these findings, levels of what is genuinely classifiable as intra-industry trade have not changed in the CEEC's over the 1990-1995 period. However, the authors confirm the view that the more advanced CEEC's, in particular the Czech Republic and Slovenia, have experienced significant increases in intra-industry trade.

In an attempt to resolve some of the difficulties arising from the inability to distinguish between HO-comparative advantage type trade and trade that is driven by increasing returns, I have chosen to implement a couple of different methods. In this section, I use lower levels of disaggregation in the measurement of trade flows. In the following section I will focus on potential variation in factor intensity within lower levels of aggregation.

Since there may well be trade across countries within individual sectors that is the result of variation in factor intensity, I chose to measure trade flows at very disaggregated

levels. Most studies focus on the 3-5-digit level.[21] Yet, where trade within individual sectors is potentially the result of variation in factor intensity, measuring trade flows at the 3-5-digit level may fail to distinguish such variation. Thus while trade may still be "inter-sectoral" or "vertical" in nature, it will be impossible to tell if trade flows are tested at this level of aggregation.

Using 8-digit Eurostat data, I measure the degree of intra-industry trade between individual CEEC's and the EU, as well as of individual EU Member States with the EU. I have not analyzed overall trade flows of these countries with OECD countries, or with all countries, since the focus of this paper is to determine the impact of integration of the CEEC's into the EU marketplace. Accordingly, I have restricted the analysis to CEEC trade with the Member States of the EU, and used EU Member State trade with other EU Member States both as a benchmark and as a means of standardizing my results across both the EU Member States and the CEEC's.

Results:

In comparing 8-digit levels of intra-industry trade with those of Aturupane et al (1998) measured at the 6-digit level, I find that IIT measured at the 8-digit level of aggregation tends to reduce the share of IIT by a factor of 9% or more (except for the case of Hungary, where the difference is only about 4%). Thus, if it is possible to estimate intra-industry trade at this level of disaggregation, there is a substantial bias in favor of intra-industry trade using trade figures that are less disaggregated than the 8-digit level. However, even at this level of disaggregation, there is a clear and marked increase in overall levels of intra-industry trade for the CEEC's over the 1988-1996 period (see Table VII). The share of intra-industry trade in 1996, for most of these countries, is approximately double that of 1988. In addition, it is clear from these figures that several of the Central and East European countries rank quite a bit higher on the scale of intra-industry trade than several of the current EU Member States. The Czech Republic, Hungary and Slovenia all rank more highly than Ireland, Finland and Portugal. Greece ranks near the bottom of the list, comparable to the Balkan and the Baltic states. While the remainder of the CEEC's rank at the bottom of the list, there is a considerable amount of overlap between EU Member States and some CEEC's in the intermediate range.

(Table VII about here. Intra-industry trade.)

From this data it should be immediately clear that there are a number of significant anomalies regarding the measure of IIT and its relationship to the level of economic development. If this relationship is true, then one would expect countries such as Denmark, Germany or Austria to top the list. France, however, rises above all of these countries. This finding is curious, given Germany's economic performance relative to

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[21] Wolfmayr-Schnitzer, for example, speaks of a consensus in the literature that the 3 digit SITC level is the most appropriate for measuring intra-industry trade (1997: 69).

France. Sweden, Finland and Denmark also rank much lower on the list than one might expect. While the performance of Sweden and Finland is perhaps related to their previous isolation from the European marketplace, this cannot be the explanation in the case of Denmark. Finally, Ireland too represents a significant anomaly. While the so-called "Irish Tiger", as noted above, has experienced exemplary economic performance in the 80's and 90's, this performance is not paralleled by the type of development one would expect on the share of intra-industry trade. Intra-industry trade in Ireland remained more or less stable, and has even declined somewhat in the last three years.

A more compelling view of the evolution of trade flows between the CEEC's and the EU arises from a look at the degree to which trade is either "two-way" or "one-way" in any given sector at the 8-digit level. The conventional view of HO trade as occurring between different sectors would predict that as we proceed to lower levels of aggregation, we should find that two-way trade becomes the exception rather than the rule, especially if we restrict our analysis of trade flows to that between high and low-wage regions (which is *de facto* what has been done by comparing trade between the CEEC's and the EU). Thus, we would expect for example that Hungary's trade with EU Member States would exhibit two-way trade only infrequently and in a limited number of sectors. Yet this expectation does not fit the data. In fact, measured as a weighted share of trade, two-way trade has increased dramatically from 72% in 1988, to 93% in 1996. Moreover, both the share of export sectors with "two-way" trade and the share of import sectors with "two-way" trade have increased over the same period.[22]

The fact that trade is two-way rather than one-way is troubling with regard to the more standard conception of the expected composition of trade between high and low wage countries. While two-trade might not be surprising when economies first begin a process of trade liberalization, one would not expect the degree of two-way trade to increase as the effects of trade liberalization take hold. The conventional HO model would predict greater specialization, and presumably an increase in "one-way" trade.[23]

The significant question thus becomes how to reconcile the predictions of the HO model with these findings. One possible approach is to assume that trade may be driven by variation in factor intensities across countries, and even by variation in overall productivity across individual firms. To the extent that this is true, it is entirely possible that trade be two-way. The relative productivity of factors and the relative organizational skills of individual firms will then predict the ability of firms to compete and/or trade. The next section analyzes this approach.

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[22] For export sectors, the increase in IIT trade has been from 69% to 90%, while for import sectors, the increase in IIT trade has been from 69% to 90% (again measured as weighted shares).

[23] Even the conventional measure of IIT greatly underestimates the extent of two-way trade since it focuses on a measure of "overlap" within individual sectors, and not directly on the phenomenon of two-way trade.

IV. Unit Value Measures and Factor Intensity:

According to the findings above, even at the 8-digit level of aggregation it is possible that trade is differentiated in terms of relative factor intensities, and thus that "comparative advantage" type trade predominates despite the relatively broad range of two-way trade. In order to test whether trade is of the "comparative advantage" type, (i.e. "vertical", in the language of this approach), or whether it is the result of increasing returns and therefore "horizontal" in character, a few authors have adopted techniques developed by Greenaway et al (1995) and Abd-el-Rahman (1991).

In order to distinguish between intra-industry trade flows that are either "vertical" or "horizontal", these authors take the currency value of exports and imports in a given sector (or sub-sector) and divide it by the number of tons. The so-called "unit-value" measure estimates the value per ton of exported and imported goods. The export unit value (XUV) is then divided by the import unit value (MUV) to arrive at an index which determines whether trade occurs in products that are similar, or whether the relative unit value of products exported is greater or smaller than the relative unit value of products imported in any given sector.

This measure is used to estimate whether countries produce high "quality" or "low cost" products in any given sector, compared to those they import. Under the assumptions of comparative advantage, the CEEC's should specialize in the production of labor-intensive, low-cost goods, while the Member States of the EU would tend to specialize in the production of capital-intensive, high-quality goods. In the language of these authors, "vertical", comparative advantage type trade occurs when the CEEC's export low-cost goods and import high-quality goods, or when XUV/MUV<1. Trade is "horizontal" or intra-industry in nature, when countries export goods similar in unit value to those they import XUV/MUV=1.

Precisely how one should treat the final possibility where XUV/MUV>1 is more controversial. While Aturupane et al (1998) simply treat this as a further example of "vertical" IIT, authors such as Aiginger (1997) point out that such products presumably embody a comparatively high degree of sophistication. Where such products are exported by CEEC's, this may be an indication either of increasing technical competence, or of incorporation into international production networks, i.e. these countries may import intermediate goods, process them further, and then re-export them (as in the regime of outward processing trade discussed below). Where these products are exported by more advanced countries, they are presumably the direct result of greater technological sophistication and/or capital intensity. In both cases, they should likewise be seen as a form of "vertical" integration.[24]

Since the measure of comparative unit values is only an approximation, authors have adopted the convention of analyzing unit values in terms of bands. Values below .85 and above 1.15 are considered examples of vertical trade, while values between .85 and 1.15 are considered examples of horizontal or intra-industry trade. This method concerns only trade that would typically be considered "intra-industry" in nature. However, the

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[24] Fontagné and Freudenberg (1997) adopt a similar position.

advantage of this model is that it suggests that trade of the vertical type should not be considered true intra-industry trade. Only trade that is of the horizontal type should be considered intra-industry in nature.

$$\text{Horizontal IIT:} \qquad .85 \le \frac{XUV}{MUV} \le 1.15$$

$$\text{Vertical IIT:} \qquad \frac{XUV}{MUV} < .85 \qquad \text{or,} \qquad 1.15 < \frac{XUV}{MUV}$$

This method has been applied to CEEC trade by a few authors.[25] Wolfmayr-Schnitzer (1997) analyzes trade of seven of the CEEC's (not including the Baltic's) with OECD countries from 1990-1994 at the SITC 3-digit level and finds that approximately 90% of trade is vertical in nature. Aturupane et al (1998) apply this method to seven of the CEEC's (not including the Baltic's) from 1990-1995. They analyze 6-digit trade with nine of the EU Member States and find that conventional measures of intra-industry trade overestimate its relative importance. These authors find that between 80-90% of intra-industry trade is typically "vertical" in nature. However, they also find that horizontal intra-industry trade is on the rise in these countries.

The figures presented here fine tune this analysis in three important ways. First, as I did in the initial analysis of conventional IIT, I look at 8-digit trade figures in order to determine whether these findings continue to hold at lower levels of aggregation. Second, I have also attempted to broaden the analysis by including all 10 of the CEE applicant countries, and all 12 to 15 of the EU Member States. Finally, I have slightly lengthened the time frame of the analysis to cover data between 1988 and 1996, in order to insure that the findings of previous authors are not the result of short-term fluctuations.

Results:

Distinguishing between "vertical" and "horizontal" intra-industry trade, it is clear that vertical IIT explains some 73.2% of standard intra-industry trade in 1996 (see Tables VIII and IX). However, in this case, the divisions between the CEEC's and the EU Member States are much greater in this case. On average, vertical IIT for the CEEC's represents some 83% of standard IIT, while the same figure for the EU Member States is only 66.2% in 1996. Only Ireland and Greece fall within the range of the Central and East European countries. Estonia, on the other hand, falls within the range of the EU Member States, with 71% of IIT explained by vertical IIT in 1996. Ireland is surprisingly far down the scale, with almost 88% of standard IIT explained by vertical integration in 1996.

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[25] A somewhat similar and interesting method has been applied by Fontagné and Freudenberg (1997) to the analysis of West European trade. They find that the recent increase in European IIT levels can be entirely explained by a rise in vertically differentiated products.

Overall, these findings indicate that the conventional measure of intra-industry trade greatly exaggerates the degree of actual intra-industry trade. Even between Member States of the EU, this level of trade is greatly over-estimated.

[Tables VIII and IX about here. Vertical IIT as share of Total IIT, and Vertical IIT]

Levels of horizontal intra-industry trade presumably play a much greater role for the EU Member States than it does for the CEEC's. This assumption is confirmed by the data: Horizontal IIT plays only a marginal role in the CEEC's (see Table X). While it has increased significantly in some CEEC's over the 1988-1996 period, it remains a marginal phenomenon for most of them. The highest CEEC performers on this scale are the Czech Republic and Hungary, with 7.7% and 6.9% shares of horizontal IIT trade respectively in 1996. Horizontal IIT appears to play a much stronger role in the EU Member States. Apart from the exceptions of Ireland and Greece, which rank just above the less developed CEEC's, all of the EU Member States rank higher than the CEEC's. Some of the more advanced EU Member States have approximately 25% of their trade in this category.

[Table X about here. Horizontal IIT]

As with the conventional measure of IIT and its potential ability to predict economic performance, anomalies continue to arise. At the upper end, France, Belgium and Luxembourg appear higher on the scale of horizontal IIT than Denmark, Germany or Austria. Contrary to the conclusions of preceding authors, these findings suggest lending a note of caution to interpretations of intra-industry trade indices. What these figures represent, either in terms of economic performance and development, or in terms of the potential for increasing returns, is questionable.

To lend some statistical weight to this point, I have regressed the measure of IIT for each individual country against its relative GDP per capita for the year 1995.[26] Assuming, as much of the IIT literature tends to do, that there is a positive relationship between higher levels of IIT and strong economic performance, then one should expect this result to be confirmed by a least squares regression. The results however are more ambiguous than one might wish (see Fig. I). While the share of IIT tends to explain approximately 59% of the variance in per capita GDP, the standard error for this regression is $7,047, or as much as 21% of the per capita GDP of the most advanced state, and at least 2-3 times as high as the per capita GDP of the least advanced state.[27]

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[26] The GDP per capita figures used here come from OECD (1998: 146-7, Table 21), the IIT, VIIT and HIIT figures are from the calculations above.

[27] I have calculated a number of different variations of this general regression equation in an attempt to find any kind of measurable relationship between IIT and GDP per capita. Vertical and horizontal IIT respectively explain 52% and 51% of the variance in GDP per capita. The standard errors for both of these measures are larger than that for the standard error of IIT. Moreover, I have tried out additional

(Fig. I about here. IIT and GDPpc)

A number of factors might help to explain these anomalies. For one, it is important to note that the standard measure of IIT used by most analysts fails to distinguish variation in the index resulting separately either from imports or exports. The IIT index simply lumps these two trade flow measures together and considers both of them equally. The final index is a measure of the degree of "overlap" in trade between imports and exports. However, it is entirely possible for increases in the IIT index to be driven solely by increases in imports. To see the potential effect of increases in imports on this index, consider the currency value of exports for a given product category to be equal to 60, and calculate the index for two different values of imports, 20 and 60:

$$IIT = 1 - (\frac{|X-M|}{\sum(X+M)}) \qquad 1 - (\frac{|60-20|}{60+20}) = 50\% \qquad 1 - (\frac{|60-60|}{60+60}) = 100\%$$

While only imports vary, the index of intra-industry trade jumps dramatically from 50% to 100%.

This finding suggests at least two different points. First, increases in IIT measured by the standard IIT index are to some extent the result of both imports and exports. Overall, exports of the CEEC's to the Member States of the EU have increased to a total of 47.1 billion euro's in 1996 from 10.4 billion euro's in 1988. While this represents a 4.5-fold increase in exports for this region, over this same time period EU exports to the CEEC's have increased from 9.3 billion euro's to 63.5 billion euro's, or 6.8-fold. Moreover, EU trade with the CEEC's has increased by a figure 1.5 times that of the increase in exports for the CEEC's. Finally, although CEEC exports to the EU slightly surpassed EU exports to the CEEC's in 1988, EU exports to the CEEC's are now 1.3 times as great as CEEC exports to the EU. This strongly suggests that a greater share of the increases in the IIT index are the result of increases in CEEC imports from the EU, than of increases in CEEC exports to the EU.

This is a serious methodological drawback in dealing with the CEEC's, countries that have only recently begun to open their markets significantly to the West. Providing more accurate estimations of the degree of overestimation of changes in intra-industry trade generated by increases in imports alone, however, is complicated by the way in which trade statistics are recorded, more or less regardless of the level of aggregation. The composition of trade has changed quite dramatically for individual CEEC's—as well as for EU Member states—between 1989 and 1996, shifting dramatically from agricultural products to manufactured products. Thus while it is possible to measure IIT for individual

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variations, regressing GDPpc on only a select group of manufacturing sectors, on manufacturing as a whole, and on manufacturing and food processing (excluding only agricultural products). None of these equations have turned up stronger results.

CEEC's based on exports from 1996 and imports from 1989 (attempting to hold imports constant over time), the changing composition of trade will disguise the role of both imports and exports in variation in the final index.

Thus ultimately, interpreting CEEC intra-industry trade figures as a measure of competitiveness is risky. In particular, the example of Ireland suggests that increasing levels of intra-industry trade are not the optimal means of predicting economic potential. Ireland has made no advances at all on any of these measures and in fact has declined on some. This is true whether one looks at vertical, horizontal, or the more standard measure of intra-industry trade. Yet, Ireland appears to be the one true success story in the European marketplace among the less advanced EU Member States. Ironically, while exhibiting no significant change on any of these measures, Ireland has generated high levels of economic growth and has successfully begun converging on the politically significant 75% benchmark of the EU average per capita GDP. [28]

These findings suggest that comparative advantage trade may play a much stronger role than suggested by previous findings. Proceeding to a more accurate measure of trade flows that can more successfully capture differences in factor intensity might eliminate some of the gray area in these findings. However, it would be risky to dismiss entirely the comparatively high levels of horizontal IIT exhibited by some of the more advanced EU Member States. While horizontal IIT plays a marginal role for the less advanced CEEC's, the finding that it may play a stronger role for the more advanced states is still of potential significance. Moreover, the degree to which the more advanced EU Member States are able to maintain a lead on the CEEC's in the area of horizontal IIT may be indicative of their ability to maintain a competitive divide between the themselves and the CEEC's.

V. Alternative Measures of Competitiveness

An alternative measure of the degree of CEEC competitiveness is whether countries produce and export goods with higher unit values than those produced and exported by other countries. A number of authors have opted to look only at the evolution of unit value measures of exports (and occasionally imports) over time (irrespective of IIT).[29] This branch of the literature implicitly suggests that countries are better off producing at higher unit value measures, and likewise suggests that higher unit values indicate a greater degree of competitiveness in the international marketplace. Aiginger (1997), for example, uses this type of measure to assess the competitiveness of seven of

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[28] This benchmark is politically significant, since it is the point at which EU Member States are considered advanced enough to no longer require structural funding, though they can continue to receive "cohesion" funds until they have reached the benchmark of 90% of the EU average. However the structural funds provide much greater financial resources than the cohesion funds.

[29] Drabek and Smith (1995), Aiginger (1997), Eichengreen and Kohl (1998). This type of unit value measure has in fact been used in the past, though the relative frequency with which it has been used is perhaps indicative of concern over what it really represents. Frankel (1943) used this measure in an attempt to illustrate the strength of the British economy in the face of rising imports from abroad. Until the 1990's, however, there are not a large number of articles that implement this method.

the ten CEEC's (excluding the Baltic states) in 1989 and 1993.[30] Eichengreen and Kohl (1998) likewise use unit value measures of exports and find that there has been a relative increase in average export unit values over the 1988-1996 period.

This approach closely parallels a distinction commonly made in the economics literature between high-value-added and low-cost production. High-value-added production is assumed to characterize production in the more advanced economies, since the skill or knowledge-level these countries bring to production manifests itself in more technologically advanced or higher quality products (and thus in higher value added). While such economies may likewise produce low-cost products—and potentially even at relatively low cost compared to other countries due to their organizational skills and the level of productivity—they are presumed to specialize more in goods at the high end of the quality range. Thus one potential measure of competitiveness is the degree to which countries move toward more high value-added production, or production at the higher end of the unit value scale.[31]

The central difficulty with the unit value measure is whether it genuinely differentiates between both high-value added and low value-added products and between the relative factor intensities embodied in individual products. Taking shoes as an example, those produced with greater labor input and only limited access to advanced technology should appear at the low end of the unit value spectrum (low price divided by standard weight), while those produced with greater capital input and greater access to advanced technology should appear at the high end of the unit value spectrum (higher price and approximately same standard weight). Taking cars as an example, those produced at the low end of the spectrum, since they embody lower levels of technology and skill, should likewise have lower prices (but similar weights) and thus smaller unit values. Those produced at the high end (since they embody greater levels of skill and technology but similar weight) should have higher prices and higher unit values.

There are potential methodological problems with the unit value approach, and it would be instructive to test the reliability of this measure by comparing it to an alternative measure of factor intensity. Unit value measures are at odds with the view that equal products can be produced with varying shares of capital and labor inputs. More capital-rich and technologically advanced countries are assumed to produce with fewer labor inputs, while countries that are capital poor and lack technology are assumed to produce

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[30] The model used by Aiginger here is somewhat more complex, as it builds upon a four-celled typology that incorporates a balance of trade dimension along with the unit value dimension. Though I will not employ this method here, it is worth noting that the balance of trade dimension complicates data interpretation, since the fact that imports exceed exports in some sectors (or vice-versa) is not, in and of itself, enough to indicate a competitive (dis)advantage. What is missing in Aiginger's method is a measure of the evolution of exports in such sectors over time, as this is the only way to determine whether a trade balance in fact designates a competitive disadvantage.

[31] This is clearly the view of Eichengreen and Kohl (1998: 1). The general concept of high value-added production, and the advisability of strategically promoting it have been sharply criticized by some economists (see in particular Krugman, 1994). However the method and meaning of higher unit values (and thus high value-added) used herein differs significantly from that noted by Krugman. Here, unit values are measured at the level of individual subsectors and are compared to averages across that same subsector, while Krugman compares all products with respect to their relative degree of value-added.

with comparatively higher labor inputs. Thus products are expected to vary across countries with respect to the degree of technology and quality they embody. The upshot of course is that countries should likewise vary with respect to their relative average export unit values, with more advanced countries having higher export unit values, and less advanced countries having lower export unit values.

Eichengreen and Kohl (1998) look at a weighted average of sectoral unit values of EU imports from the CEEC's are measured over the period from 1988 to 1996. Their unit values are standardized by dividing the import unit values of an individual sector and country by an average of EU imports from all non-EU countries across that same sector. Their data are based on the 3-digit level (SITC 3, Rev. 3). Using 1988 as a base year, Eichengreen and Kohl find that there is no significant change in average import unit values whatsoever. However, using 1992 as a base year (dividing the data by 1992 values),[32] the average import unit value rises significantly.

There are a number of questions one can raise regarding this technique. If production declines over the period 1989-1993/4, then takes off again after 1993-1994, it may simply be that individual countries are simply regaining capacity developed prior to their decline. In the long run, if unit value measures are a significant measure of potential competitiveness, then one would hope to see longer-term changes, and in particular one would hope to see improvements beyond the initial state at the eve of the collapse of the former Soviet bloc. Ultimately then, 1988 may be a more appropriate benchmark year than 1992.[33]

I have elected to use export unit value measures (from the CEEC's)[34] across the 1988-1996 period, but without attempting to adjust these figures on the basis of data from 1992 or 1988. Instead, the export unit value measures in each individual sector have been standardized by dividing them by an average of export unit values across the EU and the CEEC's in that same sector. This last strategy is employed in order to compare CEEC exports with those of their principal competitor(s), the EU.[35] The log of this value yields the final export unit value (XUV). This transformation spreads out values between 0-1 that would otherwise remain compressed by the use of the standardizing divisor. Further, I

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[32] Eichengreen and Kohl never offer a clear justification for this (nor an accurate description of how it is done). Presumably this choice is based on the assumption that the economic turnaround in the CEEC's did not come until 1993-1994, and on the assumption that economic restructuring takes off only after this point in time.

[33] Eichengreen and Kohl (1998) likewise distinguish between unit values in EU agricultural imports and EU manufacturing imports from the CEEC's. Their economy-wide findings are similar to their findings for the manufacturing sector, average unit values increase of the 1988-1996 period. Average unit values for CEEC agricultural products decline over the 1988-1996 period. This statistical finding mirrors the great shift in some of these countries (in particular Hungary) from exporting agricultural products to exporting manufactured goods.

[34] These measures are essentially the same as Eichengreen and Kohl's "import" unit value measures, since the only difference here is a change in terminology from "EU imports" from the CEEC's to "CEEC exports" to the EU.

[35] In addition, variation in the unit value measures may result from changes in the composition of trade in those countries that make up the denominator Eichengreen and Kohl use to standardize their measure.

represent this data not as an average for each year, but instead using boxplots. The figures represent a *range* of unit value measures across four quartiles (0-25%, 25%-50%, etc.), and give a sense of the overall variation in relative export unit values within individual subsectors across the economy at large. I have elected to use export unit values at the 8-digit level, since this level will yield the most detailed overview of unit values. Finally, I provide figures for all 10 of the CEEC's from as many years as are available for each individual country across the 1988-1996 period.

The results of this approach yield some interesting findings. In Hungary (I will be completing these figures for all 10 of the CEEC's), over the period 1988-1996, export unit values have in fact declined somewhat compared to the EU-CEEC average (see Figure II). While there was marginal improvement in 1991 and 1992 as the CEEC economies began to regain their footing, afterwards average export unit values began to decline, though change over the 1988-1996 period is small. Perhaps the most striking trend is that export unit values have become somewhat more dispersed toward the lower end of the spectrum, though overall, within the quartile ranges, there is very little annual variation.[36] These findings are not consistent with those of Eichengreen and Kohl (1998) and lead to further questions.

(Fig. II about here. Export Unit Values in Hungary and Germany: 1988-1996)

One of the basic assumptions of the unit value literature is that producing at the higher end of the unit value spectrum should lead to greater export potential. The obverse of this argument is that producing according to a country's comparative advantage should lead to greater export potential. Thus, in order to test this final question, I have generated plots for individual countries that attempt to illustrate the relationship between unit values and overall export performance. Across the x-axis, these plots illustrate the log of an individual country's export unit values divided by the EU-CEEC average for each individual sector at the 8-digit level, and along the y-axis, they illustrate the log of the total value of exports. Thus, if higher export unit values are a significant predictor of overall export performance, one should expect to see higher export shares for values falling in the upper right-hand quadrant of the graph. If, on the other hand, comparative advantage is a significant predictor of export potential, then, for the less advanced countries, one should expect to see higher export shares in the upper left-hand quadrant.

The findings here are more surprising than those derived from the boxplots above. Since one should expect to see the starkest difference between high and low wage countries, I provide a comparison of the findings for Germany, Hungary and Ireland (I am analyzing this data across all of the EU and CEEC countries and am currently finalizing the results for each of the 25 countries). There are both fascinating similarities and significant differences between these three countries (see Figures III, IV and V). On the one hand, in Germany and Ireland, values tend to cluster around the y-axis. In Hungary,

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[36] Similar results with the same basic trend are found when these unit value measures are weighted by an average of the value of exports for each individual sector across the 1988-1996 period.

the majority of values are clustered slightly to the left of the y-axis. Contrary to expectations, in Germany, we do not find values clustered more strongly in the upper right-hand quadrant than in the upper left-hand quadrant. Instead, the values appear to be more or less evenly distributed about the y-axis for both Germany and Ireland. In addition, Germany exhibits a surprising tail in the low end of the export unit value range with relatively high export shares. On the other hand, average unit values in Germany are approximately twice that found in Hungary, while Ireland lies between these two countries, though much closer to the German average. Ireland differs from Hungary primarily in its more even distribution about the y-axis, and thus in its export of goods with higher unit values. In 1996, for Hungary, Ireland and Germany, (taking anti-logs) the average export unit value is 0.45, 0.77 and .86 respectively.

(Figures III, IV, and V about here. Export Unit Values and Exports in ECU: Germany, Hungary and Ireland)

Though one would expect to see a greater mix of products at the low end of the scale for countries like Hungary and Ireland, and a greater skewness of exports toward the higher-end for countries like Germany, the findings clearly contradict these expectations. Ireland has clearly shifted a great deal of its production to the higher end of the unit value spectrum, though Irish export production is clearly still far more "bottom-heavy" (exhibiting lower export shares compared to Germany) than German export production. For countries like Hungary (and presumably other CEEC's as well, I am still completing the data analysis for these other countries), competitiveness is potentially an important issue. On average, countries appear to benefit more from trade to the degree that they produce a broad range of relatively "advanced" products with higher unit values (in particular those products that are closest to the EU-CEEC average unit value for any given product).[37]

The final assumption that remains to be tested is whether the role of technological diffusion is somehow significant in promoting competitiveness and export success. There are at least two ways in which this last hypothesis can be tested. One is by looking at the relative export performance of Outward Processing Trade (OPT), [38] and the other is by

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[37] Further tests of the assumption that relative export success is somehow related to the degree to which countries produce products that converge about the y-axis yield similar results. I have compared, for example, average growth in export performance in Hungary over the 1988-1996 period to the relative unit value measure of individual products and found that the growth of exports has by and large been greatest where the unit values of exports approach zero (the y-axis). I have likewise compared a type of revealed comparative advantage index (the log of the value of exports divided by the average sectoral EU-CEEC value of exports in any given sector) and compared it to the respective unit value measures and found similar results. Moreover, analyzing the sectoral emphasis of production, there does not seem to be any strong relationship in favor of one sector or the other (though this particular analysis still needs further work).

[38] Outward processing trade refers specifically to trade that results from firms exporting semi-finished goods for further processing, and then re-importing those same goods either as end-products, or as intermediate goods that will be further processed in the importing country. Such "trade" is presumably

looking at the role of FDI in promoting export performance. Though these results are far more preliminary given the data difficulties involved, I have plotted export unit value measures of OPT against export unit value measures for the economy as a whole in Hungary for 1996 (I am still completing these results for the remaining CEEC's). According to the results, the averages of these two types of trade are roughly equivalent. Moreover, the overall distribution of unit values and export performance is broadly comparable across economy-wide and OPT exports (see Fig. VI), suggesting that OPT trade does not really vary from other CEEC trade. With respect to the role of FDI, we have no way of telling whether exporting firms have benefited from foreign capital injections, or whether they have managed to enter the export market under their own steam. However, some authors suggest that CEEC firms receiving inflows of foreign capital have tended to fair better than firms that have not.[39]

(Figure VI about here: Export Unit values and OPT unit values in Hungary, 1996)

Conclusions:

The measurement of "competitiveness" of the CEEC economies is a complex problem, but one that should neither be underestimated nor ignored. The measures I have discussed herein suggest that previous predictions of the relative competitiveness of the CEEC economies have either been greatly over-exaggerated or have been misconceived. Although these findings should be regarded as preliminary and therefore tentative, at least until the data for the remaining countries has been completed, it is possible to arrive at a few preliminary conclusions.

Recalling from the description of unit value measures above that values clustered around the y-axis are presumed to represent products that are similar, export unit values that are clustered about the y-axis are presumably indicative of product differentiation and potentially even the existence of economies of scale. The more countries develop products that are similar to those sold widely on the European market, and the more the relative unit value measure of these products moves from low unit values toward higher unit values, the greater the chances appear to be of gaining higher market returns. There is, however, an upper bound. Firms (or countries) do not appear capable of extracting "rents" from the production of high quality, value-added products. If this were the case, then presumably one would observe a much greater concentration of values in the upper right-hand quadrant (in particular, for a country such as Germany). This does not appear to be the case. The highest returns on traded goods appear to arise where products are most "similar" in price and quality.

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often the result of joint venture agreements, and is thus one potential mechanism of technological diffusion.

[39] See for example, Török (1998).

The fact that countries such as Germany appear to produce goods that are most "similar" to those produced in other countries suggests the existence of a "competitive" equilibrium (not one characterized by imperfect competition). If firms were able to extract significant rents from the production of high-quality export goods within the EU (imperfect competition), then presumably these would likewise have a comparatively high export unit value compared to similar goods produced in the same market. But the fact that most export unit values for Germany are either clustered about the y-axis or appear far to the left of the y-axis suggests that more competitive conditions apply. Hungary, on the other hand, produces at a point lower than Germany. Moreover, the average return on such products appears to be lower than on products produced in the higher export unit value range.

Whether the fact that Hungary produces at a lower export unit value point than other more advanced countries necessarily indicates that Hungary is less "competitive" is less clear. In an HO world, capital-poor countries would predictably produce in this lower range. Yet, to the extent that countries remain stuck at this lower level, this might ultimately indicate a degree of "path dependence", or inability to rise out of a lower "equilibrium path". To the extent that such countries are unable to reap the benefits of the higher returns enjoyed by countries producing at the upper end, competitiveness concerns would appear justified. Ireland, for whatever reasons, appears to have made the jump to exporting products at this higher end of the range. In part, this observation corresponds with a hypothesis that more developed countries are in fact likely to produce and export a relatively broad range of products, including those that ordinarily require a greater degree of labor-intensity. In some respects, these countries may even do this better than countries which are technologically less advanced but have a relative abundance of labor.

Less developed countries on the other hand tend to produce a more limited range of products that tend to be somewhat more concentrated at the lower end of the unit value scale. The ability, however, of individual firms (and ultimately countries) to compete may well depend not so much on relative comparative advantage in the traditional sense suggested by the conventional HO model, but rather on the ability of firms to export a greater diversity and range of products similar to those typically produced and purchased on the world market—as suggested by the case of Ireland. This, in essence, is the crux of the Leontief paradox. Competitiveness is a function, at least in part, of variation in factors other than the abundance of land, labor and capital: technological differences, variation in human capital endowments and the cultivation of increasing returns potential are presumably significant components of the competitive divide.

Determining just how permeable political boundaries are to such factors is an important question. Yet, we still know relatively little about the determinants of economic competitiveness or what aids countries in the transition from a low to a high unit value equilibrium. The strongest single predictor of the potential success of some of the CEEC's is perhaps the simple fact that exports continue to increase at a significant rate. Yet, at the outset of this paper, we began by noting the predictions of several authors regarding the effects of trade liberalization on economic "competitiveness" and growth. In Hungary at least, there is no clear indication that the relative level of "competitiveness" has thus far improved, though exports do continue to grow. Moreover, there is no clear indication that

technology diffuses across political borders. We have measured this potential in various ways, though perhaps the most significant measure is the unit value approach. Based on this approach, for Hungary at least, unit value measures have actually declined over the 1988-1996 period.

Much of the economy in individual CEEC's—including in those countries that are more advanced, such as Hungary, Poland, the Czech Republic and Slovenia—may well be inefficient and at risk with respect to EU competition. At least this is the view of much of industry in some of these countries, and of small and medium sized enterprises in particular, which consider themselves poorly prepared for the consequences of economic integration with the EU.[40] The relative decline in export unit values would appear to substantiate these views. Whether economic openness and, in particular, membership in the European Union is the best solution for these economies should be carefully considered. Though the conclusions of this paper should be considered cautiously without more complete findings, without more precise knowledge concerning those factors which presumably better predict the relative potential for economic growth and convergence, and that appear to have been effective in the Irish success story, it is presumably foolhardy to move forward at full steam.

The implications for the CEEC project of membership in the EU are not that encouraging. CEEC integration into the EU needs to be coupled with mechanisms that support the process of convergence and the creation of cohesion within the EU as a whole. Without this, the project of integration into the EU is fraught with considerable risk for the CEEC's. The role of promoting convergence and preserving cohesion in the Union has typically fallen to the Union's Structural and Cohesion funds. Currently though, the trend has been to downsize these programs in preparation for EU enlargement to Central and Eastern Europe. Without reassurances from the EU that the economies of Central and Eastern Europe will receive greater assistance in the face of competition from the European Union, preservation of sovereignty in decision-making over monetary, fiscal, trade and industrial policy may be preferable. The benefits of trade can be obtained without giving up the tools the CEEC's need to pursue what presumably should be their primary goal, economic restructuring.

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[40] See for example, Farkas (1998).

Bibliography:

Abd-el-Rahman, Kamal (1991). "Firms' Competitive and National Comparative Advantages as Joint Determinants of Trade Composition", Weltwirtschaftliches Archiv 127(1): 83-97.

Aiginger, Karl (1997). "Unit Values to Signal the Quality Position of CEEC's", in Aiginger, Karl et al, The Competitiveness of Transition Countries. Study by the Austrian Insititute of Economic Research (WIFO) and the Vienna Institute for Comparative Economic Studies (WIIW): 77-103.

Amsden, Alice H. (1989). Asia's Next Giant: South Korea and Late Industrialization, New York: Oxford University Press.

Aturupane, Chonira, Simeon Djankov and Bernard Hoekman (1997). "Determinants of Intra-Industry Trade Between East and West Europe", CEPR Discussion Paper No. 1721, London: Centre for Economic Policy Research.

Barro, Robert J. (1997). Determinants of Economic Growth: A Cross-Country Empirical Study, Cambridge, MA: MIT Press.

Barro, Robert J. and Xavier Sala-i-Martin (1995). Economic Growth, New York: McGraw-Hill.

Ben-David, Dan (1996). "Trade and convergence among countries", Journal of International Economics 40(3-4): 279-298.

Ben-David, Dan (1993). "Equalizing exchange: Trade liberalization and income convergence", Quarterly Journal of Economics 108(3): 653-679.

Berend, Ivan T. (1997). "Transformation and Structural Changes: Central and Eastern Europe's Adjustment in a Historical Perspective", in Berend, Ivan T. (ed.), Long-Term Structural Changes in Transforming Central and Eastern Europe (The 1990s), München: Südosteuropa-Gesellschaft: 9-28.

Berend, Ivan T. (1994). "End of Century Global Transition to a Market Economy: Laissez-faire on the Peripheries?", in Berend, Ivan T. (ed.), Transition to a Market Economy at the End of the 20th Century, Munich: Südosteuropa-Gesellschaft: 9-54.

Döhrn, Roland (1998). "The New Trade Structure between East and West: Is Integration Already a Matter of Fact?", Graue Reihe des Insituts Arbeit und Technik 1998-09, Gelsenkirchen: Institut Arbeit und Technik: 47-58.

Dollar, David (1992). "Outward Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs, 1976-1985", Economic Development and Cultural Change 40(3): 523-544.

Drabek, Zdenek and Alistair Smith (1995). "Trade Performance and Trade Policy in Central and Eastern Europe", CEPR Discussion Paper No. 1182, London: Centre for Economic Policy Research.

EBRD (1997). Transition Report 1997: Economic Transition in Eastern Europe and the Former Soviet Union, London: European Bank for Reconstruction and Development.

Edwards, Sebastian (1997). "Latin America's Underperformance", Foreign Affairs 76(2): 93-103.

Edwards, Sebastian (1993). "Openness, Trade Liberalization, and Growth in Developing Countries", Journal of Economic Literature 31(3): 1358-1393.

Eichengreen, Barry and Richard Kohl (1998). "The External Sector, the State, and Development in Eastern Europe", BRIE Working Paper No. 125.

Ellison, David L. (1999). "The Eastern Enlargement: A New or a Multi-Speed Europe?", in Widmaier, Brigitta, and Wolfgang Potratz (eds.), Frameworks for Industrial Policy in Central and Eastern Europe. Economic, Social and Political Aspects of European Integration, Aldershot: Ashgate: 252-307.

European Commission (1995). White Paper: Preparation of the associated countries of Central and Eastern Europe for integration into the internal market of the Union, Luxembourg: EUR-OP (COM(95)163).

European Commission (1996). First Report on Economic and Social Cohesion 1996, Luxembourg: Office for Official Publications of the European Communities.

Eurostat (1997). Comext Trade Database: Internal and External Trade of the EU, Luxembourg: Office for Official Publications of the European Communities.

Farkas, György (1998). "Business Survey of the Views, Experiences and Expectations of Hungarian Firms on EU Integration, With a Comparative Analysis of SME's, Top and Big Businesses", Budapest: Integrációs Stratégiai Munkacsoport.

Fontagné, Lionel and Michael Freudenberg (1997). "Intra-industry Trade: Methodological Issues Reconsidered", CEPII Working Paper No. 97-01, Paris: CEPII.

Frankel, H. (1943). "Industrialisation of Agricultural Countries and the Possibilities of a new International Division of Labour", Economic Journal 53: 188-201.

Greenaway, David, Robert Hine and Chris Milner (1995). "Vertical and Horizontal Intra-Industry Trade: A Cross Industry Analysis for the United Kingdom", Economic Journal 105: 1505-1518.

Grubel, Herbert G. and P. J. Lloyd (1975). Intra-Industry Trade: The Theory and Measurement of International Trade in Differentiated Products, New York: John Wiley and Sons.

Hatton, Timothy J. and Jeffrey G. Williamson (1997). The Age of Mass Migration: Causes and Economic Impact, New York: Oxford University Press.

Hatton, Timothy J. and Jeffrey G. Williamson (1995). "The Impact of Immigration on American Labor Markets Prior to the Quotas", NBER Working Paper 5185, Cambridge, MA: National Bureau of Economic Research.

Keat, Preston (1999). "Penalizing the Reformers: Polish Steel and EU Integration", mimeo, University of California, Los Angeles.

Koedijk, Kees and Jeroen Kremers (1996). "Deregulation: A Political Economy Analysis", <u>Economic Policy</u> (23): 443-467.

Krugman, Paul (1997). "What Ever Happened to the Asian Miracle?" <u>Fortune</u> 136(4): 26-28.

Krugman, Paul (1995). "Dutch Tulips and Emerging Markets", <u>Foreign Affairs</u> 74(4): 28-44.

Krugman, Paul (1994a). "The Myth of Asia's Miracle", <u>Foreign Affairs</u> 73(6): 62-78.

Krugman, Paul (1994b). "Competitiveness: A dangerous obsession.", <u>Foreign Affairs</u> 73(2):28-44.

Krugman, Paul (1991). <u>Geography and Trade</u>. Cambridge: MIT Press.

Krugman, Paul (1987). "Is Free Trade Passé", <u>Economic Perspectives</u> 1(2): 131-144.

Landesmann, Michael A. (1995). "The Pattern of East-West European Integration: Catching Up or Falling Behind?", Vienna Institute for Comparative Economic Studies (WIIW): Research Reports, No. 212, January.

Landesmann, Michael A. and Johann Burgstaller (1997). "Vertical Product Differentiation in EU Markets: the Relative Position of East European Producers", WIIW Research Reports.

Leamer, Edward E. (1996). "In Search of Stolper-Samuelson Effects on U.S. Wages," in Collins, Susan (ed.), <u>Exports, imports and U.S. wages</u>, Washington, D.C.: Brookings Institution.

Lucas, Robert E. Jr. (1990). "Why Doesn't Capital Flow from Rich to Poor Countries?" <u>AEA Papers and Proceedings</u>, 80(2): 92-96.

Maddison, Angus (1995). <u>Monitoring the World Economy 1820-1992</u>, Paris: OECD.

OECD (1998). <u>National Accounts: Main Aggregates, Volume 1, 1960-1996</u>, Paris: Organization for Economic Cooperaton and Development.

OECD, (Dec, 1998; Dec, 1990; Dec, 1982). <u>Economic Outlook</u>, Paris: Organisation for Economic Cooperation and Development.

O'Rourke, Kevin H., and Jeffrey G. Williamson (1995). "Around the European Periphery 1870-1913: Globalization, Schooling and Growth", NBER Working Paper 5392, Cambridge, MA: National Bureau of Economic Research.

Pritchett, Lant (1996). "Forget convergence: Divergence past, present, and future", <u>Finance & Development</u> 33(2): 40-43.

Rodrik, Dani (1995). "Getting Interventions Right: How South Korea and Taiwan Grew Rich", <u>Economic Policy</u> (20): 53-107.

Rodrik, Dani (1997). "Has Globalization Gone Too Far?", <u>California Management Review</u> 39(3): 29-53.

Sachs, Jeffrey D. and Andrew M. Warner (1996). "Achieving Rapid Growth in the Transition Economies of Central Europe", Working Paper No. 116, Stockholm Institute of East European Economies, November.

Sachs, Jeffrey D. and Andrew Warner (1995). "Economic Convergence and Economic Policies", Discussion Paper No. 502, Harvard Institute for International Development, Boston: Harvard University.

Török, Adam (1998). "A Magyar Ipar Versenyképessége Nyugat-Európában I. rész", Európa Fórum (2): 3-25.

UN (1997). Economic Survey of Europe in 1996-1997, New York: United Nations.

Van Mourik, Adrianus (1994). Wages and European Integration: A Study on the Distributional Impact of a Trade Liberalization Scheme, Maastricht: BIV Publications.

Wade, Robert (1990). Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization, Princeton: Princeton University Press.

Williamson, Jeffrey G. (1997). "Globalization and Inequality, Past and Present", The World Bank Research Observer 12(2): 117-35.

Wolfmayr-Schnitzer, Yvonne (1997). "Intra-Industry Trade of CEECs", in Aiginger, Karl et al, The Competitiveness of Transition Countries. Study by the Austrian Insititue of Economic Research (WIFO) and the Vienna Institute for Comparative Economic Studies (WIIW): 67-76.

Wood, Adrian (1994). North-South Trade, Employment and Inequality: Changing Fortunes in a Skill-Driven World, Oxford: Clarendon Press.

Wood, Adrian (1995). "How Trade Hurt Unskilled Workers," Journal of Economic Perspectives, 9(3):57-80.

Young, Alwyn (1995). "The Tyranny of Numbers: Confronting the Statistical Realities of the East Asian Growth Experience", Quarterly Journal of Economics 110(3): 641-680.

Zysman, John and Andrew Schwartz (1998). "Reunifying Europe in an Emerging World Economy: Economic Heterogeneity, new Industrial Options, and Political Choices", Journal of Common Market Studies 36(3): 405-429.

Table I: CEEC Trade Balances with the EU as a Share of GDP

	1989	1990	1991	1992	1993	1994	1995	1996
Bulgaria	-4.7%	-3.5%	-4.6%	-3.1%	-4.3%	-3.1%	-2.2%	0.1%
Czech Republic					-4.2%	-4.7%	-7.0%	-9.7%
Estonia				-3.7%	-2.0%	-2.1%	-16.7%	-17.7%
Hungary	-1.5%	0.2%	0.5%	-0.3%	-3.1%	-3.5%	-3.3%	-3.4%
Latvia				25.5%	16.6%	8.1%	5.5%	0.2%
Lithuania					6.8%	0.6%	-0.8%	-4.7%
Poland	-0.1%	1.6%	-2.6%	-1.6%	-3.3%	-2.4%	-3.4%	-7.2%
Romania	3.8%	1.3%	0.6%	-3.0%	-2.8%	-0.5%	-1.5%	-2.7%
Slovakia					-0.6%	0.7%	-0.8%	-3.9%
Slovenia				2.1%	-1.8%	-2.1%	-6.5%	-7.6%
CEEC10	0.4%	0.6%	-0.9%	-1.2%	-2.8%	-2.3%	-3.7%	-6.2%

Source: own calculations based on data from EBRD Transition Report (1997), and Eurostat (1997).

Table II: CEEC Exports to EU as ratio to GDP

	1989	1990	1991	1992	1993	1994	1995	1996
Bulgaria	2.3%	5.8%	9.6%	11.3%	9.8%	11.6%	13.5%	26.7%
Czech Republic					16.5%	19.0%	23.7%	22.5%
Estonia				11.4%	12.8%	13.5%	32.4%	31.7%
Hungary	8.2%	9.9%	10.9%	12.6%	12.1%	11.3%	14.7%	21.9%
Latvia				40.2%	33.3%	23.9%	33.1%	28.2%
Lithuania					18.2%	13.7%	12.6%	12.3%
Poland	4.5%	7.9%	8.1%	9.5%	9.7%	9.7%	10.1%	11.7%
Romania	4.6%	8.5%	6.9%	9.7%	6.2%	6.4%	9.2%	10.8%
Slovakia					11.3%	16.2%	23.3%	22.9%
Slovenia				16.4%	26.5%	28.2%	29.6%	29.2%
CEEC10	6.2%	7.3%	8.1%	10.1%	11.1%	11.4%	13.1%	16.7%

Source: own calculations based on data from EBRD Transition Report (1997), and Eurostat (1997).

Table III: CEEC Exports to EU 15 as Share of Total World Exports

	1990	1991	1992	1993	1994	1995	1996
Estonia			27%	26%	24%	63%	67%
Latvia			73%	72%	88%	113%	94%
Lithuania			50%	44%	46%	45%	40%
Poland	60%	60%	66%	65%	64%	70%	64%
Czech Republic				44%	54%	55%	57%
Slovakia				25%	33%	47%	49%
Hungary		48%	52%	57%	77%	78%	79%
Romania	61%	56%	43%	41%	49%	56%	55%
Bulgaria	29%	34%	30%	30%	41%	45%	44%
Slovenia			31%	55%	60%	67%	65%
CEEC10	62%	50%	56%	49%	56%	62%	61%

Source: own calculations based on data from EBRD Transition Report (1997), and Eurostat (1997).

Table IV: GDP per Capita in the European Arena, 1820-1992 (in 1990 International Dollars).

	1820	1870	1900	1913	1928	1950	1960	1973	1980	1989	1992
European Core (W)											
Germany	1,112	1,913	3,134	3,833	4,308	4,281	8,463	13,152	15,370	18,015	19,351
Denmark	1,225	1,927	2,902	3,764	4,604	6,683	8,477	13,416	14,645	17,620	18,293
France	1,218	1,858	2,849	3,452	4,390	5,221	7,472	12,940	14,979	17,457	17,959
Belgium	1,291	2,640	3,652	4,130	5,030	5,346	6,779	11,905	14,022	16,299	17,165
Netherlands	1,561	2,640	3,533	3,950	5,581	5,850	8,085	12,763	14,326	16,024	16,898
Italy	1,092	1,467	1,746	2,507	3,026	3,425	5,789	10,409	13,092	15,650	16,229
UK	1,756	3,263	4,593	5,032	5,115	6,847	8,571	11,992	12,777	16,288	15,738
StDev (W)	246	621	874	758	818	1,233	1,052	1,032	955	914	1,249
StDev (W) as Shr of Avg (W)	0.186	0.277	0.273	0.199	0.179	0.229	0.137	0.083	0.067	0.055	0.072
EFTA Countries (N)											
Norway	1,004	1,303	1,762	2,275	2,900	4,969	6,549	10,229	13,755	16,675	17,543
Austria	1,295	1,875	2,901	3,488	3,682	3,731	6,561	11,308	13,881	16,305	17,160
Sweden	1,198	1,664	2,561	3,096	3,657	6,738	8,688	13,494	14,935	17,593	16,927
Finland	759	1,107	1,620	2,050	2,629	4,131	6,051	10,768	12,693	16,676	14,646
StDev (N)	237	346	619	678	534	1,334	1,175	1,432	917	549	1,307
StDev (W+N)	265	643	907	883	980	1,228	1,096	1,212	912	769	1,270
StDev (W+N) as Shr of Avg (W+N)	0.216	0.327	0.319	0.259	0.240	0.236	0.148	0.101	0.065	0.046	0.074
Cohesion Countries (S)					(1929)						
Spain	1,063	1,376	2,040	2,255	2,947	2,397	3,437	8,739	9,539	11,752	12,498
Ireland	954	1,773	2,495	2,733	2,883	3,518	4,368	7,023	8,256	10,270	11,711
Portugal	na	1,085	1,408	1,354	1,536	2,132	3,095	7,568	8,251	10,355	11,130
Greece	na	na	na	1,621	2,386	1,951	3,204	7,779	9,139	10,262	10,314
Avg (S) as Share of Avg (W+N+S)	84.4%	76.3%	74.6%	65.6%	66.9%	55.8%	55.3%	71.4%	69.6%	70.4%	73.3%
StDev (W+N+S)	256	627	902	1,033	1,159	1,647	2,022	2,226	2,540	2,897	2,841
StDev (W+N+S) as Shr of Avg (W+N+S)	0.215	0.339	0.339	0.340	0.318	0.368	0.317	0.204	0.201	0.191	0.182
Central and Eastern Europe (E)											
Czechoslovakia	849	1,164	1,729	2,096	3,042	3,501	5,108	7,036	7,978	8,729	6,845
Hungary	na	1,269	1,682	2,098	2,476	2,480	3,649	5,596	6,307	6,787	5,638
Poland	na	na	na	na	2,117	2,447	3,218	5,334	5,740	5,685	4,726
Bulgaria	na	na	na	1,498	1,180	1,651	2,912	5,284	6,031	6,217	4,054
Yugoslavia	na	na	na	1,029	1,367	1,546	2,401	4,237	5,876	5,917	3,887
Romania	na	na	na	na	1,152	1,182	1,844	3,477	4,122	3,890	2,565
StDev (E)		74	33	518	780	845	1,132	1,220	1,234	1,576	1,489
Avg (E) as share of Avg (W+N+S)	71.1%	65.8%	64.2%	55.3%	51.8%	47.6%	50.0%	47.3%	47.5%	41.0%	29.7%
StDev (W+N+S+E) as Shr of Avg (W+N+S+E)	0.225	0.352	0.355	0.398	0.421	0.474	0.424	0.357	0.352	0.386	0.454

Source: Maddison, 1995: 23 (Table 1-3), 194-201 (Table D1-a-c), and own calculations.

Table V: Average Percentage Growth in Real GDP (1961-1997): Western Europe and the CEECs

	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996	1997
Sweden	3.6	4.2	2.6	1.3	1.7	2.3	0.5	1.3	1.8
Finland	4.4	4.8	4.1	3.0	2.9	3.4	-0.5	3.6	6.1
Norway	4.4	3.8	4.7	4.8	3.1	1.7	3.7	5.5	3.4
Austria	4.5	5.2	5.0	2.7	2.0	3.2	2.0	1.6	2.5
Spain	6.7	6.2	5.2	1.8	1.5	4.5	1.4	2.4	3.5
Portugal	6.0	6.3	4.5	5.4	0.8	5.0	1.8	3.2	3.7
Ireland	4.5	4.7	4.2	3.7	2.4	4.8	5.5	7.4	9.8
Greece	7.5	7.2	5.2	4.4	1.4	1.9	1.3	2.4	3.2
Italy	5.8	6.2	2.8	4.8	1.6	3.0	1.1	0.7	1.5
Former EFTA*	4.2	4.5	4.1	3.0	2.5	2.7	1.4	3.0	3.5
S. Tier Average	6.1	6.1	4.4	4.0	1.6	3.8	2.2	3.2	4.3
EU/EC Average	4.3	4.4	2.9	3.2	1.6	3.3	1.5	1.8	2.7
CEEC Average	4.4	4.1	4.9	1.7	0.8	-1.3	-4.3	2.5	
Bulgaria	5.2	5.1	4.7	1.0	0.9	-2.1	-3.4	-10.0	
Czech Republic	3.8	3.4	3.4	2.2	1.2	0.5	-2.5	3.9	1.0
Hungary	3.3	3.1	3.3	2.0	0.7	-0.8	-2.2	1.3	4.3
Poland	4.1	4.0	6.5	0.7	0.7	-1.4	2.3	6.1	6.9
Romania	5.8	5.0	6.8	2.8	0.5	-2.9	-1.9	4.3	
Estonia							-6.1	3.3	
Latvia							-12.1	2.3	
Lithuania							-14.2	3.0	
Slovakia							-2.5	6.8	
Slovenia							-0.3	3.5	

Sources: EBRD, 1997; Maddison, 1995; OECD, Economic Outlook (Dec, 1998: (Annex, Table 1: 191); Dec, 1990: (Table R 1: 175); Dec, 1982: (Table R 1: 154)). (*) The "Former EFTA" countries include Austria, Sweden, Finland and the one Scandinavian country to remain outside the EU, Norway.

Table VI: Real GDP in the Transition Countries (1989-1996)

(1989=100)	1989	1990	1991	1992	1993	1994	1995	1996
Hungary	100	96.5	85.0	82.4	81.9	84.3	85.5	86.0
Slovenia	100	91.9	84.5	79.9	82.1	86.5	89.9	93.0
Czech Republic	100	98.8	84.7	79.2	78.5	80.6	84.4	88.1
Estonia	100	91.9	82.7	71.0	64.9	63.2	65.0	67.0
Poland	100	88.4	82.2	84.4	87.5	92.1	98.5	104.5
Latvia	100	102.7	92.0	59.9	51.0	51.3	50.5	51.7
Slovakia	100	97.5	83.3	77.9	75.0	78.7	84.0	89.8
Romania	100	94.4	82.2	75.0	76.1	79.1	84.7	88.2
Bulgaria	100	90.9	80.2	74.4	73.3	74.6	76.2	68.5
Lithuania	100	93.1	80.9	53.4	37.2	37.5	38.7	40.1

Source: United Nations (1997: 225, Table B.1)

Table VII: Intra-Industry Trade at the 8-Digit Level between individual CEEC's, EU Member States and the EU12/15

	1988	1989	1990	1991	1992	1993	1994	1995	1996
France	54.96%	56.64%	57.04%	58.66%	59.71%	58.25%	58.39%	59.45%	60.20%
Germany	52.56%	53.71%	56.43%	59.12%	58.92%	59.52%	59.25%	59.26%	59.74%
Belgium-Luxembourg	46.98%	47.27%	48.48%	49.25%	49.66%	51.35%	51.71%	52.01%	54.33%
UK	49.45%	49.83%	51.27%	53.95%	54.08%	51.79%	52.49%	51.16%	53.07%
Netherlands	48.00%	48.86%	49.61%	49.86%	50.93%	49.48%	50.41%	50.10%	50.00%
Spain	36.59%	37.15%	39.58%	40.84%	43.13%	43.17%	45.21%	45.94%	47.71%
Italy	40.50%	40.68%	40.56%	41.03%	40.59%	39.92%	40.27%	41.00%	41.41%
Sweden								41.94%	41.13%
Austria								39.72%	40.93%
Denmark	37.72%	37.61%	37.77%	39.66%	39.30%	38.30%	36.94%	36.83%	37.50%
Czech Republic						29.27%	31.01%	33.92%	37.50%
Hungary	15.32%	16.18%	19.35%	22.29%	25.16%	26.41%	25.22%	29.39%	31.74%
Slovenia					21.36%	25.95%	26.40%	29.75%	29.89%
Ireland	30.25%	29.82%	30.43%	32.00%	32.47%	31.82%	28.91%	28.01%	27.71%
Finland								24.09%	26.68%
Portugal	19.04%	21.10%	22.18%	22.70%	24.19%	22.83%	23.17%	24.88%	25.38%
Czechoslovakia	11.52%	11.52%	13.99%	19.70%	23.95%				
Slovak Republic						17.49%	17.31%	21.37%	21.68%
Poland	10.02%	10.53%	12.96%	15.62%	15.52%	17.08%	16.92%	18.70%	20.30%
Estonia					2.72%	4.30%	4.67%	18.62%	19.48%
Bulgaria	6.44%	7.07%	8.16%	8.60%	12.07%	13.88%	15.34%	12.42%	14.40%
Romania	5.11%	4.77%	7.14%	9.23%	9.41%	11.21%	12.16%	12.27%	13.28%
Greece	9.53%	10.79%	10.44%	11.78%	10.88%	10.97%	12.26%	11.92%	11.60%
Lithuania					2.37%	4.16%	5.16%	7.44%	7.83%
Latvia					1.54%	3.35%	4.66%	5.80%	6.84%

Source: own calculations based on Eurostat data (Eurostat, 1997).

Table VIII: Vertical Intra-Industry Trade as a share of Total Intra-Industry Trade: 1988-1996

	1988	1989	1990	1991	1992	1993	1994	1995	1996
France	50.11%	48.58%	46.83%	46.99%	46.57%	56.67%	54.29%	52.91%	53.26%
Belgium-Luxembourg	54.37%	53.50%	48.60%	49.72%	55.52%	57.00%	54.96%	57.26%	53.71%
Netherlands	57.00%	55.44%	54.78%	47.34%	52.89%	60.06%	58.12%	58.70%	57.39%
Portugal	72.50%	59.47%	62.70%	70.58%	69.24%	64.67%	65.66%	64.50%	58.25%
Germany	55.36%	53.30%	56.58%	52.14%	54.72%	59.73%	54.77%	59.97%	58.34%
Spain	64.68%	70.62%	68.23%	67.65%	69.84%	54.91%	54.10%	55.74%	61.89%
Italy	70.13%	67.47%	70.29%	69.72%	74.31%	66.71%	66.18%	62.23%	62.54%
UK	61.17%	61.48%	60.03%	69.11%	65.88%	60.35%	57.88%	64.41%	63.41%
Sweden								74.92%	69.24%
Estonia					95.02%	75.48%	88.75%	80.50%	70.88%
Denmark	71.10%	69.90%	72.47%	69.22%	71.26%	74.34%	76.28%	71.72%	71.77%
Austria								71.39%	71.87%
Finland								77.78%	76.73%
Hungary	87.72%	89.81%	83.98%	85.58%	84.52%	84.03%	82.53%	80.09%	78.26%
Czech Republic						86.16%	84.06%	84.50%	79.52%
Greece	78.11%	77.03%	74.56%	63.11%	74.02%	69.58%	65.43%	64.10%	80.17%
Poland	91.23%	95.16%	91.26%	89.49%	89.59%	78.16%	84.15%	83.19%	80.69%
Slovak Republic						73.99%	81.66%	86.55%	81.76%
Slovenia					82.20%	73.75%	73.29%	79.85%	82.85%
Latvia					86.10%	81.43%	85.48%	79.39%	84.43%
Czechoslovakia	95.70%	93.80%	91.78%	86.82%	86.69%				
Ireland	78.07%	79.90%	82.54%	80.91%	76.83%	64.05%	79.10%	85.07%	87.64%
Lithuania					89.69%	86.00%	82.81%	80.41%	88.58%
Bulgaria	90.57%	92.61%	93.59%	93.33%	91.46%	84.59%	87.45%	88.84%	90.65%
Romania	66.20%	63.53%	74.32%	81.83%	89.57%	81.76%	84.87%	79.62%	92.20%
Average	71.50%	70.73%	70.78%	70.22%	75.29%	71.11%	72.47%	72.65%	73.17%
CEEC average	88.97%	88.93%	88.35%	87.24%	88.02%	80.53%	83.50%	82.29%	82.98%
EU average	64.78%	63.34%	63.42%	62.41%	64.64%	62.55%	62.43%	65.76%	66.16%

Source: own calculations based on Eurostat data (Eurostat, 1997).

Table IX: Vertical Intra-Industry Trade at the 8-Digit Level between individual CEEC's, EU Member States and the EU12/15

|	1988	1989	1990	1991	1992	1993	1994	1995	1996
Germany	29.10%	28.63%	31.93%	30.83%	32.24%	35.55%	32.45%	35.54%	34.85%
UK	30.25%	30.63%	30.78%	37.29%	35.63%	31.25%	30.38%	32.95%	33.65%
France	27.54%	27.51%	26.71%	27.56%	27.81%	33.01%	31.70%	31.46%	32.06%
Czech Republic						25.22%	26.06%	28.66%	29.82%
Spain	23.67%	26.23%	27.00%	27.63%	30.12%	23.70%	24.46%	25.60%	29.53%
Austria								28.36%	29.42%
Belgium-Luxembourg	25.54%	25.29%	23.56%	24.48%	27.57%	29.27%	28.42%	29.78%	29.18%
Netherlands	27.36%	27.09%	27.18%	23.60%	26.93%	29.72%	29.30%	29.41%	28.69%
Sweden								31.42%	28.48%
Denmark	26.82%	26.29%	27.37%	27.45%	28.00%	28.47%	28.18%	26.41%	26.91%
Italy	28.41%	27.45%	28.51%	28.61%	30.16%	26.63%	26.65%	25.51%	25.90%
Hungary	13.44%	14.53%	16.25%	19.07%	21.27%	22.19%	20.82%	23.54%	24.84%
Slovenia					17.55%	19.14%	19.35%	23.75%	24.77%
Ireland	23.62%	23.82%	25.12%	25.89%	24.94%	20.38%	22.86%	23.83%	24.29%
Czechoslovakia	11.03%	10.81%	12.84%	17.10%	20.76%				
Finland								18.74%	20.47%
Slovak Republic						12.94%	14.14%	18.50%	17.73%
Poland	9.14%	10.02%	11.83%	13.98%	13.90%	13.35%	14.24%	15.56%	16.38%
Portugal	13.80%	12.55%	13.91%	16.02%	16.75%	14.77%	15.21%	16.05%	14.79%
Estonia					2.59%	3.25%	4.14%	14.99%	13.80%
Bulgaria	5.83%	6.55%	7.64%	8.02%	11.04%	11.74%	13.41%	11.03%	13.06%
Romania	3.38%	3.03%	5.31%	7.56%	8.43%	9.17%	10.32%	9.77%	12.24%
Greece	7.45%	8.31%	7.78%	7.44%	8.06%	7.63%	8.02%	7.64%	9.30%
Lithuania					2.13%	3.58%	4.28%	5.98%	6.93%
Latvia					1.33%	2.73%	3.99%	4.60%	5.77%

Source: own calculations based on Eurostat data (Eurostat, 1997).

Table X: Horizontal Intra-Industry Trade at the 8-Digit Level between individual CEEC's, EU Member States and the EU12/15

	1988	1989	1990	1991	1992	1993	1994	1995	1996
France	27.42%	29.13%	30.33%	31.10%	31.90%	25.24%	26.69%	28.00%	28.14%
Belgium-Luxembourg	21.44%	21.98%	24.92%	24.76%	22.09%	22.08%	23.29%	22.23%	25.15%
Germany	23.46%	25.08%	24.50%	28.29%	26.68%	23.97%	26.80%	23.72%	24.89%
Netherlands	20.64%	21.77%	22.43%	26.25%	23.99%	19.76%	21.11%	20.69%	21.30%
UK	19.21%	19.19%	20.49%	16.66%	18.45%	20.53%	22.11%	18.21%	19.42%
Spain	12.92%	10.91%	12.57%	13.21%	13.01%	19.46%	20.75%	20.33%	18.18%
Italy	12.10%	13.24%	12.05%	12.43%	10.43%	13.29%	13.62%	15.49%	15.51%
Sweden								10.52%	12.65%
Austria								11.36%	11.51%
Portugal	5.23%	8.55%	8.27%	6.68%	7.44%	8.07%	7.96%	8.83%	10.60%
Denmark	10.90%	11.32%	10.40%	12.21%	11.29%	9.83%	8.76%	10.41%	10.58%
Czech Republic						4.05%	4.94%	5.26%	7.68%
Hungary	1.88%	1.65%	3.10%	3.21%	3.90%	4.22%	4.41%	5.85%	6.90%
Finland								5.35%	6.21%
Estonia					0.14%	1.06%	0.53%	3.63%	5.67%
Slovenia					3.80%	6.81%	7.05%	5.99%	5.13%
Czechoslovakia	0.49%	0.71%	1.15%	2.60%	3.18%				
Slovak Republic						4.55%	3.18%	2.87%	3.95%
Poland	0.88%	0.51%	1.13%	1.64%	1.62%	3.73%	2.68%	3.14%	3.92%
Ireland	6.63%	5.99%	5.31%	6.11%	7.52%	11.44%	6.04%	4.18%	3.43%
Greece	2.09%	2.48%	2.66%	4.35%	2.83%	3.34%	4.24%	4.28%	2.30%
Bulgaria	0.61%	0.52%	0.52%	0.57%	1.03%	2.14%	1.92%	1.39%	1.35%
Latvia					0.21%	0.62%	0.68%	1.19%	1.06%
Romania	1.73%	1.74%	1.83%	1.68%	0.98%	2.05%	1.84%	2.50%	1.04%
Lithuania					0.24%	0.58%	0.89%	1.46%	0.89%

Source: own calculations based on Eurostat data (Eurostat, 1997).

Figure I: IIT and GDP Per Capita
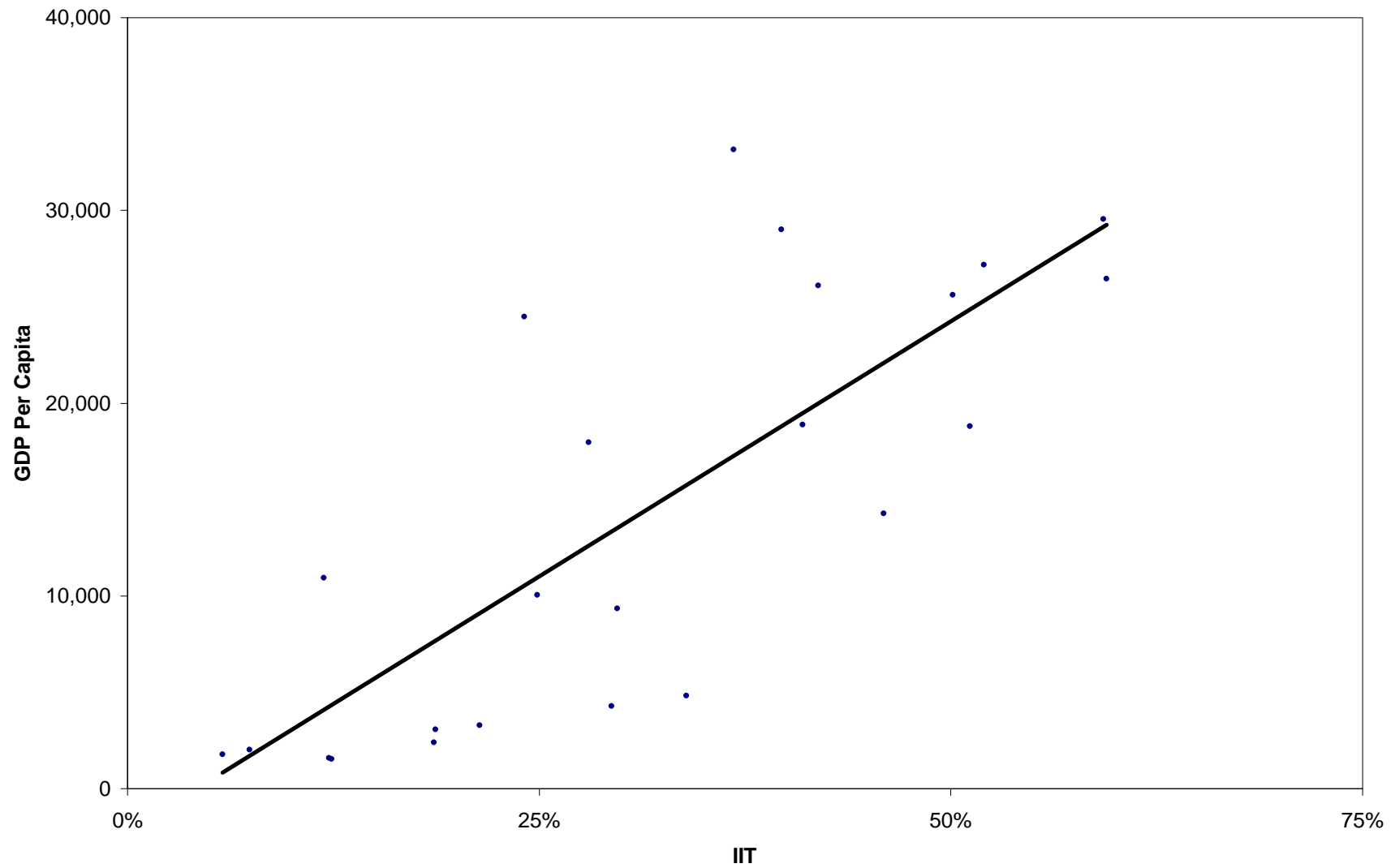
Figure II:

Export Unit Values in Hungary

1988-1996
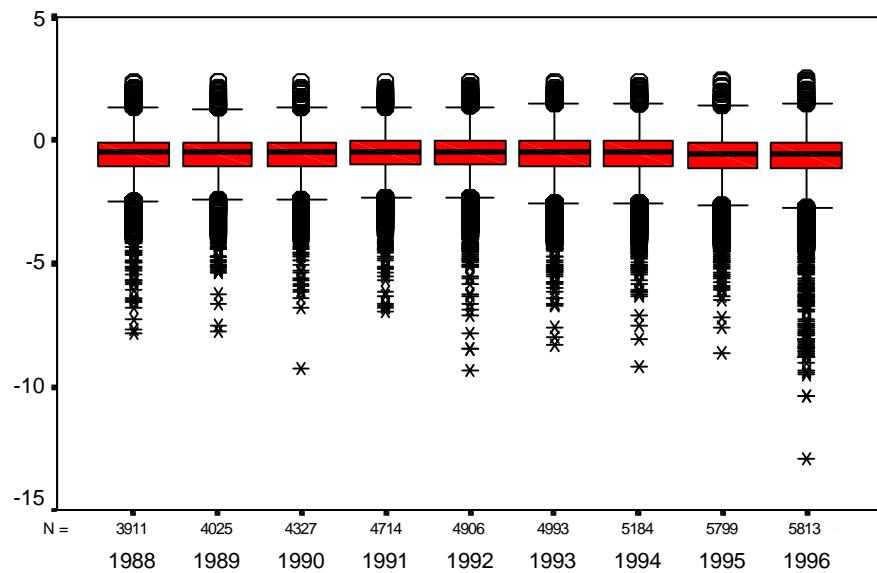
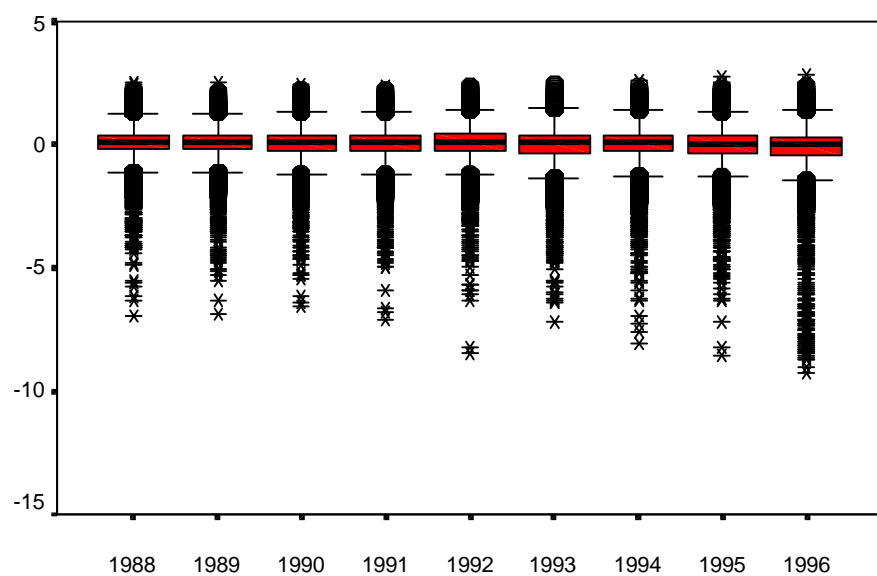# Export Unit Values in Germany
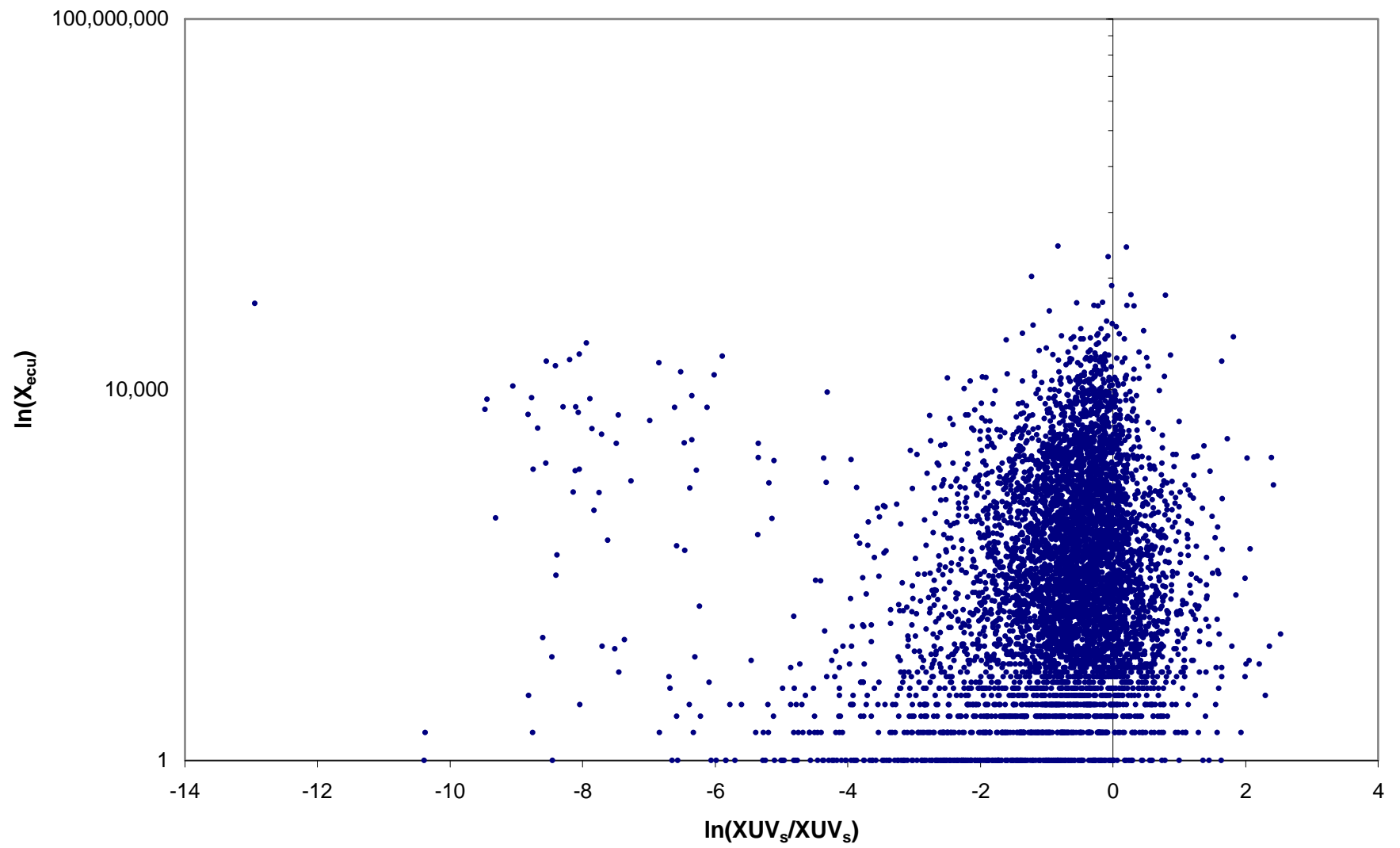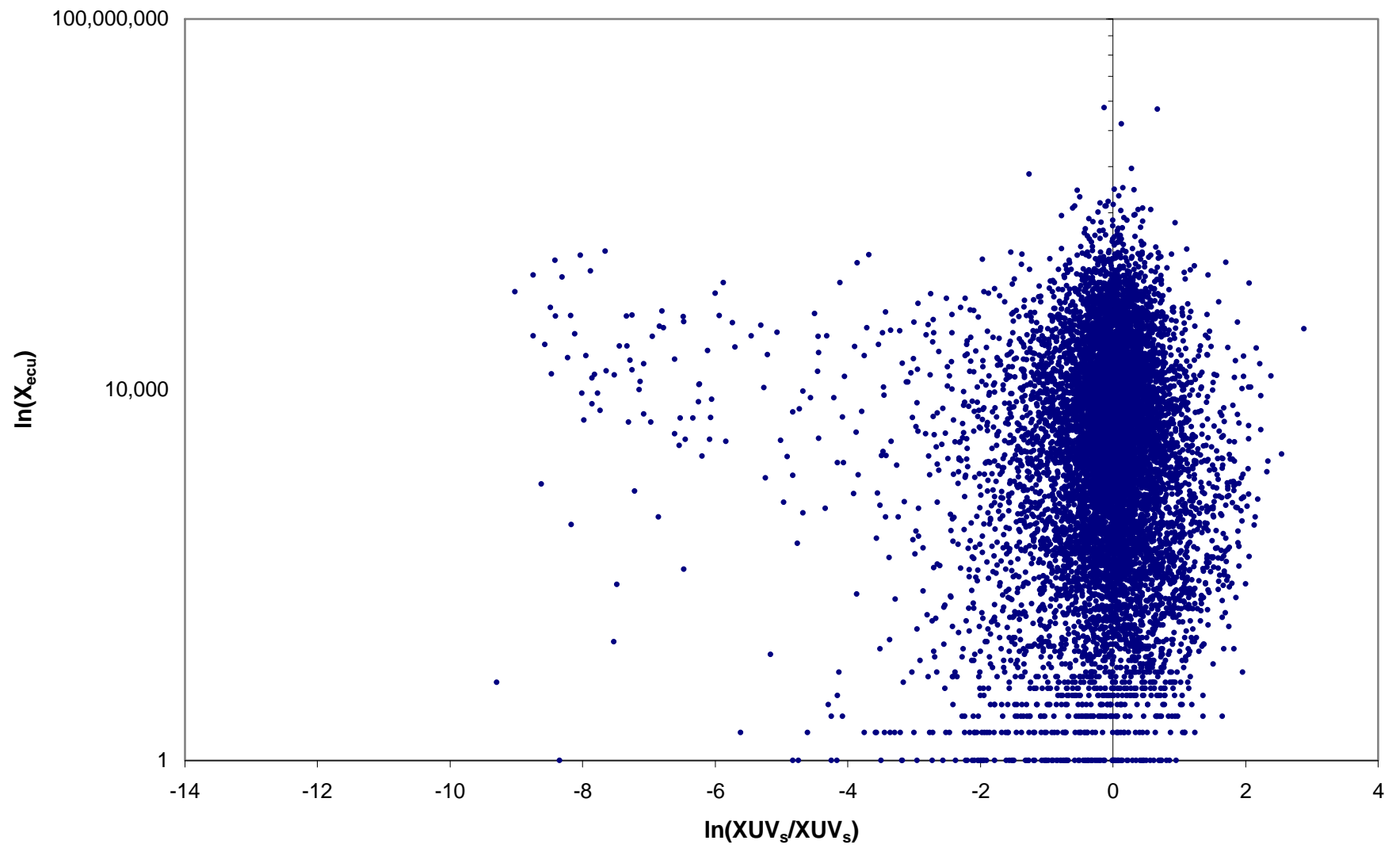
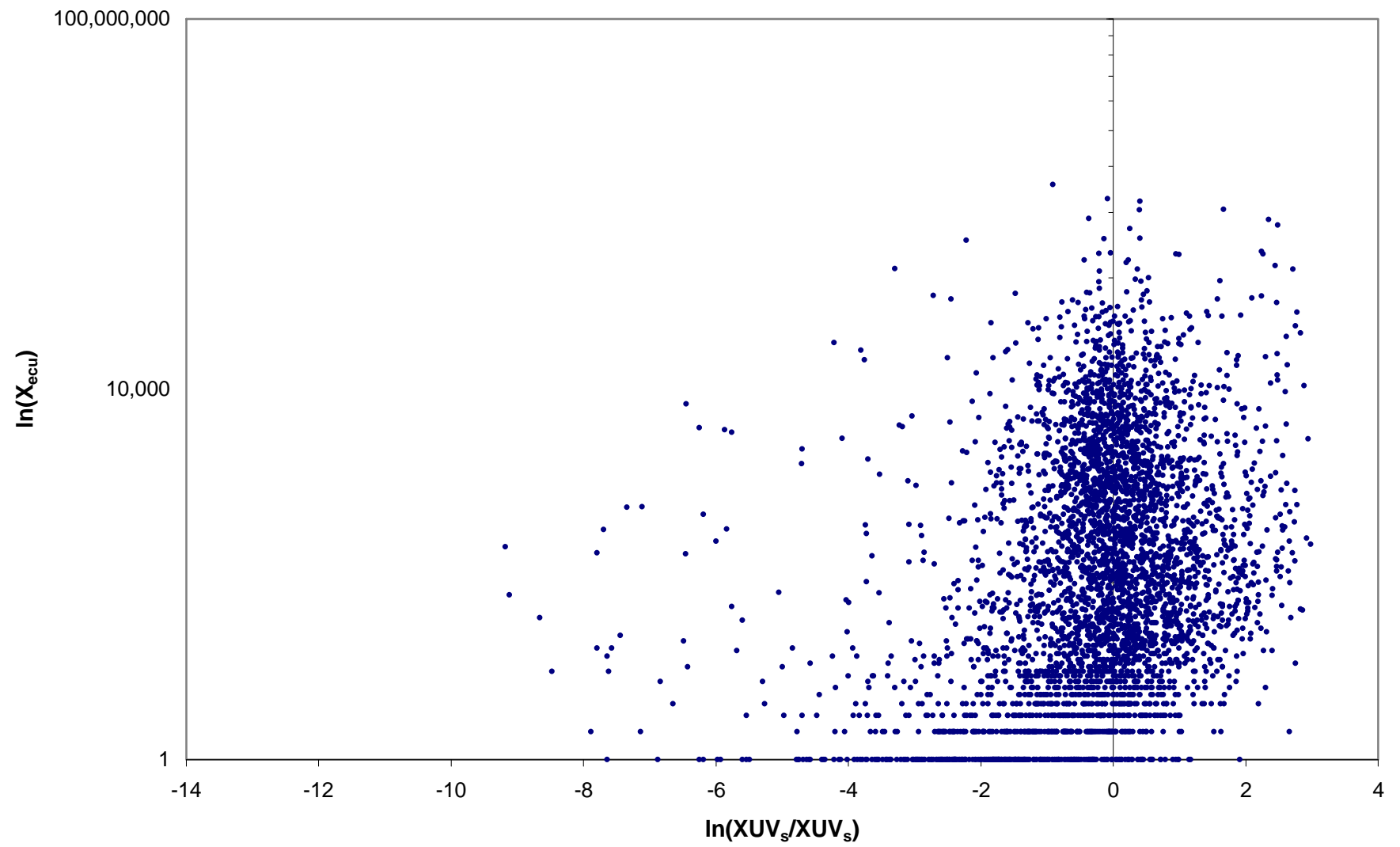## 1988-1996

Figure III: Hungary 1996

Figure IV: Germany 1996

Fig. V: Ireland 1996

Fig. VI: Hungary 1996

Plot with y-axis labeled $\ln(X_{ecu}\text{-}opt)$ ranging from 1 to 100,000,000 (with 10,000 marked), and x-axis labeled $\ln(XUV_s/XUV_s)$ ranging from -14 to 6.

Legend: • Exports without OPT • OPT Exports