Pressure to Adjust: Consequences for the OECD Countries from Reforms in Eastern Europe

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Abstract. The opening of formerly planned economies to the world has not only profound consequences for these Central and Eastern European economies. There are also substantial effects on the economies of Western Europe, resulting from enhanced price competition in product markets, migration and capital flows. The macroeconomic effects and adjustment requirements in the OECD countries are fundamentally determined by the two central, but not mutually exclusive growth options for the reform countries, which are analysed in the paper: The option of an import-led growth in Eastern Europe, resulting from capital transfers from the West in order to assist the modernisation and investment process in the East, and the option of an export-led growth, allowing for unrestricted entering of Western markets and imitating the experience of Asian economies. The estimated magnitudes and likely economic effects speak in favour of the export-led growth option, but under both options the governments in the West are challenged.

Key words: Growth options, import-led growth, export-led growth, adjustment

Introduction

The opening of formerly planned economies to the world and the implementation of market-oriented reforms has not only profound economic, social and political consequences for these Central and Eastern European economies. There are also substantial effects on the economies of Western Europe, resulting from enhanced price competition in product markets, migration and capital flows.

The paper takes the position that full protection against these impacts is unsustainable since it would prevent improvements in Eastern Europe, creating high political instability and strong pressures for migration. In view of the rising opposition against a too-high migration in

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Western Europe, the paper concentrates on the effects and countervailing policy measures in the West resulting from trade liberalisation and changing trade patterns as well as financing needs in East and West. There are tremendous growth chances for Western Europe, resulting from large and nearby markets, improved resource allocation and enhanced specialisation. Yet these positive effects may not materialise without important adjustments in the West. This is likely to require governmental actions to supply the macroeconomic conditions, in particular enhanced public saving, to assist adjustments through human capital formation and infrastructure investment, and to resist requests for subsidising declining industries. This calls for an active, but not interventionist government trying to pick winners.

The macroeconomic effects and adjustment requirements in the OECD countries are fundamentally determined by the feasible growth options of the reform countries. A rapid and substantial improvement of efficiency in factor allocation and a high accumulation of productive resources are required under all growth options. This calls for speedy, comprehensive and credible reform policies at the institutional, macro- and microeconomic levels. As regards the central contribution by OECD countries, the main options are twofold, but not mutually exclusive: The provision of important capital transfers (savings) to support the process of capital accumulation which introduces huge swings in the balance of payments (import-led growth), or the unrestricted opening to imports from the reform countries, allowing efficiency gains and scale effects to be exploited while keeping the balance of payments largely balanced (export-led growth). Both options differ in their macroeconomic implications and policy requirements for the Western industrialised countries (and the world economy), but both imply the need for major macro- and microeconomic adjustments in the Western economies.

In order to assess the main economic consequences and feasible response options, the structure of the paper is as follows: Section 2 analyses the option of an import-led growth in Eastern Europe, resulting from capital transfers from the West in order to assist the modernisation and investment process in the East. Section 3 analyses the option of an export-led growth, allowing for unrestricted entering of Western markets and imitating the experience of Asian economies, the export projections being based on an adjusted gravity model which allows for alternative scenario assumptions. In section 4 some magnitudes of the costs for structural adjustment in the West, implied by the opening of Western markets to Eastern exports, are given. Implications of an active and a passive strategy are developed, and two basic policy dilemmas that might impede timely adjustment are highlighted. Section 5 then draws overall policy conclusions.

I. The Import-led Growth Option

The need for rapid and high capital accumulation in Central and Eastern Europe in order to largely approach the Western income level in a reasonable time span is acknowledged by most

economists. Despite the past high investment rates in the formerly planned economies, their effective capital stock is considered to be low in view of past wasteful investments and new relative prices. Since domestic saving in these countries is considered to be low for the time being, or at least insufficient to support the required capital accumulation autonomeously, capital transfers from the rest of the world are called for to cover the gap. The mirror images of important capital transfers are substantial current account deficits in the reform countries and current account surpluses in the OECD countries. Naturally, such a situation cannot be maintained forever. Eventually it has to be reversed, which then requires high current account surpluses in the reform countries to repay capital and interest on the accumulated foreign debt and correspondingly current account deficits in the West.

In order to assess the feasibility of such an option of fostering economic growth in the East by means of capital transfers it is necessary to have quantitative indications of the scope of investment requirements, the potential scope of foreign contribution, and the likely impact on Western economies.

1. Investment requirements and capital import needs

Since the beginning of the reform process in Eastern Europe various studies have been undertaken in order to assess the investment requirements, differing in country coverage, conceptual approach and sophistication.[1] These studies suggest that in order to achieve, or at least approach Western income levels in a time span of some 10 to 20 years, investment of some US $ 70 billion to US $ 1500 billion (some 3 to 60 per cent of 1992 gross investment in OECD-Europe) is required per year for the countries of Central and Eastern Europe plus the FSU (see Steinherr 1993). The results vary due to differences in the assumed starting income level (measured in current or purchasing power exchange rates), the target growth rate, production technology and assumed existing inefficiencies. Only one study (Boote, 1992) explicitly considers existing inefficiencies and their partial or full elimination over the investigation period, pointing out that rapid efficiency gains would substantially reduce the capital needs of the reform countries. This very study assumes that the efficiency gains are partly exogenous, partly endogenous, resulting from labour augmenting technological progress due to the rise in the capital/labour ratio.[2] Potentially, and compared to the traditional Solow and Swan growth model (Solow, 1956, Swan, 1956), endogenous growth may result in higher growth rates at lower capital/efficient labour ratios, with a much faster speed of adjustment towards equilibrium (Villanueva, 1993). Those considerations suggest that the investment requirements

1 For example. CEPR (1990), Collins and Rodrik (1991), Gros and Steinherr (1991), Giustiniani et al. (1993) and Boote (1992).

2 Borensztein and Montiel (1992) use a model based on endogenous growth in a similar context, however, they use it to evalutate the degree of over-investment in the formerly planned econmies.

could be substantially reduced if the countries were to succeed in implementing a reform policy generating endogenous growth developments.

The requirements of capital transfer to the reform countries are not only determined by the total investment needs, as some studies suggest, but are reduced by the supply of domestic savings and increased by the servicing of the inherited foreign debt. The formerly planned economies exhibited high investment and saving rates, but the latter are likely to be reduced during the reform process as a result of public dissaving due to high budget deficits, and pent-up private demand, perhaps somewhat corrected by precautionary saving in view of economic uncertainty and looming unemployment. Given the estimated investment requirements, assuming saving rates for these countries allows the calculation of the capital transfers required in order to cover the saving/investment gap, based on simple national account identities. Such an exercise was undertaken by Giustiniani et al. (1993), using the high historical saving rates of these countries, ranging from 22 per cent in the former GDR to nearly 34 per cent in Romania -- with an overall average of 30 per cent -- against an average of 22 per cent in the OECD countries. The exercise is repeated here for investment data based on Boote (1992), with alternative assumptions about the saving rate (20 or 30 per cent), and the real interest rate applicable to foreign financing (0, 3 or 5 per cent). A rate of 0 per cent interest rate simulates the hypothetical situation of no foreign debt at the beginning, and all capital transfers representing direct foreign investment with no dividend payments abroad.

Table 2.1 presents the simulation results, including the results of Giustiniani et al. (1993) for comparison, highlighting the following main points: (i) The importance of efficiency gains. If the Central and Eastern European countries were to achieve EU efficiency in 10 years time, the investment requirements and foreign capital needs would be diminished by a factor of 5 under most realistic parameter constellations. Reducing the East-West efficiency gap by only half during this period would imply unfinanciable investment and capital needs, implying for all CEE5 an average current account deficit of 50 to 70 per cent of GDP, and for the European OECD countries a turnabout in their current account balance of 6 to 8 per cent of the GDP (equivalent to an additional saving effort by these countries)[3]; (ii) The importance of domestic saving in the reform countries. With the lower domestic saving rate (s = 20%, a rate in line with low to middle growth developing countries), the foreign capital needs would be some US $ 100 billion higher compared to a high saving rate (s = 30%, a rate in line with successful industrialised countries in the past, such as Austria, Germany and Japan, and high-growth treshold countries, such as South Korea and Singapore). This calls for policies fostering private savings and certainly preventing public dissaving. (iii) The results underline the importance of a low effective real interest rate on foreign debt. A lower rate could result from credible and

3 This assumes a real growth rate of 2 per cent per year and that essentially only European OECD countries would supply the additional exports and savings.

time-consistent reform policies, reducing the risk premium on foreign credits and profit repatriation by foreign investors.

2. Capital imports and macroeconomic effects

Yet, catching up to the efficiency level of the EU within 10 years time appears to be too optimistic even for the most advanced reform countries; increasing the domestic saving rate to high levels would require enormous policy efforts; and an effective real interest rate of 3 to 5 per cent may be the market minimum. In consequence, capital transfers to the CEE5 countries alone of some US $ 50 billion (some 3 per cent of OECD-Europe's gross investment) are seemingly the absolute minimum under the most optimistic circumstances. This amount will have to be more than doubled if the capital needs of the former Soviet Union are taken into account. An annual capital transfer of at least US $ 100 billion, however, has to be assessed in historical perspectives and evaluated in its likely macroeconomic effects:

Table 2.1 Scenarios of Capital Transfer Needs by Central and Eastern European Countries

	Bulgaria	ex CSFR	Hungary	Poland	Romania	CEE5
Annual average (1990-99) 1/ (in billions of 1989 US$)	7,1	15,5	9,0	21,2	6,1	58,9
Annual average (1993-2002) (in billions of 1992 US$ (PPP)) 2/						
I. Full efficiency gains by 2002						
a) in billions of 1992 US$ (PPP)						
s = 0.2; r = 0.05	10,5	18,2	25,0	50,1	26,0	129,8
s = 0.2; r = 0.03	9,3	16,5	22,6	44,5	23,4	116,3
s = 0.2; r = 0.00	7,7	14,1	19,3	37,3	20,1	98,7
s = 0.3; r = 0.05	2,5	-6,0	10,3	16,3	6,4	29,5
s = 0.3; r = 0.03	1,8	-5,9	8,9	13,1	5,2	23,1
b) in percent of EU-GDP (PPP)						
s = 0.2; r = 0.05	15,7%	9,2%	20,5%	17,7%	15,7%	15,5%
s = 0.3; r = 0.00	1,5%	-2,9%	5,9%	3,2%	2,2%	1,8%
c) in percent of European OECD GDP (PPP)						
s = 0.2; r = 0.05	0,1%	0,3%	0,4%	0,7%	0,4%	1,8%
s = 0.3; r = 0.00	0,0%	-0,1%	0,1%	0,1%	0,1%	0,2%
II. Partial efficiency gains by 2002						
a) in billions of 1992 US$ (PPP)						
s = 0.2; r = 0.05	63,3	49,7	47,1	278,5	160,7	599,3
s = 0.2; r = 0.03	58,6	45,8	43,2	257,8	149,2	554,5
s = 0.2; r = 0.00	52,3	40,6	38,0	230,2	133,8	494,8
s = 0.3; r = 0.05	55,3	25,4	32,3	244,7	141,2	499,0
s = 0.3; r = 0.03	51,1	23,4	29,5	226,4	131,0	461,4
s = 0.3; r = 0.00	45,6	20,8	25,8	201,9	117,3	411,3
b) in percent of EU-GDP (PPP)						
s = 0.2; r = 0.05	94,3%	25,0%	38,6%	98,3%	97,4%	71,7%
s = 0.3; r = 0.00	67,9%	10,5%	21,1%	71,3%	71,1%	49,2%
c) in percent of European OECD GDP (PPP)						
s = 0.2; r = 0.05	0,9%	0,7%	0,7%	3,9%	2,3%	8,4%
s = 0.3; r = 0.00	0,6%	0,3%	0,4%	2,8%	1,6%	5,8%
Memorandum items: foreign debt in per cent of the GDP in 2002 CEE						
Full efficiency adjustment						
s = 0.2; r = 0.05	102,6%	72,1%	151,4%	111,9%	87,9%	103,2%
s = 0.3; r = 0.00	18,2%	-17,6%	51,6%	27,7%	12,9%	17,8%
Partial efficiency adjustment						
s = 0.2; r = 0.05	573,1%	189,9%	274,7%	580,2%	540,8%	452,6%
s = 0.3; r = 0.00	415,1%	81,8%	155,5%	423,1%	394,7%	312,7%

1/ Giustiniani et al. (1993).
2/ Author's calculations, based on Boote (1992).

Sources: Boote (1992); Giustiniani et al. (1993); OECD (1993b); IMF (1993a); own calculations.

(i) Latin America and Asia, two huge blocks of reforming economies together succeeded in attracting foreign capital amounting to some US $ 100 billion only in 1992; the average for the period 1985-92 is less than half (Annex Table A-1). The rising capital transfers at the beginning of the 1990s reflect domestic developments, such as successful reform attempts in various Latin American countries and the return of flight capital, as well as foreign factors, such as the low rate of return in the USA, making riskier investments in these countries again more attractive. As experience suggests, however, the latter development is likely to

be reversed if investment returns in industrialised countries improve, leading to major disturbances on domestic markets in the developing and newly industrialised countries (Calvo et al., 1993). Since the inception of political and economic reforms, the Central European reform countries have received very modest amounts compared to Latin America and Asia, even if the smaller size of these economies is taken into account.[4]

(ii) The availability of international financial resources to Eastern Europe is reduced by the special German situation, where the western part supports the transformation process in the former GDR with annual transfers amounting to over US $ 100 billion since re-unification. So far, most of these transfers have been used for consumptive purposes, less for re-capitalisation of enterprises and investments (except infrastructure). Once the recession in Germany has come to an end, and gross capital formation has taken up again, this may induce an additional strain on international capital markets, unless current transfers within Germany are reduced. The financial needs of East Germany have led to a turnabout of the balance of payments, turning Germany from a major capital exporter to an important importer (capital account balance 1989: DM 135.1 billion surplus for West Germany; 1992: DM 106.8 billion deficit in 1992 for the reunited Germany).

(iii) Additional transfers to Eastern Europe and the former Soviet Union require additional exports from the industrialised countries and correspond to a demand-shock, the country-specific effects depending on the assumed distribution of this demand shock on the individual countries. Simulations of the macroeconomic effects among the G8 (G7 plus an aggregate of the remaining smaller countries) have been undertaken by Giustiniani et al (1993), using the IMF Intermod world model (see Masson et al., 1990). Distributing the additional net exports of some US $ 150 billion on average over the first 10 years (rising from US $ 54 billion in the first to US $ 306 billion before declining and becoming negative in the 17th year) to the G8 according to the historical trade pattern results in economic effects qualitatively very much in line with economic theory.

For the weighted average of the G8 countries, the real interest rate would be situated for almost 20 years above the baseline scenario, with a difference of 3 percentage points at its

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4 In all countries, an important share of capital inflows has been used to increase the reserves of the central banks: partly to raise the import/reserve ratio to reasonable levels, partly to sterilise the foreign component in money creation to prevent a too-high appreciation of the real exchange rate. Such an appreciation has accompanied capital inflows in most Latin American countries, but has been less common in Asia, suggesting the importance of the use of these resources (investment or consumption), the applied instruments of monetary policy or the composition of capital inflows (foreign direct investment or loans). Since the former are not usually intermediate through the domestic banking system, there is no accompanying expansion of domestic credit (Calvo et al., 1993). For other experiences with surge in capital inflows and possible countervailing policy options, see Schadler et. al. (1993).

acme. For Germany, which would be most hit by the export demand[5], the interest rate would rise by a maximum of 4.5 per cent; for the USA, which had little prior trade links with Eastern Europe, by a minimum of 2.4 per cent. The demand-shock also results in a sharp impact appreciation for the Western European currencies of 8 to 20 per cent against the US dollar. The large increase of interest rates and, in all countries except the United States, the appreciation of the currency cannot prevent serious inflationary pressures, resulting in the GNP deflator lying some 1 per cent per year above the baseline. As regards the positive aspects, the simulations suggest the need for patience and a low social discount rate. For the aggregate of the G8 countries, there is little if any change in the GNP for the first 10 years and a small gain thereafter, amounting to about 2 per cent in the twentieth year; higher medium term gains would only be achieved by Germany. Furthermore, the sizeable crowding out of domestic demand (especially investment) causes the GDP to develop much less favourably than the GNP.

Summing up, the historical evidence, the scope of the shock, and the important disturbances that the required capital transfers are likely to imply in the West and East, render the import-led growth option generally unfeasible, even assuming dramatic efficiency gains and endogenous growth effects to take place in the East. Only some smaller and advanced reform countries are prone to attract relatively important capital inflows (such as the Czech Republic, Hungary or Slovenia), whereas most other reform countries will have to essentially rely on domestic sources to finance their capital accumulation. Furthermore, international evidence suggests that first domestic reform and outward orientation of the economy has to take place before international investors are willing to provide additional financial ressources and to engage in direct investment on a large scale (see IFC 1994).

II. The Export-led Growth Option

The high economic growth rates in various Asian countries, the more recent experienc in a some Latin American countries, and the rising worldwide empirical evidence of a close link between the openness of an economy and its economic progress also suggest a strategy of rapid opening and strong export-orientation for Eastern Europe in order to achieve a high and sustainable growth path. In essentially all reform countries, the speedy elimination of trade obstacles inherited from the former planning mechanism is part and parcel of the economic reform programme, a development which has been precipitated by the breakdown of the CMEA trade arrangement. On the other hand, EU and EFTA started to make association agreements with the reform countries, reducing trade obstacles (tariffs and non-tariff barriers) on a notional large scale, while keeping barriers for sensitive products for the time being. This

5 The simulations keep West and East Germany separate for data reasons and hence consider the exports to the former GDP as part of total additional net-exports of West Germany.

subsection discusses the theoretical underpinnings and empirical evidence of export-led growth, presents estimated orders of magnitude of additional import pressures and export chances in OECD countries, if such an export-led growth option were to be realised by the reform countries, and analyses the emerging trade pattern since the beginning of economic reform.

1. Theoretical considerations, empirical evidence and policy requirements

The discussion of outward-oriented (export promotion) versus inward-oriented strategy (import substitution) for the advance of industrialisation in developing countries has long tradition in the development literature, and despite the apparent superiority of the former, the discussion has not yet been fully settled. Even assuming the superior performance of export-led growth, there is an active debate on the exact difference between both strategies and on the mechanisms through which export-oriented strategies translate into higher growth: an interventionist strategy of successfully 'picking winners' and export promotion, or a relatively neutral set of incentives across activities, which promotes allocative efficiency (de Melo and Robinson, 1992). Disregarding the precise policy approach bringing about export-led growth, the theoretical basis has not been very strong in the past and the growing and supporting empirical evidence needed substantial ad-hoc extensions and was not directly reconcilable with the neo-classical model. Besides conventional static efficiency gains resulting from an outward orientation, these models and testable specifications have to assume the existence of positive externalities and dynamic effects. These effects, however, are central elements of the *new theories of growth*, allowing for endogenous effects, and various models have been developed in recent years assigning trade an important function in the explanation of endogenous technical change (e.g. Rivera-Batiz and Romer, 1991, Grossman and Helpman, 1992).

The central arguments for the link between outward orientation and economic growth, nowadays supported by theoretical considerations, are the following (Villanueva, 1993, IMF, 1993a, De Melo and Robinson, 1992, Grossman and Helpman, 1992):

(i) The import-export sector serves as a vehicle of technology transfer through the importation of advanced capital goods, and as a channel for positive intersectoral externalities through the development of efficient and competitive management, training of skilled workers, and the spillover consequences of scale expansion.

(ii) Closer economic links increase the transmission of technology, thereby reducing the duplication of research and development activities. Because knowledge is a public good, its accumulation increases the rate of technical progress.

(iii) Rising exports relieve the foreign exchange constraint. The importation of technologically superior capital goods is enlarged by the growing export receipts and the high

flow of foreign credits and direct investment, which take account of the country's ability to repay out of export earnings.

(iv) The international integration of sectors characterised by increasing returns to scale, raises output without requiring more inputs. Under certain assumptions it can be shown that a decentralised equilibrium can exist despite the existence of increasing returns in production.

(v) The opening of trade reduces price distortions, reallocating resources across sectors and increasing economic efficiency.

Numerous country case studies, cross-country studies, and pooled cross-country studies, with varying degrees of disaggregation and sophistication, have been undertaken, supporting, in general, the hypothesis that export expansion leads to higher total factor productivity through exploiting economies of scale, technology transfer or increasing competitive incentives.[6] The link between export developments and growth is also suggested in Table 3.1, highlighting the differences between high, medium and low growth developing countries. On average, there seems to be a strong link between export developments and economic growth rate, but also with regard to the national investment and saving rate. The lower capital/output ratio in high-growth countries is also consistent with endogenous growth considerations, allowing for higher steady state growth rates but lower capital/output ratios.

Table 3.1 Economic Characteristics of Developing Countries, 1971-1992 1/

	All countries	High growth	Medium growth	Low growth
Real GDP growth	5,0	7,0	4,1	1,8
Real per capita GDP growth	2,7	5,0	1,5	-0,5
Total fixed investment	21,7	23,8	20,5	19,6
Public investment	12,1	11,8	12,7	11,0
Private investment	9,6	12,0	7,7	8,7
Total savings	22,6	27,3	20,0	18,0
Government final consumption	11,9	11,9	11,5	13,2
Export volume growth	6,9	9,1	5,8	3,2
Capital-output ratio 2/	3,2	2,5	3,4	4,9

(figures in percent per year or percent of GDP unless otherwise indicat

1/ Countries are divided into three groups on the basis of their rankings in GDP growth during 1971-1992, with the "high-growth" group consisting of the top third, and so on. Data for 90 countr accounting for over 95 percent of the developing country GDP, are weighted averages, with weights based on 1981-84 PPP valuation of country GDPs. Data for investment , savings, and the capital-output ratio are through 1991.
2/ Incremental capital-output ratio, defined as the change in capital stock relative to the chang in output.

Source: World Economic Outlook, IMF (1993), May.

6 For surveys and further references, see, for example the World Bank Development Report 1987, Grossman and Helpman (1992), and IMF (1993a).

The strong empirical evidence and mounting theoretical backening of the trade/economic growth link render suggestions for an export-led growth approach for the reform countries inevitable (e.g. Van Bergeijk and Oldersma, 1992, IMF, 1993a). However, at least three additional issues have to be addressed:

(i) Most models of export-led growth have been established and empirically investigated for developing countries. The countries of Eastern Europe and the former Soviet Union share some characteristics with developing countries, but are in many features more germane to industrialised economies, raising the issue of the straightforward applicability of the approach to the reform countries. In view of the uniqueness of the current transformation, no affirmative answer can be given for the time being. However, the experience of Western industrialised countries with export-led growth after World War II (in particular Germany and Japan), and more recent experiences and estimates in other leading economies suggest some optimism (Marin 1992). For France, a very recent empirical study based on a production function, estimated with Johansen cointegration technique, indicate that trade and capital -- broadly defined -- account for all of the growth in the French economy during the last two decades (Coe and Moghadam, 1993).

(ii) The experience with successful newly industrialised economies suggests a few prerequisites for an open, outward-oriented economy and identifies common features. The list suggests that important domestic reforms may still be required in many countries of Eastern Europe, inter alia in the labour market, since it is unlikely that an outward-oriented trade strategy can generate rapid growth ´unless the labour market functions in response to market forces´ (Krueger, 1985, p. 208), and in the public sector, since 'in none of these countries was there any pressure for monetary expansion to finance large and continuous government deficits' (Fry, 1985, p. 317).

(iii) An outward orientation also requires markets to sell the goods and services, largely in an undistorted manner. This calls for unrestricted access of the reform countries to the markets in the OECD economies.

2. Export projection with an extended gravity model

Supposing that the OECD countries would actively assist an export-led growth through elimination of trade obstacles (tariff and non-tariff barriers) and support of domestic policies in the reform countries: what would be the likely implications for the Western industrialised countries themselves? The magnitude of trade potential between the reform countries and the industrialised West has already been estimated on several occasions, suggesting that in the long run East-West trade should amount to a multiple of the starting position of, say 1988 (e.g. Van Bergeijk and Oldersma, 1990, Collins and Rodrik, 1991, Wang and Winters, 1991, Havryshyn and Pritchett, 1991, Hamilton and Winters, 1992, Baldwin, 1993, based on Wang and Winters 1991 estimates). These estimates have been useful first-run approaches to signal potential long-

run policy implications of the arising new economic order. However, they provide little guidance for short- and medium-term impacts and necessary policy reactions. This requires a clearer view of the scope, the regional distribution and the time path of additional exports from the East to the West.

To this end, scenario projections for the period 1993-2002 are elaborated which are based on the current workhorse of potential trade analysis, the gravity model, with main model adjustments and extensions in order to derive meaningful short- and medium term effects. Central features of the scenario projection model are described below, technical details in the Annex.

In order to assess the **scope of additional trade** over the next 10 years, we use the gravity model, with three main modifications of the previous use in analysing the East-West trade potential: (i) Alternative trade patterns. The previous approaches are based on estimated worldwide trade patterns of developed and developing market economies (76 countries in the case of Wang and Winters, 1991) or semi-industrialised and medium-income non-oil exporting countries (Havrylyshyn and Pritchett, 1991). In view of the objective of integrating all reform countries as rapidly as possible into the Western industrialised economic order, we believe that OECD and EU/EFTA, rather than worldwide trade patterns are an appropriate reference point. (ii) Coping with Eastern European income data. The gravity model is notoriously sensitive to the used income level (GDP or GDP per capita), which in the reform countries is surrounded by high uncertainties as documented by the existing differences in estimates (see, for example, Baldwin, 1993). Since at current exchange rate the income level in US $ appears underestimated, previous contributions use estimated purchasing power parities (PPP) corrections to yield more reasonable income levels. Yet such an approach, while intuitively sensible, is not consistent with the gravity model; it does not reflect the estimated trade pattern on which projections are based, and hence leads to an overestimated trade potential. Purchasing power considerations, however, may be consistently integrated into the gravity model, leading to an additional (negative) exchange rate term (current exchange rate to PPP, both measured in national currency to US $) which proves significant in the statistical analysis (see Annex). (iii) The adjusted gravity model is estimated for OECD and EU/EFTA trade data pooled for the period 1985-90 and calibrated to generate the total trade volume for 1992, the reference year of the scenario projection. This procedure gives more credibility to estimated trade during the projection period 1993 to 2002.

In order to assess the **regional distribution of additional trade**, the OECD countries are grouped into three areas depending on their geographic distance to the reform countries. The gravity model and empirical evidence since 1988 suggest that neighbouring countries are much more affected than more distant countries. Hence, the first group covers the Crescent Countries, stretching like a half-moon around the reform countries, starting from Finland to

Sweden, Denmark, Germany, Austria, Italy and Greece.[7] The potential trade impact on these countries is also individually presented and assessed. The second group covers the other European OECD countries, while the non-European OECD countries are put into the third group. As regards the reform countries, they are grouped according to their growth potential over the next 10 years which fits largely with their geographic position: Central Eastern Europe (including Croatia and Slovenia); the Baltic States; the Balkan (including the remainder of Yugoslavia and Albania) and the Commonwealth of Independent States (CIS) (Russian Federation, Ukraine and Belarus only).[8] For each of these groups of reform countries, identical assumptions about income growth rates are made.

In order to obtain a **time path of additional imports** to the OECD countries resulting from an export-led growth in the reform countries over the period 1993 to 2002, a set of alternative assumptions is defined and the resulting export/import developments assessed according to their feasibility and the experience of successful export-led growth countries. This approach allows the testing of the robustness/sensitivity of the results and permits an independent judgement by the reader. The crucial assumptions are on the income growth path of OECD countries, on the income level and growth path of the reform countries; and on the speed of closing the trade gap.[9] As regards the OECD economies, the country-specific short-term and OECD-wide long-term assumptions are used. For the reform countries, alternative and country-group specific assumptions about the starting income level, the exchange rate mark-up and growth rates are applied. The resulting potential trade level between OECD and reform country economies is converted into projected trade levels for each projection year via alternative assumptions about the trade gap adjustment, based on the starting trade gap (potential compared to actual trade) in 1992 (see Annex).

The flexibility of the approach and the variability of the parameter assumptions allow to distinguish between robust and sensitive results of the scenario calculations (summarised in Annex Tables A-7 to A-9).

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7 Turkey would be an appropriate prolongation in the South, but had to be excluded for data reasons and because of its currently warfaring neighbours Armenia and Azerbaijan.

8 See the Annex for a full presentation of country grouping.

9 In view of the moderate demographic changes in OECD countries, the problems with demographic projections for CEE&CIS countries, and the already high number of scenario parameters, the population for all considered countries is kept constant at the 1992 level throughout the projection period.

3. Results: Projected export patterns

A very **robust result** is the strong impact of any strategy of export-led growth in the reform countries on the western Crescent Countries (see Chart 3.2 and Annex Table A-6 for a projection based on medium parameter assumptions[10]). The absolute impact for the average of the Crescent Countries, measured by the difference in import share of 2002 against 1992, is some 40 to 80 per cent higher than for the other European OECD countries, and 6 to 10 times higher than for the non-European OECD countries. The latter have the highest relative change in their import share (imports from CEE&CIS in per cent of own GDP), which five- to six-folds under some assumptions. However, even under the most extreme assumptions, the import share of the non-European OECD countries does not increase over 0.33 per cent of the GDP by 2002. For the Crescent Countries, this implies an increase in the average import share of over 2 per cent of the GDP, reaching well over 3 per cent in 2002, compared to 1 per cent in 1992.

Another robust result is the distribution of the trade impact within the group of Crescent Countries. Mostly effected under all parameter assumptions and under both OECD and EU/EFTA trade patterns is Austria, for which the change in the import share is always more than double than that of Finland, Denmark, Sweden and Greece, well trailed by Italy. In all scenarios, the least concerned Crescent Country is Germany. This reflects the low, or even negative initial potential trade gap as well as the trade-reducing size effect of a reunited Germany.

Even allowing for different exchange rate mark-ups (low for Central and Eastern Europe, high for all others) but identical high economic growth rates, the strongest absolute impact is estimated to derive from Central and Eastern European countries, paling those from the Balkan and CIS countries.

The **sensitive results** concern the absolute size of the trade impact and the path over the projection period and depend, as to be expected, on the model specification and parameter assumptions.

A main difference results from the applied reference trade pattern - OECD or EU/EFTA. Since the adjusted gravity model estimated for total OECD trade yields higher (positive) parameters for the income variable, a lower (negative) parameter for the distance variable, and a lower (positive) parameter for adjacent countries, compared to estimates for EU/EFTA trade alone, the resulting potential trade impact is always much lower for equal scenario parameters. The more regional trade orientation, which EU/EFTA trade pattern implies, however, seems more in accordance with the recent trade orientation of the reform countries as pointed out below.

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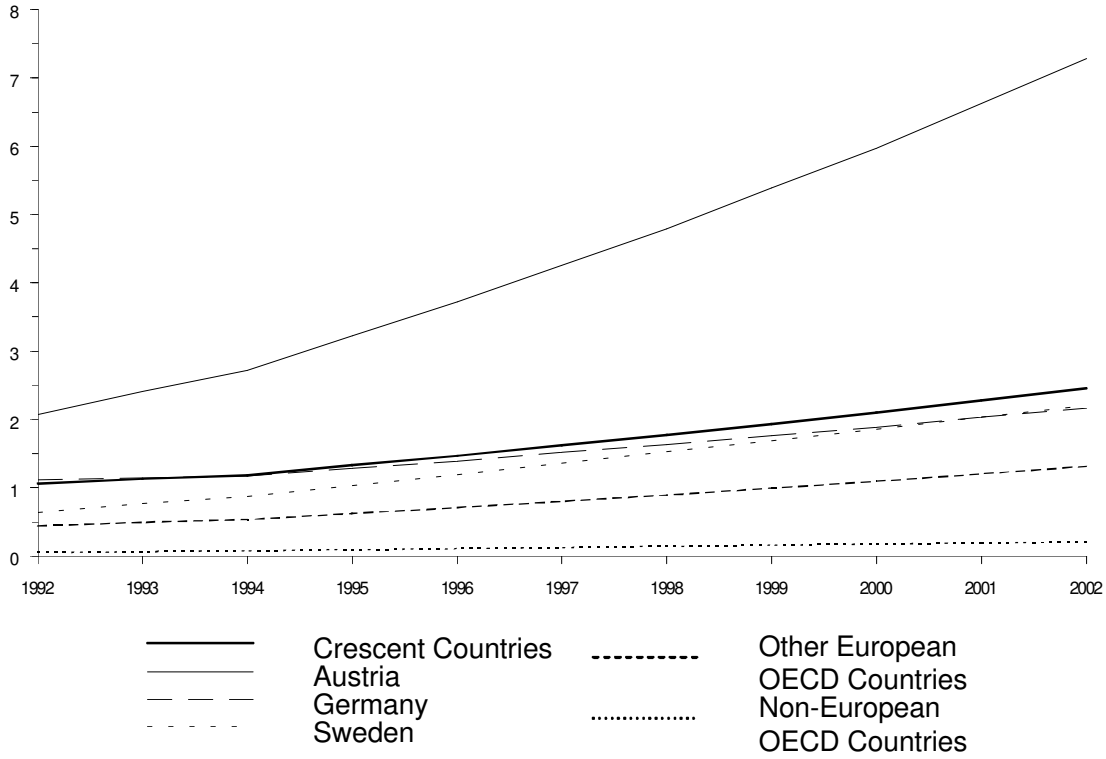
10 In particular, slow trade gap adjustment, EU-EFTA trade pattern and a constant exchange rate mark-up of 3.0 throughout the projection period.

Chart 3.2 Scenario of OECD-Imports from Reform Countries, 1992-2002

(in percent of GDP) 1/



1/ Slow trade gap adjustment, exchange rate mark-up of 3.0, and EC-EFTA trade pattern.

The assumption on the speed of closing of the trade gap influences the overall result, but less than may have been expected. The reason for the relative insensitivity of the total change in the import share for the average of OECD countries is the relatively low trade gap of the Crescent Countries, which dominate the overall effect. In consequence, different assumptions for the reduction of the trade-gap have little overall impact. It matters, of course, for the other OECD countries, in particular the non-European OECD countries, but they have little weight in the overall calculation. Viewed from the angle of the reform countries, even the extreme trade adjustment assumption results in average export growth rates experienced in export-led growth countries. Under most parameter assumptions, the average growth rate of trade (in constant 1992 US $) for the Central Eastern European countries is in the range of 10 to 15 per cent, for the Baltic States 10 percentage points higher, for the Balkan and CIS countries, however, much lower. In the 1980s, Turkey experienced an average export growth rate in real terms of 15 per cent, and much higher rates are reported for Indonesia (CEPAL 1993). For Korea, during the period of high economic growth (1961-76), the rate was more than 25 per cent.

Variations in the exchange rate mark-up have some, but not an overly important impact on the scenario paths. This is the result of the compensating effect between the income variable and the exchange rate mark-up variable. Increasing the mark-up from 2 to 4 would result in an income-related additional trade of some 100 per cent since the income elasticities are around 1.

However, the exchange rate variable reduces the effect by more than half under the OECD trade pattern, by less than half under the EU/EFTA trade pattern.

A relatively strong effect results from variations in the mark-up during the projection period. In economic terms, however, the effect is not easy to interpret. With an assumed constant current exchange rate, a rise in the PPP exchange rate leads to a reduction in both income (measured in PPP) and the composite exchange rate variable and is equivalent to the assumed reduction in the exchange rate mark-up. The first effect implies, ceteris paribus, a negative impact on exports of the reform countries, the second, a positive impact, the first one prevailing. With given GDP in national currency, a rising PPP rate may be interpreted as lowering the supply potential of the country since in PPP terms less resources are available. The composite exchange rate term may be interpreted as the demand effect since the supplied goods in PPP terms are getting less expensive. The problem with a straightforward explanation of the effects reflects to some extent the still lacking convincing theoretical foundations of the gravity model, despite its empirical soundness.

4. Recent trade pattern adjustment and regional impact

With the starting of political and economic reform in the CEE&CIS countries, a reorientation of trade has already taken place. Partly, this has been enforced on these countries through the breakdown of the CMEA trade arrangement and the break-up of states (Soviet Union, Yugoslavia and Czechoslovakia), partly it was the result of an outward-oriented policy approach under essentially all reform programmes, introducing trade liberalisation and almost current account convertibility in most countries (see IMF, 1993a). The OECD countries largely encouraged these policies through the so-called generalised system of preferences, and more recently through the association agreements between the EU/EFTA and most Central and Eastern European and some Balkan countries. These agreements, in general, are supportive of Eastern European exports, but still maintain selective trade restrictions and are likely to imply trade distortions with and between EU/EFTA countries. On the other hand, privileged trade positions of some OECD countries have been lost, in particular for Finland vis-à-vis the former Soviet Union, requiring also for them a reorientation of trade. Furthermore, the war in former Yugoslavia has led to trade sanctions on her former republics implying additional distortions.

The different and time-varying country coverage of East-West trade treaties, the selective trade restrictions and the likely distortions on East-West and West-West trade, in addition to geo-political changes, indicate that the emerging East-West trade pattern during the recent years is far from being unbiased and may not be representative for a possible future trade structure. Nevertheless, the redirection of trade, its scope and regional distribution for the period 1988 to 1992 is quantitatively assessed in order to receive additional indications about the potential future trade pattern. The assessment is undertaken along two lines: comparing the

estimated trade gaps in 1988 and 1992; and estimating the export and import growth rates in relation to the geographic distance of markets.

The comparison of **estimated trade gaps for 1988 and 1992** should take account of the much more distorted starting position of trade in 1988, which may render a simple comparison of export and import growth rates inappropriate. For example, a country with a low initial trade gap due to special trade treaties at the time of central planning could exhibit low, or even negative growth rates after liberalisation compared to a country with a high initial gap. Comparing the trade gaps before and after reform puts trade growth rates and market share developments into perspective.[11]

The estimates for 1988 suggest higher trade gaps for all OECD countries and fewer discrepancies between the main analysed country groups (see Table A-4 in the Annex). The higher gaps in 1988 reflect the decrease in the GDP in the reform countries between 1988 and 1992, however measured. The lower differences between the country groups suggest that the former trade regime has little favoured neighbouring country groups.

Comparing the **growth rates of trade between Central and Eastern European[12] and OECD countries** provides a first assessment of the mutual market penetration. Table 3.4 exhibits the export growth rates of CEE&CIS to OECD countries according to the main country groupings. The highest export growth rates can be found from the Central Eastern European countries to the Crescent Countries. These rates exceed the export growth rates to the other European OECD countries by a factor of 3; for the export to the non-European OECD countries the growth is negative. However, also for the other groups of reform countries the export growth to the Crescent Countries pale that to the other OECD regions.[13] Since the Crescent Countries already had an initial lower trade gap with essentially all CEE&CIS countries, an adjustment process to the trade potential cannot account for the higher growth rates of exports to the neighbouring OECD countries.

Table 3.4 Growth Rates of Trade Developments between the OECD and the Reform Countries, 1988-1992

Exports to / from:	CEE	Baltics	Balkan	CIS	Total	CE7 1/	CE5 2/
Crescent Countries	86,1	59,6	2,3	59,6	64,5	68,4	71,8
Austria	40,2	28,1	24,4	26,1	31,8	34,4	41,2
Denmark	79,5	141,3	23,8	141,3	64,8	76,6	82,1
Finland	-9,8	-35,4	-48,3	-35,4	-31,4	-10,9	-2,0
Germany	118,8	111,8	39,9	111,8	107,7	104,6	100,6
Greece	-0,9	66,0	42,0	66,0	38,0	22,0	52,4
Italy	81,6	-87,6	126,0	-87,6	59,2	40,5	46,9
Sweden	3,5	0,0	-20,2	0,0	-2,8	-7,8	22,1
Other European OECD countries	28,8	18,1	-19,4	18,1	16,3	14,0	11,8
Non-European OECD countries	-7,0	2,7	-64,7	2,7	-13,9	-28,4	-24,8
Total	60,5	36,0	-17,0	36,0	38,3	40,4	41,4
Imports from / to:	**CEE**	**Baltics**	**Balkan**	**CIS**	**Total**	**CE7 1/**	**CE5 2/**
Crescent Countries	86,5	31,3	52,7	28,3	56,8	81,2	101,6
Austria	68,7	12,8	28,1	-8,2	45,3	63,4	75,4
Denmark	235,7	154,5	98,1	144,4	189,2	225,4	262,9
Finland	88,3	-6,0	38,2	-7,2	19,2	70,8	88,1
Germany	81,6	64,4	30,5	59,4	67,1	72,8	89,0
Greece	62,5	39,2	175,7	432,2	192,4	118,9	182,0
Italy	124,5	92,4	123,5	85,1	106,3	127,5	201,0
Sweden	38,0	87,8	11,9	80,3	47,6	38,0	63,2
Other European OECD countries	59,4	12,6	54,0	12,6	38,3	60,4	77,8
Non-European OECD countries	32,6	-20,0	-42,1	-20,1	-12,5	13,0	45,2
Total	73,6	11,8	35,1	10,4	37,6	67,5	88,5

1/ CEE plus Bulgaria and Romania

Sources: IMF, Direction of Trade Statistics Yearbook, 1993

11 The estimation of the trade gap in 1988, however is distorted by heightened uncertainties with regard to income level in national currencies, exchange rate (national currency to US $) and mark-up (ratio of current exchange to PPP) in that year. Furthermore, the decline in output in the reform countries until 1992 is likely to have had different effects on these variables rendering the selection of comparable parameter assumptions hazardous. As a consequence, the gap is calculated for the group of Central Eastern European countries only, and based on income levels calculated backwards from the 1992 level and published growth developments over the period 1988 to 1992.

12 For this comparison, the country group of Central Eastern Europe plus Bulgaria and Romania is selected, since trade developments may be the least distorted for this set of countries.

13 The negative export growth rates from the Balkan group to essentially all OECD countries reflects the trade sanction on former Yugoslavian Republics in 1992 and is not representative for an adjustment process nor a future trade pattern.

The evidence so far suggests a close link between **export developments of the reform countries and geographic proximity to OECD countries**. This hypothesis is tested in a simple econometric specification. As suggested by Table 3.4 and fostered by the coefficients of the regression, which are significant at a 5 per cent level, the hypothesis cannot be rejected (Table 3.5). For every 100 km of additional distance from an OECD country market, there is a decrease by some 1.5 percentage points of export growth rate during the period 1988 to 1992. Such a result, however, does not follow from the gravity model and the estimated initial trade gaps. Assuming equal initial trade distortions under the gravity model, i.e., an equal initial trade gap, the growth rates should also be equal under a neutral trade adjustment process. Since the initial trade gap of neighbouring countries was higher, a neutral adjustment process would even result in lower export growth rates. The actual adjustment process neither can be explained by different trade restrictions either, since essentially all considered importing and exporting countries fall under the same trade arrangements. This process is also stressed by the little difference in the parameter estimates for different reform country groupings. This suggests a diffusion process of export developments in which the reform countries, at least initially, predominantly enter neighbouring markets for which the transactions costs are lower due to historical links, reduced cultural barriers and less language problems. Such transactions costs may be particularly high to the many new exporters after the dissolution of foreign trade organisations, and the temporary loss of acquired knowledge for more distant markets. An additional influence may derive from direct investment in the reform countries, which, at least for SMEs are reportedly coming mainly from neighbouring countries. The export of (lower wage-induced shifted) products to the home country of investment may thus contribute to the development. Both explanations could lead to an overshooting during the adjustment process to the trade potential, or even lead to permanently higher trade links with the Crescent Countries if once achieved market shares are not reduced in view of economies of scale of market penetration.

The strong link between Eastern export growth and geographic proximity of markets raises, of course, the question about symmetry and the comparative advantage of neighbouring Western countries to enter Eastern markets. However, as suggested by Table 3.4 and the same simple econometric testing, such an hypothesis has to be rejected. The origins of Eastern import growth are evidently much more equally distributed, the estimated coefficients for the distance variable lower than in the opposite trade direction specification and statistically insignificant. The rejection of a systematic relation between Eastern import pattern and geographic proximity does, of course, not imply that individual countries could not take advantage of their geographic situation (such as Austria, Italy and Greece), yet much more distant countries (such as USA, Canada and Japan) could also gain from the liberalised markets in Central Eastern Europe. This may be explained by comparatively lower advantages of neighbouring countries with regard to market knowledge and transaction costs, or could result

from the commodity mix of import demand in the reform countries. Beside satisfying pent-up consumer demand for international brand consumer goods, the reform countries need a variety of investment goods that can, at least for the moment, not be provided by mostly smaller and specialised neighbouring countries. A firmer answer to these issues requires detailed investigations into the import structure of the reform countries and comparison with the production structure in OECD countries at SITC level, for which the statistics are not readily available.

The strong regional concentration of the reform countries' exports will eventually subside, putting rising pressure on other European OECD countries, in particular on those with competing labour intensive production (such as Portugal and Spain). Already during the long diffusion process of export penetration, third market effects will have a negative impact on the export chances of southern European EU-countries. Yet such effects cannot be dealt with in the gravity model, they need a more comprehensive model framework. Nevertheless, the current commodity composition of eastern European exports and its concentration suggest that during this decade, most of the adjustment pressure will be on the neighbouring countries. Furthermore, calculations of the distributional effects of the 1992 market integration suggest that most of the sales and market share loss in the footwear and clothing industry would happen in northern Europe if an increased market access for the rest of the world were to be provided (Neven 1990).

Table 3.5 Estimates of the Relation between Trade Growth and Distance, Reform countries/OECD, 1988 to 1992 1/

	Coefficients of exogenous variables		Corr. R**2	Durbin-Watson
	initial export volume (t-statistics)	Distance in 100 km (t-statistics)		
Export growth				
Central Eastern European Countries 2/	120,58 (16.7)	-1,42 (2.27)	0,95	2,02
CE5 3/	107,8 (11.7)	-1,49 (2.35)	0,92	2,02
CE7 4/	107,7 (11.0)	-1,53 (2.17)	0,91	2,14
Import growth				
Central Eastern European Countries 2/	86,24 (15.9)	-0,17 (-0.46)	0,93	1,95
CE5 3/	94,99 (8.77)	0,21 (0.36)	0,84	2,43
CE7 4/	81,92 (12.1)	-0,34 (-0.84)	0,89	2,25

1/ Linear econometric specification, with export growth rate as dependent variable, estimated with
2/ Croatia, Czech Republic, Hungary, Poland, Slovak Republik and Slovenia.
3/ Ex CSFR, Hungary and Poland, plus Bulgaria and Romania.
4/ CE5 plus Bulgaria and Romania.

Source: IMF, Direction of Trade Statistics Yearbook, 1993, and own calculatio

Summing up, the tentative scenario calculations suggest non-negligible trade effects on Western industrialised countries if the reform countries would and could choose a strategy of export-led growth. The impact would be negligible for the non-European countries, more pronounced for more distant European OECD countries and important for the neighbouring countries. For the latter, the additional imports in per cent of GDP over the next 10 years range between 1 and 2 percentage points for reasonable parameter assumptions, for some countries, however, 3 percentage points of GDP and more, if the reform countries were to follow a trade pattern as known in the EU/EFTA countries. The emerging trade patterns so far suggest a very strong impact on the Crescent Countries with regard to exports from Central and Eastern Europe, whereas the opposite trade flows are less related to geographic proximity. This suggests that an export-led growth strategy in the reform countries would particularly hit the neighbouring countries with regard to imports from the reform countries, whereas an exploitation of the export potential to those countries would require major efforts in production adjustment and export orientation.

III. Structural adjustment: the costs involved and two basic policy dilemmas

The increased trade with the reform countries under an export led growth strategy raises, of course, the issue of the economic effects of such an import shock for the OECD economies, specifically for the Crescent Countries. In particular, what would be the effects on employment in the industrial sector, and what would be the investment needs in physical and human capital in order to stabilize employment? Albeit interesting, estimating these values is an extremely difficult task. Section II, however, has provided some fairly robust magnitudes of the trade volume to be expected from Eastern Europe within the next decade. These suggest that by the year 2002 imports from Eastern Europe to the Crescent Countries will rise between 0.9% to 5.2% of GDP. These additional imports will lead to a decrease in the price of output of western producers, not only because supply has increased but also because the imports from Eastern Europe mainly focus on the lower quality and price segments. Hence the output of western producers in these segments on western markets will fall, and it will fall in total if no adjustment to other, higher-quality segments takes place.

Naturally also substantial export possibilities to Eastern Europe arise that can be exploited by western producers in order to offset the increase in imports. But this too implies a (partial) movement out of sensitive and commodity sectors and an "upgrade" in quality segments. It is the demand for high-tech industrial goods that is large in Eastern Europe, rather than the demand for low-tech goods and commodities that these countries produce themselves. Eastern Europe will not import low-quality industrial goods like textiles and processed food or commodities like steel and coal from Western Europe, but it will import

high-quality industrial investment goods, consumer durables and high-tech services, such as banking and finance. Therefore, reacting to the trade shock on western markets and exploiting the possibilities of exports to the East will require structural adjustment in the West, both within sectors and, in particular, from sensitive, declining to other, expanding sectors.

This section provides some macroeconomic speculation about the scope of adjustment costs in the OECD countries over the period 1993 to 2002, and highlights two basic policy dilemmas, which may impede a swift adjustment process. The two dilemmas derive from factor specificity of production and from strategic behaviour by individuals with regard to their re-training decision and adjustment of human capital.

1. Scope of adjustment costs

What are now possible employment effects of the trade shock if no adjustment in the West takes place, and what are magnitudes of the costs for this adjustment? The scope of the decline in employment resulting from a decline in output depends on the production technology. If the production technology is of the Leontief-type, the decline in employment equals the decline in output. There is no substitution between factors taking place on the path of shrinkage in output. Under a production technology that allows for factor substitution this identity between percentage changes in output and employment would, in general, not hold. Notably substitution would occur because of changes in factor prices. But the model of section II only provided predictions in volume changes, not in price changes. In general, however, the drop in output price will imply a reduction of factor prices. If wages are rigid downwards capital becomes relatively cheaper than labour, and factor substitution will work in such a way that the drop in employment is tendentially larger than the one in output. But even if we assume that factor prices and the capital-labour ratio do not change, the labour reduction will be higher than the one in output if we assume decreasing returns to scale. Let output be given by the Cobb-Douglas production function $Y = K^{\alpha}L^{\beta}$ and the capital-labour ratio remains constant due to fixed factor prices, i.e. K/L=g such that K=gL. The elasticity of L with respect to output e is then given by:

$$\varepsilon_{L,Y} = \frac{1}{\alpha + \beta} > 1$$

Under decreasing returns this exceeds unity since the scale elasticity is smaller than 1. There is no estimate of the substitution parameters under the hypothesis of fixed factor prices available. However, the model by the German Bundesbank (1991) estimates a scale elasticity of 0.842 for the German economy in a CES production function which would equal an elasticity of labour with respect to output of 1.12 under the assumption of constant factor ratios. We will therefore work with both the cases of a 1:1-relation between employment and output changes

and a 1.12:1-relation, where the the latter is assumed to capture some range of factor price changes or decreasing returns to scale, both justifying a magnified effect of output on employment.

Table 4.1 gives the magnitudes of these changes on employment under two cases of sectoral distribution of the shock, and no absorption of the dismissed workforce by expanding industries (gross unemployment scenario). The first case assumes that the industrial sector will be predominantly hit by the trade shock (absorbing two thirds of the decline in output); the second case assumes that the sectors in the West are evenly hit by the shock. We only consider though the private sector, including public enterprises, and exclude the purely public sector supposing that it will not be directly concerned by the opening of trade. The use of these two cases seems justified by the trade data: So far, export from Eastern Europe have been close to the first case, focussing on industrial goods with a large share of commodities, i.e. suggesting predominant adjustment needs in the industrial sector in the West. However, changes in the sectoral distribution of trade are visible, with an increasing share of fabricated products and including some services (Inotai 1993). The trend, therefore, points to a more even spread of trade over sectors and, consequently, adjustment needs, which would approach the second case. Even if services are underrepresented in trade (obviously because most services are non-tradable) there is nevertheless good reason to include them in the adjustment needs, hence to consider not only the industrial sector but the entire private sector of the economy. First, because the development in services has to match the development in industry. The common labour market will make it impossible that productivity differentials between sectors persist over time and modernization in industry will require a large amount of modern services, e.g. in banking, communication and transport. Second, when it comes to location of industries between Western and Eastern Europe, the quality of services at these locations plays a crucial role. Since many firms consider a shift of labour-intensive production to low-wage locations in the East, this is an important issue and implies an indirect competition of services in the West with services in the East. Hence also improvements of eastern services, which make eastern industry locations more attractive, put under pressure services in the West.

To judge the decline in employment in the individual countries the resulting percentage changes in unemployment are given, too.[14] The effect is dramatic for Austria, where unemployment would increase by almost 5 percentage points. This increase is a net increase, on top of the present unemployment level.

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14 Note that this is, of course, not the change in employment in the whole economy because it abstracts from employment increases in exporting sectors. It is the would-be figure of unemployment if no adjustment is undertaken and no export possibilities are exploited.

Table 4.1 Employment Effects on the Industrial and Private Sector 1/

	Equiproportional employment decrease (1:1) 2/	Stronger employment decrease (1.2:1) 3/	Percentage decrease in employment if two thirds of trade shock hits industry and only one third hits the remaining private sector		Increase in total unemployment rate in percentage points
			Drop in industry employment	Drop in remaining private sector employment	
Crescent Countries	1,39%	1,66%	2,45%	0,74%	1,20%
Austria	5,20%	6,19%	8,16%	3,00%	4,68%
Denmark	1,93%	2,29%	3,56%	1,00%	1,36%
Finland	2,42%	2,88%	4,29%	1,28%	1,90%
Germany	1,06%	1,26%	1,73%	0,59%	0,89%
Greece	1,79%	2,13%	3,61%	0,88%	2,67%
Italy	1,15%	1,36%	2,32%	0,57%	0,90%
Sweden	1,57%	1,87%	2,49%	0,90%	1,10%
Other European	0,87%	1,03%	2,34%	0,38%	0,56%
Non-European	0,16%	0,19%	1,14%	0,06%	0,18%
OECD	0,56%	0,66%	1,20%	0,27%	0,46%

1/ See main text for further details.
2/ Assuming a Leontief production function.
3/ Assuming decreasing returns to scale.
4/ Non-industrial, private sector employment only.

One can imagine three basic scenarios for what will happen with the laid-off workers which are, of course, not mutually exclusive: Either they become unemployed, or they are to be retrained, or they become employed in another job. Assessing the costs of each of these scenarios, and possibly a combination of them, is extremely difficult because they are the costs of an economy-wide adjustment over a decade-long time horizon. Therefore, all figures will deliberately call for disputes, but in order to obtain some policy conclusions of the strategy of export-led growth we need to obtain at least some magnitudes, and be they very rough. Table 4.2 provides the estimate of the adjustment costs involved.

The column on unemployment benefits gives the annual costs if the entire proportion of the workers affected by the trade shock became unemployed. The figures are based on OECD data and take into account different institutional unemployment schemes in the diverse countries (OECD 1992a, p. 89ff). The country hit strongest is again Austria, because of the magnitude of the trade shock. The estimated figure of $ 1.6 bn is more than half the 1991-spending on the labour market in Austria. The nordic countries would suffer greatly from this unemployment case, too, since here unemployment benefits are particularly high.

Table 4.2 Employment Change and Adjustment Costs

	Drop in Employment	Unemployment and Social Benefits (in Million $)	Training Costs (in Million $)	Investment Expenditure (in Million $)	Share of 1992 net Investment
Crescent Countries	820,309	10.408,5	13.420,3	70.741,5	20,04%
Austria	**150,618**	**1.600,0**	**2.464,1**	**11.195,4**	**45,57%**
Denmark	27,961	452,0	457,4	2.261,4	18,51%
Finland	35,291	463,4	577,4	3.826,7	31,46%
Germany	**293,328**	**3.445,6**	**4.798,8**	**29.542,1**	**18,14%**
Italy	225,469	3.163,9	3.688,7	19.539,3	17,17%
Sweden	33,696	646,2	551,3	2.237,3	11,24%
Greece	53,946	637,4	882,6	2.139,5	28,44%
Other Europ. OECD	**796,887**	11.554,9	13.037,1	77.681,3	**15,10%**
Non-European OECD	500,561	5.519,4	8.189,2	45.268,6	...
Total OECD	**1.719,650**	17.497,0	28.133,5	158.468,4	**7,10%**

Sources: OECD (1992a), and own calculations.

The most difficult estimate is the one on training since here the unrestricted number of programmes, purposes and ways of financing training make general estimates very unreliable. We can therefore only give a lower bound for the costs involved. These figures come from the German labour office and are the costs for training workers that are laid-off in a sensitive sector (in particular steel sector) in order to prepare them for reemployment in other sectors. These costs do not comprise any cash benefits the participants may receive during the programme.[15] Much of the training will take place as on-the-job training and not be provided by public institutions. However, also these costs would be part of the adjustment costs and therefore no subtraction for on-the-job training is therefore made.

The most substantial costs are the costs of physical investment. Since it will be assumed that these workers will migrate into diverse sectors of the economy, both capital-unintensive services sectors and capital-intensive high-tech sectors, we work with the average private capital stock per worker in the respective countries, rather than with that of specific sectors. Clearly, also this average is a lower bound since adjustment implies modernization and increases in productivities. It is no doubt that in a global sense high-tech, high-productivity sectors are capital intensive, be it in physical capital like, for example, electronics production or communications, or be it in human capital like in the finance or insurance sectors. Taking the average capital stock as to be newly constructed, rather than "upgraded", has an important implication we would like to stress, namely the involvement of sunk costs. The fact that the jobs hit by the trade shock cannot transform their capital endowment into new jobs implies that past investment costs are sunk. This aspect of the adjustment problem occurs if the jobs lost first will be the ones in the sensitive sector or the lower quality segment. Out of both these domains any conversion of physical capital is supposed to be impossible. Since a

15 It is often argued that the human capital investment equals the investment in physical capital. The figure we use is roughly a quarter of the average capital stock per worker, hence clearly a lower bound.

new capital stock has to be built up we compare the investment values with the net investment figures in the respective countries rather than with gross investment which also includes depreciation. Here the scope of new capital to be built up lies in the range of 11 to 45 percent of current net investment for the Crescent Countries. These figures underline the large magnitude of necessary investment and the need to spread it over the adjustment horizon. Substantial stocks of capital have to be built up during the adjustment, and this will only be possible with a spread of the investment over time, also implying that a timely start, rather than a postponement, is crucial. In Germany this additional investment need will be particularly painful because it will rival with the enormous amounts of capital that are still needed for Eastern Germany. In Austria the required change in investment seems rather low because of Austria's high investment rate in 1992 of 24.3% gross (Germany: 21%, Italy: 20%).

The practical idea underlying these investment figures is not that the jobs of the sensitive and lower quality sectors hit by the trade shock will jump to the top quality or high tech sectors but that a marginal upgrading towards the latter sectors will be initiated by the trade shock. This means that productivity on all levels will have to increase through investment by one 'step'. In order not to exaggerate the fraction of investment requirements for this adjustment process, taking place permanently in all economies, which is due to the trade shock from Eastern Europe we work with the average capital stock in the economy as a proxy for this fraction.

In order to obtain an overall picture one has to pull together the three parts of the costs, unemployment benefit, human and physical investment, and consider the trend over time, since these costs are spread over the entire adjustment horizon. Here, this is done in a very crude manner in order to illustrate the main point of the paper, namely the choice between two strategies of reaction within the export-led growth scenario. The model of section II has not only provided the change in imports but also the time path over the adjustment horizon for every OECD economy. Based on this time path we construct two fundamental adjustment strategies, a passive and an active one:

(i) Under the **passive strategy,** the economy does not undertake any adjustment investment but simply provides public income support (such as unemployment allowances, early retirement benefits or social assistance) to whoever loses his job. Since no investment is undertaken these persons remain out of employment and continue to receive cash benefits.[16]

(ii) Under the **active strategy** the economy immediately adjusts to every increase in imports by undertaking human and physical capital investment. Whoever loses his job is trained and given a new endowment with productive captial. Hence, no unemployment arises;

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16 This assumption may exagerate the impact on the public budget, in particular in the non-European context. On the other hand, however, unemployment has negative effects on the level of GDP. We abstract from both aspects here and calculate the public support as if it were provided over the entire time horizon.

but there is nevertheless public spending involved. For one thing there is support for training costs. Typically (potentially) laid-off workers, or firms, receive training support from public authorities, in particular in the Crescent Countries. We assume that the course costs, not the cash benefit during training, are borne by the state. For another thing the state increases the infrastructure hand-in-hand with private sector investment. We assume that investment in the public capital stock amounts to one third of private investment.[17]

Table 4.3 shows the costs involved in the passive and active strategy as a fraction of GDP in the respective countries. These figures make the main implication very clear: The passive strategy is by far less costly than the active one initially but becomes more expensive eventually. Already within the next decade, annual public adjustment costs *per period* become lower under the active strategy, and this is true also under a present-value consideration if the horizon of calculation is extended beyond the year 2002. The reason for this is that under the passive strategy costs cumulate whereas under the active strategy they proportional to the potential change in employment (see also chart 4.1).

The table allows us also to derive some values of the entire magnitudes of the adjustment costs under the scenario of export-led growth. The total costs per annum of an active strategy, covering both public and private expenditure, are almost negligible for the OECD area as a whole, amounting on average to some 0,15 percent of OECD GDP per year. For the other European countries, these costs increase to some 0,25 percent of GDP per year, for the Crescent Countries to over 0,3 percent, with great variations among the latter. For Austria, total active costs per year approach 1 percent of GDP, compared to Italy with 0,15 percent, reflecting the difference in the import shock as well as active expenditure per unemployed. The passive strategy results in total expenditure of less then half of the active strategy (public and private), but since at least the private expenditure are to be collected from the market through future profits, it is only the active public expenditure which are to be assessed and compared with the passive one. For the OECD area, the total passive exceed the active public expenditure already within one decade if an active strategy is selected from the very beginning.

There is another implication that derives from these two strategies and that is illustrated in Chart 4.1. This figure shows the trend of the adjustment costs as a fraction of GDP for a representative Crescent Country. The exponential curve is the time path of total (public) costs under the passive strategy. These costs will, of course, not increase without bound since only a fixed fraction of the workforce is hit by the trade shock. At the end of the time horizon this curve will therefore become horizontal and eventually fall when these workers cease to receive

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17 In the OECD countries, the share of the public within the total capital stock ranges from 20 to 30 percent, equivalent to 25 to 45 percent of the private capital stock. Unfortunately no precise data on infrastructure are available, and the OECD figures are merely on gross capital stock rather than on the more meaningful concept of net capital stocks. For a recent empirical investigation of the relationship between public and private capital stocks, see Neusser (1992).

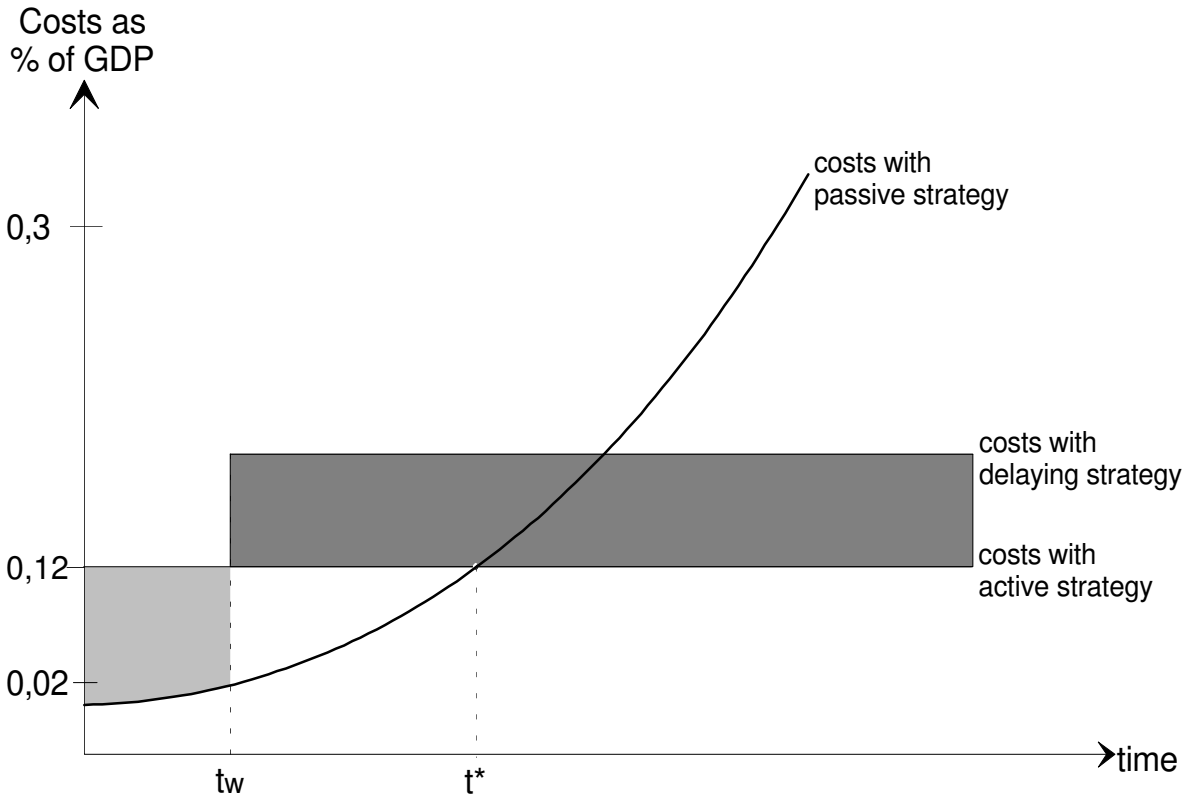
government support. But since in many OECD countries, in particular in the Crescent Countries, unemployment benefits are paid for a number of years and also social benefits are thereafter provided that reach similar levels as unemployment benefits, it seems reasonable that at least over the time horizon discussed here passive costs cumulate. The horizontal line in Chart 4.1 that intersects at t* with the passive costs curve represents public costs under the active strategy. (The private costs under the active strategy, which would be a line parallel to and higher than the public costs, are not shown). Both strategies imply the same per-period costs at t=t*. Naturally, if negative impacts of unemployment on GDP are considered as well, the path of costs under the passive strategy would bend upwards stronger, and the point where passive exceed active costs would be earlier than t*.

Table 4.3 Costs over the Adjustment Horizon: Two Strategies with Public and Private Expenditure

		1992 costs per unemploye	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Total (1992-2002)
		(Million US $)	- in percent of 1992 GDP -										
Crescent Countries	**Passive 1/**	**13.135**	**0,01**	**0,03**	**0,06**	**0,09**	**0,12**	**0,15**	**0,19**	**0,22**	**0,26**	**0,29**	**1,41**
	Active public 2/	46.804	**0.05**	**0.04**	**0.11**	**0.11**	**0.12**	**0.11**	**0.12**	**0.12**	**0.14**	**0.13**	**1.04**
	Active private 3/	91.375	**0,09**	**0,07**	**0,21**	**0,20**	**0,22**	**0,22**	**0,24**	**0,23**	**0,26**	**0,25**	**2,00**
Austria	**Passive**	**10.623**	**0,06**	**0,11**	**0,19**	**0,27**	**0,36**	**0,45**	**0,55**	**0,65**	**0,76**	**0,87**	**4,28**
	Active public	41.179	**0.22**	**0.20**	**0.32**	**0.32**	**0.35**	**0.35**	**0.38**	**0.38**	**0.42**	**0.42**	**3.36**
	Active private	74.330	**0,40**	**0,36**	**0,58**	**0,58**	**0,63**	**0,62**	**0,69**	**0,68**	**0,77**	**0,75**	**6,06**
Denmark	**Passive**	**16.165**	**0,04**	**0,06**	**0,11**	**0,15**	**0,20**	**0,24**	**0,29**	**0,34**	**0,39**	**0,44**	**2,26**
	Active public	43.339	**0.10**	**0.08**	**0.12**	**0.12**	**0.12**	**0.12**	**0.13**	**0.12**	**0.14**	**0.13**	**1.17**
	Active private	80.877	**0,18**	**0,14**	**0,22**	**0,22**	**0,23**	**0,22**	**0,24**	**0,23**	**0,25**	**0,25**	**2,19**
Finland	**Passive**	**13.132**	**0,03**	**0,05**	**0,11**	**0,17**	**0,24**	**0,30**	**0,37**	**0,43**	**0,50**	**0,57**	**2,76**
	Active public	52.433	**0.11**	**0.08**	**0.25**	**0.24**	**0.26**	**0.25**	**0.27**	**0.26**	**0.28**	**0.27**	**2.27**
	Active private	108.433	**0,23**	**0,17**	**0,52**	**0,51**	**0,53**	**0,52**	**0,55**	**0,54**	**0,58**	**0,56**	**4,70**
Germany	**Passive**	**11.746**	**0,01**	**0,01**	**0,03**	**0,05**	**0,08**	**0,10**	**0,12**	**0,15**	**0,17**	**0,20**	**0,92**
	Active public	49.885	**0.03**	**0.02**	**0.09**	**0.09**	**0.10**	**0.09**	**0.11**	**0.10**	**0.12**	**0.11**	**0.85**
	Active private	100.713	**0,05**	**0,04**	**0,18**	**0,18**	**0,20**	**0,19**	**0,22**	**0,21**	**0,24**	**0,23**	**1,73**
Greece	**Passive**	**11.816**	**0,06**	**0,09**	**0,18**	**0,26**	**0,35**	**0,44**	**0,53**	**0,61**	**0,71**	**0,80**	**4,02**
	Active public	29.737	**0.14**	**0.09**	**0.22**	**0.21**	**0.22**	**0.21**	**0.23**	**0.22**	**0.24**	**0.23**	**2.01**
	Active private	39.659	**0,19**	**0,12**	**0,29**	**0,28**	**0,30**	**0,29**	**0,30**	**0,29**	**0,32**	**0,31**	**2,68**
Italy	**Passive**	**14.033**	**0,01**	**0,02**	**0,05**	**0,08**	**0,11**	**0,14**	**0,17**	**0,20**	**0,24**	**0,27**	**1,28**
	Active public	45.248	**0.04**	**0.03**	**0.09**	**0.09**	**0.10**	**0.09**	**0.10**	**0.10**	**0.11**	**0.11**	**0.87**
	Active private	86.660	**0,07**	**0,06**	**0,17**	**0,17**	**0,19**	**0,18**	**0,20**	**0,19**	**0,22**	**0,21**	**1,66**
Sweden	**Passive**	**19.177**	**0,03**	**0,06**	**0,10**	**0,13**	**0,17**	**0,21**	**0,25**	**0,29**	**0,33**	**0,38**	**1,95**
	Active public	38.560	**0.06**	**0.05**	**0.08**	**0.08**	**0.08**	**0.08**	**0.08**	**0.08**	**0.09**	**0.08**	**0.76**
	Active private	66.395	**0,11**	**0,08**	**0,14**	**0,13**	**0,14**	**0,13**	**0,14**	**0,14**	**0,15**	**0,14**	**1,30**
Other European	**Passive**	**14.500**	**0,02**	**0,03**	**0,06**	**0,08**	**0,11**	**0,14**	**0,18**	**0,21**	**0,24**	**0,28**	**1,36**
	Active public	48.819	**0.05**	**0.04**	**0.09**	**0.09**	**0.10**	**0.10**	**0.11**	**0.11**	**0.12**	**0.12**	**0.94**
	Active private	97.481	**0,11**	**0,09**	**0,19**	**0,19**	**0,20**	**0,20**	**0,22**	**0,21**	**0,24**	**0,23**	**1,88**
Non-European	**Passive**	**11.026**	**0,00**	**0,00**	**0,01**	**0,01**	**0,01**	**0,02**	**0,02**	**0,02**	**0,03**	**0,03**	**0,17**
	Active public	46.494	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.13**
	Active private	90.436	**0,02**	**0,02**	**0,03**	**0,03**	**0,03**	**0,03**	**0,03**	**0,03**	**0,03**	**0,03**	**0,26**
Total OECD	**Passive**	**12.829**	**0,01**	**0,01**	**0,03**	**0,04**	**0,05**	**0,07**	**0,08**	**0,10**	**0,12**	**0,13**	**0,63**
	Active public	47.060	**0.02**	**0.02**	**0.05**	**0.05**	**0.05**	**0.05**	**0.06**	**0.06**	**0.06**	**0.06**	**0.49**
	Active private	92.152	**0,04**	**0,04**	**0,10**	**0,10**	**0,11**	**0,10**	**0,11**	**0,11**	**0,12**	**0,12**	**0,95**

1/ Unemployment benefits to long-term unemployed individuals.
2/ Training and public investment as a fraction of private investment.
3/ New capital stock for everyone who is affected by the trade shock.

Chart 4.1 Time Path of Public Cots with Alternative Adjustment Strategies



The main problem at t=0 will be to justify the active rather than the passive strategy and to raise the necessary funds at the outset until t=t*. However, Chart 4.2 illustrates the implications of not choosing the active strategy from the very beginning but rather wait until, for example, $t=t_w$. Choosing the passive strategy at the outset implies either running into enormous costs after t*. But it also makes switching increasingly costly. If one wants to save at the outset and then switch, after some time when the cumlative process begins to show one creates a base of unemployed that have

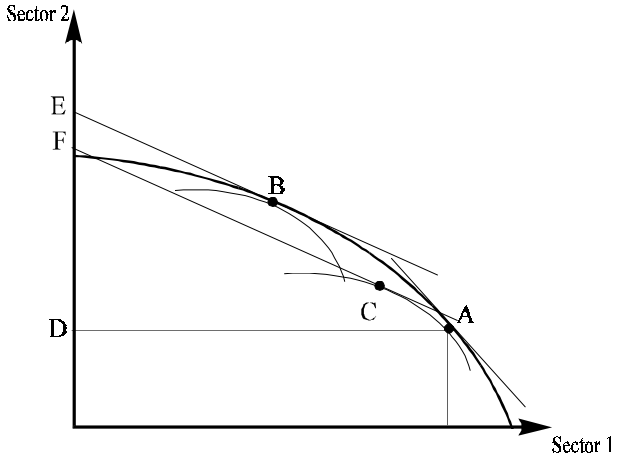
to be financed in addition to the investment costs for the workers laid off after t_W. Hence, waiting with the active strategy does not only not pay in the long run, but it makes switching, both in per-period costs and in total costs, increasingly costly.

Since time is a crucial element in the adjustment process, the next two sub-sections highlight two policy dilemmas inherent in the time dimension of structural adjustment, trying to explain why, apart from the initial budgetary advantage of waiting described above, timely adjustment may not come about.

2. Adjustment and temporary "inefficiencies"

Consider the transformation curve of a representative western economy given in Chart 4.1, producing a sensitive good in sector 1 and a high-tech industrial good in sector 2. Before the opening of Eastern Europe production was in the optimum at *A*, given the relative prices of the goods. The opening of Eastern Europe caused a change in relative prices that would make point *B* the optimal point of production.

Chart 4.2: Short- and Long-run Equilibria After a Change in Relative Prices.



However, neither a jump nor a movement *on* the transformation curve from *A* to *B* are possible, if factors are not perfectly mobile and their reallocation consumes resources.

If, for instance, capital is fixed in the short term and labour is mobile, the real wage will always be equalized during adjustment while the returns on capital between the two sectors can differ. In this case the actual transformation curve of the economy at the time of the shock is given by the inner curve in the diagram tangent at *A* and *C*. It is more convex to the origin and lies inside the long-run frontier. The economy will move to point *C* as a consequence of the change in relative prices. Gradually then, as long as the differences in return persist, capital will move to sector 2 and the economy will reach the long-run optimum in point *B*. In contrast to the general Stolper-Samuelson prediction that one factor gains while the other loses from trade protection, it can be shown that in this case of capital specificity tariff protection can benefit both factors. Hence both workers and capital owners have an interest in protection (see, Mayer 1974).

If not only capital but also labour is sector specific and wages are rigid downwards, then the drop in the price of output of the sensitive sector implies a drop in the marginal product of labour which can only be accomodated by laying off labour in sector 1. Given labour immobility, output in the economy will lie somewhere on the open segment of DA. In this case a subsidy that restores employment in sector 1 at point A may be optimal from a short-run point of view because point A is preferable to any point on the DA segment. Such a subsidy, however, is only optimal only under a

myopic policy scenario because it disregards future benefits that would otherwise be induced through the factor movements. In the contrary extreme case, i.e. if the government entirely disregards the present cost of unemployment and only considers future benefits of an output increase after adjustment there would be no subsidy at all. It is most likely, however, that the government will aim at a balancing of the burden and therefore allow some unemployment today in order to obtain some movement from the low to the high productivity sector in the future. The optimal dynamic subsidy is therefore smaller than the static one because future benefits are taken into account. In contrast to the static subsidy it induces some immediate factor reallocation from the declining into the expanding sector.[18]

These considerations illustrate that, as long as some factor is specific, the reallocation of factors consumes resources and implies necessarily a movement *inside* the transformation curve. Such a movement inside the transformation curve can be the outcome of a dynamic optimization and is no sign of inefficiency. As the transformation curve is merely a static concept, a subsidy that restores full employment and production at point *A* just as before the trade shock can therefore not be justified on "efficiency" grounds. However, since the movement of labour between sectors often implies the need for training, which is based on individual decisions, the government may have difficulties to induce such a movement of factors and can get trapped in the static solution of point A.

3. Human capital investment and strategic behaviour

It is a characteristic of the present problem of structural adjustment that the perspective of entire sectors is that they are being forced to shrink. This implies that there is no possibility for laid-off workers to move to other firms within the same sector. Moreover the shrinking firms are not able to convert themselves to a new task while keeping their labour force.[19] Adjustment out of the sensitive sectors therefore implies that workers have to leave not only their firms but also their industry. Since the expanding sectors, which they could move to, typically use a high share of skilled labour and since unemployment is highest in the EC for unskilled labour, moving sectors necessarily implies training. But this training involves fixed cost

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18 This has been shown formally in a dynamic optimization framework by Lapan (1976).

19 If entire firms could look for a new task, like some firms of the former defence sector manage by conversion, where workers remain within the firm, we would have the less difficult case of capital specificity and labour mobility. This, however, seems quite unlikely in the case of firms in the sensitive sectors, in particular in agriculture, coal and textiles.

that cannot be recouped later in life and may even be invain if the sectors continue to be protected and do not shrink as expected. Therefore, the decision whether or not to train in the expectation of a future shrinking of these sectors may be biased by strategic considerations.

In order to illustrate this point, one may think in terms of the simplest two-period overlapping-generations model. At the beginning of their (working) life the members of the new generation decide whether to incur costs for human capital investment or not. If not, they work in the traditional, lower-wage sector for the two periods of their working life, which is assumed to be the sensitive sector. If they decide to work in the expanding high-wage sector they train in the first period and earn the higher wage in the second period (see e.g. Ge Gregorio 1993). This choice between the two sectors can be thought of as the choice whether to remain in the traditional sector (for which they have "inherited" the human capital) or whether to leave it by incurring human capital investment, representing a sort of migration cost to move to the higher-wage sector. Individuals base this choice upon the remunerations in both sectors and upon the training cost. If labour markets are competitive the present value of earnings in both sectors, net of training cost, will be identical. The marginal individual will just be indifferent between training and not training. Hence the cost for human capital investment just equals the difference in the present value of wages in both sectors.

If there is the possibility of a negative shock to the sensitive sector, expected earnings in this sector decline and the incentive to train in order to leave the declining sector is now higher. A larger fraction of every generation will leave the sensitive sector. This, however, is not the whole story. Most of the so-called sensitive sectors, like steel, textile, agriculture or coal industries, have been highly protected by the state. And this is not just a recent development but has been going on for many years, paralleled in many other European OECD countries. It is also set out to continue: The potential trade shock from Eastern Europe, rather than being a good reason to cut subsidies and let the declining sectors decline as close as possible to the speed the market would prescribe, has been answered with even further measures of protection. These measures are claimed to be reduced within the next 5-10 years, but there is no certainty or convincing historic evidence that this will happen for sure.

The ongoing subsidies to the sensitive sectors are not without effect on the individuals' decision whether to train themselves, i.e. switch sector, or not. Forseeing that there will be some support with a positive probability in the case of a future shock, the individuals take this into account in their initial training decision. Hence they anticipate that part of the shock will be offset by the state. This makes room for strategic considerations. The individuals can commit themselves to the sensitive sector by not having trained. If then a shock occurs the decision of not having trained cannot be reversed and these individuals cannot switch the sector at this stage. Their previous decision imposes temporary immobility of labour between the sectors. Typically workers first have to be trained in training or job creation programmes where costs are borne by the state. Older workers would

become unemployed and be supported by the state, too. This means that the individuals can externalize some of the costs of not having trained and commit the state to take over these costs.

The state, by contrast, cannot commit itself not to support the sensitive sector under all circumstances, since under some it may be rational to provide support, e.g. to subsidize the output price of the sensitive sector or to pay the training for some workers rather than letting them all become unemployed. Knowing about this dilemma individuals have an incentive not to train in the first stage because they can endogenously make labour sector specific and thereby enforce support. This postpones the adjustment and is in this sense a form of burden-shifting from today's to tomorrow's generations. Since governments have an incentive to shift burdens away from living generations and since they cannot bind themselves not to protect an industry hit by a large (forseeable) shock, the optimal policy will not be time-consistent and the individuals anticipate that.

The historic moment of the opening of Eastern Europe might have been a chance for western politicians to escape this dilemma and credibly bind themselves away from a perpetual subsidization of these sensitive sectors. By grasping the moment of enthousiasm and prospering economic situation in most EC countries they could have commited themselves by signing an agreement forseeing practically free trade for these sectors, too, and thereby credibly signalling to workers and capital owners that earnings would follow market conditions more closely, implying a decline of these sectors and a timely re-orientation of resources.

IV. Policy conclusions

To reduce the gap in the standards of living between the OECD and the reform countries, and hence to prevent political instability and a poorhouse in Eastern Europe, the western industrialised countries have, in principle, three options: to allow for mass migration from these countries; to finance large parts of their modernisation and investment needs; or to allow for open trade. The migration option, as current developments in most European countries seemingly demonstrate, is unlikely to find a political consensus and may even, as empirical evidence suggests, do little to equalise differentials in well-being (see Barro and Sala-i-Martin, 1991, for US evidence). Some migration will, of course, take place, and may even seem warranted in view of the ageing population of Western Europe. But since the ageing of the population in Eastern Europe is only somewhat lagging behind the OECD countries, the problem would only be temporarily alleviated. Hence, the paper takes the position that a viable contribution from the West has to come from the two other options: sending capital or receiving goods. In analysing those two options and economic implications the following set of policy conclusions emerges, centered around the comparison of export- and import-led growth options, the asymmetric regional

impact of exports and imports under the export-led growth option, and the challenge of such an option for the general government in OECD economies:

(1) The export-led growth option, supporting Eastern exports to the West, dominates the alternative of transferring capital to the East in the import-led growth option in most aspects, in particular:

(i) The immediate financial consequences of an export-led growth strategy are lower than under an import-led growth strategy for most of the OECD countries. In a medium- term consideration of 10 years, an import-led growth strategy requires financial resources flowing to Eastern Europe in the order of 3 to 5 per cent of the GDP every year if the income gap is to be reduced by some 50 per cent for the Central Eastern European countries (equivalent to a growth path of 7 to 10 per cent p.a.).[20] For a roughly similar economic growth path, the direct adjustment costs to the West, resulting from an export-led growth strategy, are much lower and range between 0.25 and 1 per cent of the GDP. It should be kept in mind, though, that each option may entail some costs of the other.

(ii) The different macroeconomic consequences of both strategies point to an export-led growth because the huge swings in the current account balance that are prone to destabilize the financial system as well as the real economies in East and Westare avoided. Under an export-led growth strategy, trade in commodities and services can essentially be balanced (abstracting from the servicing of given foreign debt of the reform countries, partly compensated by direct investment and loans) without introducing monetary shocks into the world economic system. The import-led growth option, in contrast, would imply initial current account deficits in the East, followed by surpluses thereafter in order to pay back debt plus interest accrued. Model simulations report for the Western industrialised countries a substantial medium-term rise in the real interest and inflation rates, and shifts in the real exchange rates between the OECD economies.

(iii) The overall adjustment costs for the West under both strategies may not be too different in volume but they certainly differ in the time path and in the sectoral distribution among the industries concerned. The capital transfers to the reform countries require reduced absorption in the West, i.e. spending on consumption or investment. The import demand of the reform countries under an import-led growth strategy, however, will essentially be composed of investment goods. Therefore, a shift of economic resources in production from consumption to investment goods

20 This magnitude is interpolated from Table 2.1. A re-estimation of Boote's approach (Boote, 1992) with an identical set of assumptions is under elaboration.

(including consulting and financial services) is required. The consumption sector would be fully hit by adjustment needs, imposing contraction during the whole transfer period (which may last some decades).

(iv) A marked difference, however, between both options concerns the OECD-wide distribution of the adjustment burden. At least in the medium term, the adjustment burden for the more distant OECD countries is negligible under an export-led growth strategy; they may even gain. The Crescent Countries, by contrast, will be substantially affected by the rise in imports from Eastern Europe, far more than proportionally. The distant countries are little touched by the import shock, but profit from rising export chances. Under an import-led growth strategy, however, in view of international capital mobility and in view of the world-wide integration of financial markets, all countries would have to bear a proportional share of the burden, or a larger one if they are capital importers. This asymmetry between export- and import-led growth may explain the attitude of the USA: they have been very cautious with regard to their own financial contributions to Eastern European reform, preferring international institutions to take over the (minimal) role of capital provider. On the other hand, they have been very much in favour of a trade reform in Eastern Europe and the opening of trade with the reform countries. A similar approach of trade-supported growth strategy with regard to her southern neighbour, Mexico, implicit in the NAFTA agreement, finds much more domestic resistance.

(v) Import- and export-led growth are, of course, not mutually exclusive options, but international evidence suggests that first domestic reform and outward orientation of the economy has to take place before international investors are willing provide additional financial ressources and to engage in direct investment on a large scale. The important financial flows to South-East Asian and Latin American reform countries in recent years point in this direction (see IFC 1994). Hence, export-led growth may be the only viable starting option for the reform countries in Central and Eastern Europe.

(2) There is not only an asymmetry between the regional adjustment burden but also an asymmetry of regional impact of exports and imports under the export-led growth option:

(i) *Growth in imports* from the reform countries is for the moment much more regionally concentrated than predicted by the gravity model. This geographical concentration on neighbouring Western countries does not result from a lower starting position of the latter, i.e. a higher initial gap between actual trade and potential trade under the formerly regulated trading conditions. On the contrary, the estimated trade gap for 1988, the selected year of comparison, is lower for the OECD Crescent Countries. In consequence, a neutral adjustment process would even predict lower growth rates of exports from the reform countries, which is in contrast to the actual increase between 1988 and 1992: CEE7 to CC: + 68%; to other

European OECD countries: + 14%; to non-European OECD countries: - 28%.[21] This regional concentration of eastern exports may reflect the initial higher information costs of the many new exporters, lacking export organisations after the dissolution of the foreign trade organisations, and the existence of economies of scale in market penetration. As a result, the import shock for the neighbouring countries is currently much higher than for more distant OECD countries and this impact must be expected to last. Among the Crescent Countries, the distribution of the import shock also is uneven and linked with geographic proximity. Scenario projections suggest a very strong impact on Austria (neighbouring with 4 reform countries, and with their capitals and economic centres at less then 300 km distance), but also on Denmark, Finland, Greece, and Sweden. Reunited Germany is estimated to absorb a high absolute volume of Eastern European exports, that amounts, however, to a relatively moderate share of her GDP.

(ii) On the other hand, the distribution of *export growth* from the West to the reform countries is regionally much less dispersed. To the CEE7, the Crescent Countries exported + 81%, the other European countries +60% and the non-European OECD countries +13%. This more equally distributed origin pattern of Western export growth may be explained by the particular import demand of the reform countries, which is seemingly concentrated on international consumer goods and investment goods. The mostly smaller neighbouring countries may not have been able to supply the required range of those commodities in view of their advanced specialisation, and their competitive edge with regard to local information and market knowledge may have been less pronounced. This tentative picture suggests for the smaller OECD countries the need to enhance efforts in specialisation, high-tech production and advanced services in order to increase exports to the other OECD countries to compensate for potential trade deficits with the reform countries.

(iii) The asymmetric import shock among the OECD countries also suggests also different reaction patterns and attitudes towards trade opening among the regional trade arrangements. Since EFTA countries are geographically closer to the reform countries (except Iceland) and small, they must be expected to be exposed to a relatively larger import shock. Thus more resistance among the EFTA countries against the export-led growth strategy is likely to form. Among the EU countries, the main Crescent Country, Germany, exhibits a relatively moderate import impact, and because of its size and range of produced goods is expected to be among the main winners from trade opening in the reform countries. A differentiated trade impact may hence lead to tensions over the trade approach vis-à-vis the reform countries, as already evidenced by the differences

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21 The group of CE7, consisting of the Central Eastern European countries plus Bulgaria and Romania is chosen for reference since their export and import developments are less distorted by political and belligerent events than the whole set of reform countries. As evidenced by Table 3.1, however, the trend for the whole set is much the same.

in time table and results of the association agreements of the EU and EFTA with these countries. Yet, for the full picture not only the direct trade impact, but also third market effects have to be taken into account. The reform counties are likely to be main competitors for the moderate-income EU countries, such as Ireland, Spain and Portugal. So far, these countries have been sheltered by exceptions in the "Europe Agreement" but the overall issue of continued protection or additional compensation payments is likely to emerge.

(3) In assisting an export-led growth option of the reform countries, the general government sector of OECD countries is challenged from various sides: providing for higher public expenditure while contributing to national saving, and pressing for early adjustments while coping with two policy dilemmas.

(i) In response to the import shock, the OECD economies, in particular the neighbouring ones, may follow a passive or an active policy approach. Providing for dismissed workers of exposed industries a social safety net only, i.e. income support in the form of unemployment benefits or early retirement programs, may prove to be a short-sighted approach. In cash terms, the passive approach is cheaper for the budget in the medium run only, and dominated by the active approach from the very beginning in a present value consideration. The active approach consists in retraining, human capital formation and public infrastructure investment in order to assist the expanding sectors to take advantage of the new export markets, while providing job opportunities for the laid-off workers of declining industries. A high estimate puts such public expenditure at some 0.05 per cent of GDP annually for the average of OECD countries during the next 10 years, with 0.1 per cent for the Crescent Countries and 0.3 per cent for Austria.

(ii) Since the existing capital stock of declining industries, such as steel, coal, and textile, may essentially represent sunk costs, and hence cannot be transferred to the expanding industries, a recapitalisation of the newly generated working places will have to take place, requiring for the Crescent Countries financial resources of some 0.1 to 0.6 per cent of the GDP annually. Financing these additional investment needs may fall essentially on the individual countries, since the link between investment and saving effort among industrialised countries seemingly remains to be strong despite the internationalisation of financial markets (Feldstein and Horioka, 1980). With notorious low interest elasticities of saving and a required public and private investment volume, the public sector will have to contribute to the financing effort if an increase in the interest rate and crowding out of private investment is to be prevented.

In order to accommodate additional expenditure plus contributing to national saving demands lower other public expenditure or higher taxes by the indicated scope. For the average of the OECD countries, this does not present an important problem since the expenditure amounts to 0.15 per

cent of the GDP annually only. The scope for the Crescent Countries of some 0.3 per cent of the GDP per year, this seems more challenging. For Austria and Germany, however, the expenditure burden calls for an important shift in budgetary policy. For Austria, because of the mere scope (some 1 per cent of the GDP p.a.), for Germany (some 0,2 per cent of the GDP p.a.), since this adds to the existing problems of financing the adjustment in Eastern Germany.

(iii) Postponing an active strategy in the OECD economies does not pay since choosing initially the passive strategy makes switching increasingly costly. Once the laid-off workers are accumulated, the full amount of retraining and recapitalisation is due, while the costs of passive income support already had to be paid in the past. This calls for a timely and committed action by the government.

(iv) Since factors are not perfectly mobile and their reallocation consumes resources, there is no possibility to stay on the production frontier while shifting resources out of declining into expanding sectors. In addition, the existence of sector-specific factors of production increases the pressure for trade protection since both workers and capital owners may benefit from it in the short run. But providing subsidies to the declining sector in order to maintain the initial production level proves inefficient in dynamic considerations. In consequence, the governments of OECD economies are challenged to resist protective pressures and the call for inefficient subsidies while implementing a timely active policy approach.

(v) Delaying the signals for a committed forward-oriented strategy will give room to individuals for strategic considerations. In absence of committed strategy by the government, the individuals have no incentive to train and can thus make labour sector specific, slow adjustment, and enforce support.

The adjustment burden resulting from Eastern European reform raises, of course, the question what are the benefits for the West. The negative view is that there exists no alternative for the West other than to support the growth prospects of Eastern Europe. Avoiding adjustment through increased protection against Eastern imports is no alternative: it would decrease the growth prospects of the reform countries and hence increase the migration pressure; it would generate the need for higher public transfers from the West to support the consumption necessities in the reform countries; it would increase the probability of political turmoil and instability with consequences for domestic defence outlays; and last but not least, it would not be sustainable in the medium run.

The question may be asked to what extend smaller Crescent Countries, such as Austria and Sweden, could attempt a free-rider position through strong protectionism, and hence avoid the adjustment, but full trade liberalisation towards the Eastern economies elsewhere. Again, it appears that such an approach is not feasible for various reasons. First, in view of the scheduled EU entry of those countries, and the 'acquis

communautaire', requiring to take over existing rules. Second, third market effects, which would reduce the export chances of declining industries which should be protected. Last but not least, the unsustainability of delayed adjustment as the current example of Sweden frightfully demonstrates.

But there are also substantial positive aspects linked to reform in the East and adjustment in the West.

First of all, public defence budgets are alleviated to a large extent in all West European economies. The large reductions in armed forces, particularly in the Crescent Countries, has freed resources to alternative, more productive uses.

But the opening of the East has also provided a new market with many millions of consumers and many profitable investment opportunities. The necessary adjustment in the West to exploit these chances would have to take place anyhow, shifting physical and human resources out of declining industries into expanding industries. The continued subsidisation of traditional industries such as coal and steel in the West has no economic foundation, burdens the public budget, and is a constant element of irritation in the EU; similar arguments apply to the agricultural sector. Adjustment is therefore overdue and strongly desirable. Furthermore, adjustment pressure among the OECD countries is likely to be accentuated by the developments in Southeast Asia, and, perhaps, in Latin America. In consequence, rapidly adjusting to the new production and trade pattern as a result of Eastern European reform represents only an acceleration of reforms needed anyhow. Responding actively and rapidly to the new challenge should also increase the growth perspectives of the OECD countries, in particular of the neighbouring Crescent Countries. To take advantage of the new markets implies greater openness, more competition, the possibility of enhanced specialisation and the exploitation of economies of scale. Hence, if appropriately supported by domestic policies, part of the effects generating an export-led growth in the reform countries should spill-over to the OECD countries with positive effects on their long-term growth path as well.

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ANNEX I

Analysed Countries, Country Groupings, and Country Abbreviations in Tables and Charts

OECD Countries

Crescent Countries

Austria (A)
Denmark (DK)
Finland (SF)
Germany (D)
Greece (GR)
Italy (I)
Sweden (S)

Other European OECD Countries

Belgium-Luxembourg (B-L)
France (F)
Iceland (ICL)
Ireland (IRL)
Netherlands (NL)
Norway (N)
Portugal (P)
Spain (E)
Switzerland (CH)
Turkey (TUR)
United Kingdom (UK)

Non-European OECD Countries

Australia (AUS)
Canada (CAN)
Japan (JAP)
New Zealand (NZ)
USA

Reform Countries

Central Eastern European Countries

Croatia
Czech Republic (CR)
Hungary
Poland
Slovak Republic (SR)
Slovenia

Baltic States

Estonia
Latvia
Lithuania

Balkan Countries

Albania
Bosnia-Herzegovina
Bulgaria
Macedonia
Romania
Serbia and Montenegro

CIS Countries

Belarus
Russian Federation
Ukraine

II. Statistical Tables

Table A I. Balance-of-Payments Developments in Comparison, 1985-92

Year	Balance of current accou excluding official transfer	Balance of capital accoun net errors and omissions 1/ (in billions uf US$)	Changes in reserves 2/
		Latin America	
1985	-5,5	6,5	-1,0
1986	-19,8	13,2	6,6
1987	-11,8	15,0	-3,2
1988	-13,4	5,7	7,7
1989	-10,1	12,7	-2,6
1990	-8,5	23,6	-15,1
1991	-20,5	38,9	-18,4
1992	-34,6	53,4	-18,8
		Asia	
1985	-18,7	22,7	-4,0
1986	-1,1	25,5	-24,4
1987	14,8	24,7	-39,5
1988	2,6	8,7	-11,3
1989	-8,1	17,1	-9,0
1990	-10,0	31,7	-21,7
1991	-10,2	48,9	-38,7
1992	-25,2	46,3	-21,1
		Central European Reform Countries	
1985	1,2	-0,6	-0,6
1986	0,1	1,6	-1,7
1987	2,1	-2,2	0,1
1988	5,9	-2,7	-3,2
1989	2,7	1,9	-4,6
1990	-0,2	-0,5	0,7
1991	-6,6	8,7	-2,1
1992	-1,2	3,3	-2,1

1/ A negative sign indicates a deficit in her pertinent account. Source: World Economic Outlook

Table A II Macroeconomic Characteristics of Rapid Growth Countries

Country	Real GDP growth rate 1/	Exports of goods and services			Gross Fixed Capital Formation/GDP		Current Account/GDP 2/		
			In % of GDP						
		Average rea growth rate 3/	1st year	last year	1st year	last year	1st year	last year	average
Germany, (1950-60) 4/	8,8	15,0 5/	11,5	20,1	19,1	24,2	-2,3	3,0	...
Japan (1957-70)	9,8	9,0	11,8	10,8	25,8	35,5	-2,0	1,0	0,2
Korea (1961-76)	8,8	25,2	5,4	31,8	11,8	24,0	1,5	-1,1	-4,5
Singapore (1963-76) 6/	9,4	7,9	124,5	111,0	16,0	36,1	-11,9	-9,5	-10,0
Malaysia (1978-90)	6,4	10,0	49,1	74,0	24,8	29,6	0,6	-0,6	-2,1
Chile (1984-92)	6,2	10,2	24,3	33,4	12,4	19,4	-14,3	0,5	-5,3
Turkey (1980-90)	4,8	15,8	6,6	24,5	16,0	24,0	-7,1	1,3	-2,4

1/ Geometric mean of the indicated period.
2/ Without Exceptional Financing.
3/ Geometric mean with GDP-deflator.
4/ From Steinherr (1993, p. 19).
5/ Calculated on the basis of Steinherr's data.
6/ These data reflect extensive re-exportation activities.

Source: IMF, International Financial Statistics, March and August 1993

Table A III. Use of Trade Potential in 1992: OECD Imports from Reform Countries

	Actual (in mil. US$)	Estimated use of trade potential in %	
		OECD trade pattern	EC/EFTA trade pattern
Central Eastern Europe			
Crescent Countries	22841,02	120%	62%
Austria	2769,85	91%	36%
Denmark	588,09	89%	53%
Finland	407,91	109%	55%
Germany	13526,98	149%	84%
Greece	337,06	147%	58%
Italy	4433,06	90%	48%
Sweden	778,07	111%	60%
Other European OECD countries	7143,13	72%	38%
Non-European OECD countries	1909,25	46%	28%
OECD - TOTAL	31893,39	96%	51%
Baltic States			
Crescent Countries	1134,64	39%	20%
Austria	55,35	36%	19%
Denmark	26,15	18%	8%
Finland	104,81	29%	10%
Germany	510,65	38%	21%
Greece	26,42	65%	26%
Italy	362,27	75%	47%
Sweden	48,98	15%	6%
Other European OECD countries	622,71	43%	25%
Non-European OECD countries	227,38	17%	10%
OECD - TOTAL	1984,72	35%	19%
Balkan			
Crescent Countries	3569,58	70%	35%
Austria	274,55	65%	29%
Denmark	36,71	22%	11%
Finland	23,99	22%	9%
Germany	1709,12	87%	53%
Greece	284,44	136%	42%
Italy	1146,14	56%	26%
Sweden	94,63	51%	23%
Other European OECD countries	1866,97	43%	25%
Non-European OECD countries	456,15	24%	12%
OECD - TOTAL	5892,71	57%	28%
CIS			
Crescent Countries	14889,67	82%	52%
Austria	726,39	65%	38%
Denmark	343,19	41%	23%
Finland	1375,43	137%	60%
Germany	6701,11	80%	55%
Greece	346,75	82%	37%
Italy	4753,99	97%	68%
Sweden	642,82	46%	23%
Other European OECD countries	8171,67	69%	44%
Non-European OECD countries	2983,80	38%	26%
OECD - TOTAL	26045,14	69%	45%
CEE&CIS			
Crescent Countries	42434,91	94%	52%
Austria	3826,14	81%	35%
Denmark	994,14	55%	28%
Finland	1912,14	103%	42%
Germany	22447,85	108%	66%
Greece	994,67	110%	43%
Italy	10695,46	87%	50%
Sweden	1564,50	60%	28%
Other European OECD countries	17804,48	67%	38%
Non-European OECD countries	5576,58	36%	28%
OECD - TOTAL	65815,96	76%	43%

Source: IMF, Direction of Trade Statistics, Yearbook 1993, National Statistics, and own calculations.

Table A IV Use of Trade Potential in Comparison, OECD Imports from Central Eastern Europe, 1988 and 1992

	1988	1988	1988	1992	1992	1992	1992/88	1992/88	19
		actual in % of potential trade			actual in % of potential trade		change '92		
	actual (in mil. US $)	estimates 1/ OECD	estimates 1/ EC/EFTA	actual (in mil. US $)	estimates 1/ OECD	estimates 1/ EC/EFTA	over '88 in percent	estimates 1/ OECD	estir EC
Crescent Countries	12271,60	57%	31%	22841,02	120%	61%	86%	112%	9
Austria	1933,82	55%	24%	2769,85	91%	36%	43%	67%	4
Denmark	327,55	38%	21%	588,09	89%	42%	80%	132%	1C
Finland	452,92	78%	37%	407,91	109%	42%	-10%	39%	1
Germany	6183,01	71%	43%	13526,98	149%	84%	119%	110%	9
Greece	340,02	104%	45%	337,06	147%	58%	-1%	41%	3
Italy	2441,60	37%	22%	4433,06	90%	48%	82%	145%	12
Sweden	592,68	59%	29%	778,07	111%	50%	31%	89%	7
Other European OECD countries	6145,42	45%	26%	7143,13	72%	39%	16%	59%	4
Non-European OECD countries	2052,38	34%	23%	1909,25	46%	28%	-7%	34%	2
OECD - TOTAL	20469,40	35%	29%	31893,39	96%	51%	56%	174%	7

1/ Identical scenario parameters, in particular MU = 3.

Source: IMF, Direction of Trade Statistics, Yearbook 1993, National Statistics, and own calc

Table A V. Path and Distribution of Import Shocks in OECD Countries by Origin. 1992-2002
(in percent of OECD-countries' GDP) 1/

	1988	1992	1993	1994	1996	1998	2000	2002
	- actual -		- projected -					
Imports to/from:	**Central Eastern Europe**							
Crescent Countries	0.47	0.57	0.62	0.66	0.84	1.03	1.25	1.50
Austria	1.53	1.50	1.78	2.06	2.86	3.75	4.75	5.88
Denmark	0.30	0.41	0.48	0.54	0.73	0.95	1.19	1.46
Finland	0.43	0.37	0.43	0.49	0.65	0.84	1.05	1.29
Germany	0.52	0.67	0.70	0.72	0.86	1.02	1.19	1.40
Greece	0.64	0.43	0.47	0.51	0.65	0.80	0.98	1.17
Italy	0.29	0.36	0.41	0.45	0.60	0.76	0.94	1.14
Sweden	0.33	0.32	0.36	0.39	0.51	0.64	0.79	0.97
Other European OECD countries	0.19	0.18	0.21	0.24	0.34	0.44	0.57	0.71
Non-European OECD countries	0.02	0.02	0.02	0.03	0.04	0.05	0.07	0.09
Total - OECD	0.14	0.17	0.19	0.21	0.27	0.34	0.42	0.51
Imports to/from:	**Baltic States**							
Crescent Countries	0.03	0.03	0.04	0.05	0.07	0.10	0.12	0.15
Austria	0.03	0.03	0.04	0.05	0.08	0.11	0.14	0.17
Denmark	0.01	0.02	0.04	0.06	0.10	0.14	0.18	0.23
Finland	0.15	0.10	0.18	0.25	0.42	0.59	0.78	0.97
Germany	0.02	0.03	0.03	0.04	0.06	0.08	0.10	0.13
Greece	0.03	0.03	0.04	0.05	0.07	0.09	0.12	0.14
Italy	0.02	0.03	0.03	0.03	0.04	0.05	0.06	0.07
Sweden	0.02	0.02	0.05	0.07	0.13	0.19	0.26	0.33
Other European OECD countries	0.02	0.02	0.02	0.02	0.03	0.04	0.06	0.07
Non-European OECD countries	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02
Total - OECD	0.01	0.01	0.01	0.02	0.03	0.04	0.05	0.06
Imports to/from:	**Balkan**							
Crescent Countries	0.13	0.09	0.10	0.11	0.14	0.18	0.21	0.24
Austria	0.29	0.15	0.17	0.20	0.26	0.33	0.40	0.46
Denmark	0.03	0.03	0.04	0.06	0.10	0.13	0.17	0.20
Finland	0.04	0.02	0.04	0.06	0.10	0.13	0.17	0.20
Germany	0.10	0.09	0.09	0.09	0.11	0.13	0.15	0.16
Greece	0.38	0.36	0.40	0.42	0.53	0.63	0.74	0.84
Italy	0.18	0.09	0.11	0.13	0.18	0.23	0.28	0.33
Sweden	0.04	0.04	0.05	0.06	0.08	0.10	0.12	0.15
Other European OECD countries	0.08	0.05	0.06	0.06	0.09	0.12	0.14	0.17
Non-European OECD countries	0.01	0.00	0.01	0.01	0.01	0.02	0.02	0.03
Total - OECD	0.05	0.03	0.04	0.04	0.06	0.07	0.09	0.10
Imports to/from:	**CIS**							
Crescent Countries	0.36	0.37	0.37	0.36	0.42	0.47	0.52	0.56
Austria	0.45	0.39	0.41	0.42	0.52	0.61	0.69	0.77
Denmark	0.13	0.24	0.29	0.33	0.45	0.55	0.65	0.74
Finland	2.02	1.25	1.21	1.16	1.31	1.45	1.58	1.70
Germany	0.27	0.33	0.33	0.32	0.36	0.40	0.44	0.48
Greece	0.39	0.44	0.47	0.48	0.60	0.71	0.80	0.89
Italy	0.30	0.39	0.37	0.35	0.38	0.42	0.45	0.48
Sweden	0.32	0.26	0.31	0.35	0.47	0.58	0.68	0.77
Other European OECD countries	0.24	0.21	0.21	0.21	0.25	0.29	0.33	0.36
Non-European OECD countries	0.03	0.03	0.03	0.04	0.05	0.06	0.07	0.07
Total - OECD	0.14	0.14	0.14	0.14	0.17	0.19	0.21	0.24
Imports to/from:	**CEE&CIS**							
Crescent Countries	0.99	1.06	1.13	1.18	1.47	1.77	2.10	2.46
Austria	2.30	2.07	2.41	2.72	3.72	4.79	5.97	7.27
Denmark	0.47	0.70	0.86	0.98	1.37	1.77	2.19	2.62
Finland	2.64	1.74	1.86	1.95	2.48	3.02	3.58	4.17
Germany	0.91	1.12	1.15	1.17	1.39	1.63	1.89	2.17
Greece	1.44	1.26	1.38	1.46	1.84	2.23	2.63	3.04
Italy	0.80	0.87	0.92	0.96	1.20	1.46	1.73	2.02
Sweden	0.72	0.64	0.77	0.87	1.19	1.52	1.86	2.21
Other European OECD countries	0.53	0.45	0.50	0.54	0.71	0.89	1.09	1.31
Non-European OECD countries	0.07	0.05	0.07	0.08	0.11	0.14	0.18	0.21
Total - OECD	0,34	0,36	0,38	0,40	0,52	0,64	0,77	0,91

1/ With MU=3 and slow trade app adjustment.

Source: IMF, Direction of Trade Statistics, Yearbook 1993, National Statistics, and own calculations.

Table A VI. Scenarios of OECD Imports from Reform Countries, 1992-2002 (slow trade gap adjustment) 1/

			OECD Reference Trade Pattern							EU/EFTA Reference Trade Pattern						
	1988	1992	1993-2002							1993-2002						
	- actual -		- projected -							- projected -						
			eg/wmg/2,0c	eg/wmg/2,0f	eg/wmg/3c	eg/wmg/3,0f	eg/wmg/4,0c	eg/wmg/4,0f	en/wmg/3,0c	eg/wmg/2,0c	eg/wmg/2,0f	eg/wmg/3c	eg/wmg/3,0f	eg/wmg/4,0c	eg/wmg/4,0f	en/wmg/3,0c
Import share from CEE&CIS	(% of OECD country GDP)		(change in import share: 2002 over 1992 in percentage points)							(change in import share: 2002 over 1992 in percentage points)						
Crescent Countries	0,99	1,06	0,60	-0,08	0,73	0,00	0,83	0,05	-0,04	1,10	0,33	1,39	0,51	1,63	0,67	0,50
Austria	2,30	2,07	2,00	0,34	2,34	0,53	2,59	0,69	0,23	4,28	2,00	5,20	2,60	5,96	3,08	2,19
Denmark	0,47	0,70	0,85	0,22	0,99	0,30	1,10	0,36	0,29	1,58	0,77	1,93	0,99	2,20	1,16	1,01
Finland	2,64	1,74	0,39	-0,49	0,55	-0,39	0,68	-0,31	-0,24	1,90	0,59	2,42	0,93	2,85	1,20	1,18
Germany	0,91	1,12	0,53	-0,14	0,65	-0,08	0,74	-0,02	-0,13	0,82	0,13	1,06	0,28	1,25	0,40	0,25
Greece	1,44	1,26	0,36	-0,30	0,48	-0,23	0,57	-0,18	-0,17	1,42	0,46	1,79	0,70	2,09	0,89	0,85
Italy	0,80	0,87	0,51	-0,06	0,62	0,01	0,71	0,06	0,01	0,90	0,27	1,15	0,42	1,34	0,55	0,44
Sweden	0,72	0,64	0,60	0,09	0,70	0,16	0,79	0,21	0,18	1,29	0,60	1,57	0,78	1,81	0,93	0,86
Other European OECD countries	0,53	0,45	0,38	0,04	0,47	0,08	0,55	0,12	0,09	0,66	0,24	0,87	0,35	1,06	0,46	0,37
Non-European OECD countries	0,07	0,05	0,09	0,03	0,11	0,04	0,12	0,05	0,05	0,13	0,07	0,16	0,08	0,18	0,10	0,09
Total - OECD	0,34	0,36	0,25	0,00	0,30	0,03	0,35	0,06	0,03	0,43	0,15	0,56	0,22	0,66	0,28	0,23
Export shares to OECD	(% of Reform country GDP)		(change in export share: 2002 over 1992 in percentage points)							(change in export share: 2002 over 1992 in percentage points)						
Central Eastern Europe		19,23	5,97	-3,98	8,07	-2,92	9,76	-2,07	4,82	12,35	0,73	17,11	3,32	21,21	5,51	17,55
Baltic States		7,79	12,90	4,41	15,04	5,66	16,74	6,64	13,14	21,75	11,10	26,62	14,17	30,67	16,70	27,18
Balkan		7,34	5,38	0,11	6,67	0,84	7,73	1,43	5,73	12,80	5,38	16,34	7,50	19,44	9,31	16,05
CIS		4,11	1,89	-0,58	2,42	-0,27	2,85	-0,02	2,21	3,65	0,84	4,78	1,55	5,73	2,14	4,77
Total CEE&CIS		7,27	5,68	0,24	6,82	0,87	7,74	1,37	3,92	9,63	3,27	12,22	4,80	14,43	6,08	9,74
Export growth of CEE&CIS			(average annual geometric growth rate, 1992-2002)							(average annual geometric growth rate, 1992-2002)						
Central Eastern Europe			9,70	4,02	10,58	4,82	11,25	5,42	2,26	12,20	7,21	13,79	8,66	15,01	9,76	6,70
Baltic States			14,82	8,91	15,96	9,98	16,79	10,76	9,72	18,98	13,78	20,81	15,51	22,17	16,78	15,50
Balkan			7,90	2,29	8,96	3,25	9,75	3,96	4,85	12,98	7,91	14,82	9,58	16,24	10,85	11,14
CIS			3,31	-2,01	4,20	-1,19	4,86	-0,57	2,22	6,00	1,35	7,46	2,72	8,55	3,74	5,75
Total CEE&CIS			7,61	2,04	8,52	2,88	9,21	3,51	2,81	10,51	5,61	12,10	7,07	13,31	8,18	7,20

1/ For explanation see main text on annex IV

Scenario explanation:

eg Growth scenario for Eastern Europe

en No-growth scenario for Eastern Europe

wmg Moderate growth scenario for OECD countries (1993 and 1994: OECD forecasts; 1995 to 2000: 2% p.a.)

2,0/3,0/4,0/c Alternative exchange rate mark-up assumption: constant throughout projection period

2,0/3,0/4,0/f Alternative exchange rate mark-up assumption: geometric decline accumulating to 20% over the projection period

Sources: IMF, Direction of Trade Yearbook 1993; OECD, Main Economic Indicators; and own calculations.

Table A VII. Scenarios of OECD Imports from Reform Countries, 1992-2002 (rapid trade gap adjustment) 1/

			OECD Reference Trade Pattern							EU/EFTA Reference Trade Pattern						
	1988	1992	1993-2002							1993-2002						
	- actual -		- projected -							- projected -						
			eg/wmg/2,0c	eg/wmg/2,0f	eg/wmg/3c	eg/wmg/3,0f	eg/wmg/4,0c	eg/wmg/4,0f	en/wmg/3,0c	eg/wmg/2,0c	eg/wmg/2,0f	eg/wmg/3c	eg/wmg/3,0f	eg/wmg/4,0c	eg/wmg/4,0f	en/wmg/3,0c
Import share from CEE&CIS	(% of OECD country GDP)		(change in import share: 2002 over 1992 in percentage points)							(change in import share: 2002 over 1992 in percentage points)						
Crescent Countries	0,99	1,06	0,54	-0,11	0,72	-0,01	0,87	0,08	-0,03	1,38	0,50	1,80	0,77	2,14	0,99	0,77
Austria	2,30	2,07	2,07	0,38	2,55	0,66	2,92	0,88	0,36	5,63	2,87	6,97	3,73	8,06	4,43	3,23
Denmark	0,47	0,70	1,00	0,31	1,20	0,42	1,36	0,52	0,44	2,14	1,12	2,63	1,44	3,04	1,70	1,49
Finland	2,64	1,74	0,34	-0,51	0,58	-0,37	0,77	-0,26	-0,25	2,62	1,06	3,38	1,54	4,00	1,94	1,83
Germany	0,91	1,12	0,38	-0,23	0,55	-0,13	0,68	-0,05	-0,16	0,92	0,19	1,27	0,42	1,55	0,60	0,40
Greece	1,44	1,26	0,22	-0,38	0,39	-0,28	0,52	-0,21	-0,21	1,85	0,74	2,39	1,08	2,83	1,36	1,28
Italy	0,80	0,87	0,52	-0,05	0,68	0,05	0,81	0,12	0,04	1,17	0,44	1,52	0,66	1,80	0,85	0,68
Sweden	0,72	0,64	0,68	0,14	0,84	0,24	0,96	0,31	0,29	1,74	0,89	2,15	1,16	2,49	1,37	1,27
Other European OECD countries	0,53	0,45	0,45	0,07	0,58	0,14	0,68	0,20	0,15	0,87	0,37	1,17	0,54	1,45	0,69	0,56
Non-European OECD countries	0,07	0,05	0,12	0,05	0,15	0,06	0,16	0,07	0,07	0,18	0,10	0,23	0,13	0,26	0,15	0,14
Total - OECD	0,34	0,36	0,27	0,01	0,35	0,06	0,41	0,09	0,06	0,57	0,23	0,74	0,34	0,89	0,43	0,35
Export shares to OECD	(% of Reform country GDP)		(change in export share: 2002 over 1992 in percentage points)							(change in export share: 2002 over 1992 in percentage points)						
Central Eastern Europe		19,23	5,42	-4,28	8,44	-2,73	10,87	-1,50	5,13	16,64	3,17	23,50	6,93	29,39	10,10	23,97
Baltic States		7,79	17,56	7,16	20,66	8,97	23,11	10,39	18,30	30,94	16,98	37,99	21,43	43,85	25,10	38,75
Balkan		7,34	7,17	1,16	9,02	2,21	10,53	3,05	7,91	18,02	8,68	23,10	11,73	27,53	14,33	22,71
CIS		4,11	2,33	-0,32	3,10	0,13	3,72	0,49	2,87	4,94	1,67	6,58	2,70	7,94	3,55	6,56
Total CEE&CIS		7,27	6,10	0,48	7,74	1,39	9,06	2,11	4,79	12,48	5,01	16,21	7,23	19,39	9,09	13,28
Export growth of CEE&CIS			(average annual geometric growth rate, 1992-2002)							(average annual geometric growth rate, 1992-2002)						
Central Eastern Europe			9,46	3,78	10,73	4,95	11,66	5,81	2,39	13,64	8,58	15,65	10,43	17,15	11,79	8,43
Baltic States			17,18	11,15	18,54	12,43	19,52	13,35	12,16	22,25	16,91	24,31	18,86	25,82	20,27	18,85
Balkan			9,33	3,64	10,66	4,86	11,64	5,74	6,49	15,61	10,42	17,74	12,36	19,35	13,81	13,96
CIS			4,04	-1,32	5,23	-0,20	6,10	0,60	3,23	7,64	2,92	9,45	4,62	10,77	5,86	7,71
Total CEE&CIS			7,96	2,37	9,21	3,53	10,13	4,38	3,57	12,24	7,27	14,20	9,08	15,66	10,42	9,24

1/ For explanations see main text and annex IV

Scenario explanation:

eg	Growth scenario for Eastern Europe
en	No-growth scenario for Eastern Europe
wmg	Moderate growth scenario for OECD countries (1993 and 1994: OECD forecasts; 1995 to 2000: 2% p.a.)
2.0/2.5/3.0/c	Alternative exchange rate mark-up assumption: constant throughout projection period
2,0/2,5/3,0/f	Alternative exchange rate mark-up assumption; geometric decline accumulating to 20% over the projection period

Sources: IMF, Direction of Trade Yearbook 1993; OECD, Main Economic Indicators; and own calculations.

Table A VIII. Scenarios of OECD Imports from Reform Countries, 1992-2002 (rapid trade gap adjustment) 1/

			OECD Reference Trade Pattern							EC-EFTA Reference Trade Pattern						
	1988	1992	1993-2002							1993-2002						
	- actual -		- projected -							- projected -						
			eg/wmg/2,0c	eg/wmg/2,0f	eg/wmg/3c	eg/wmg/3,0f	eg/wmg/4,0c	eg/wmg/4,0f	en/wmg/3,0c	eg/wmg/2,0c	eg/wmg/2,0f	eg/wmg/3c	eg/wmg/3,0f	eg/wmg/4,0c	eg/wmg/4,0f	en/wmg/3,0c
Import share from CEE&CIS	(% of OECD country GDP)		(change in import share: 2002 over 1992 in percentage points)							(change in import share: 2002 over 1992 in percentage points)						
Crescent Countries	0,99	1,06	0,54	-0,11	0,72	-0,01	0,87	0,08	-0,03	1,38	0,50	1,80	0,77	2,14	0,99	0,77
Austria	2,30	2,07	2,07	0,38	2,55	0,66	2,92	0,88	0,36	5,63	2,87	6,97	3,73	8,06	4,43	3,23
Denmark	0,47	0,70	1,00	0,31	1,20	0,42	1,36	0,52	0,44	2,14	1,12	2,63	1,44	3,04	1,70	1,49
Finland	2,64	1,74	0,34	-0,51	0,58	-0,37	0,77	-0,26	-0,25	2,62	1,06	3,38	1,54	4,00	1,94	1,83
Germany	0,91	1,12	0,38	-0,23	0,55	-0,13	0,68	-0,05	-0,16	0,92	0,19	1,27	0,42	1,55	0,60	0,40
Greece	1,44	1,26	0,22	-0,38	0,39	-0,28	0,52	-0,21	-0,21	1,85	0,74	2,39	1,08	2,83	1,36	1,28
Italy	0,80	0,87	0,52	-0,05	0,68	0,05	0,81	0,12	0,04	1,17	0,44	1,52	0,66	1,80	0,85	0,68
Sweden	0,72	0,64	0,68	0,14	0,84	0,24	0,96	0,31	0,29	1,74	0,89	2,15	1,16	2,49	1,37	1,27
Other European OECD countries	0,53	0,45	0,45	0,07	0,58	0,14	0,68	0,20	0,15	0,87	0,37	1,17	0,54	1,45	0,69	0,56
Non-European OECD countries	0,07	0,05	0,12	0,05	0,15	0,06	0,16	0,07	0,07	0,18	0,10	0,23	0,13	0,26	0,15	0,14
Total - OECD	0,34	0,36	0,27	0,01	0,35	0,06	0,41	0,09	0,06	0,57	0,23	0,74	0,34	0,89	0,43	0,35
Export shares to OECD	(% of Reform country GDP		(change in export share: 2002 over 1992 in percentage points)							(change in export share: 2002 over 1992 in percentage points)						
Central Eastern Europe		19,23	5,42	-4,28	8,44	-2,73	10,87	-1,50	5,13	16,64	3,17	23,50	6,93	29,39	10,10	23,97
Baltics		7,79	17,56	7,16	20,66	8,97	23,11	10,39	18,30	30,94	16,98	37,99	21,43	43,85	25,10	38,75
Balkan		7,34	7,17	1,16	9,02	2,21	10,53	3,05	7,91	18,02	8,68	23,10	11,73	27,53	14,33	22,71
CIS		4,11	2,33	-0,32	3,10	0,13	3,72	0,49	2,87	4,94	1,67	6,58	2,70	7,94	3,55	6,56
Total CEE&CIS		7,27	6,10	0,48	7,74	1,39	9,06	2,11	4,79	12,48	5,01	16,21	7,23	19,39	9,09	13,28
Export growth of CEE&CIS			(average annual geometric growth rate, 1992-2002)							(average annual geometric growth rate, 1992-2002)						
Central Eastern Europe			9,46	3,78	10,73	4,95	11,66	5,81	2,39	13,64	8,58	15,65	10,43	17,15	11,79	8,43
Baltics			17,18	11,15	18,54	12,43	19,52	13,35	12,16	22,25	16,91	24,31	18,86	25,82	20,27	18,85
Balkan			9,33	3,64	10,66	4,86	11,64	5,74	6,49	15,61	10,42	17,74	12,36	19,35	13,81	13,96
CIS			4,04	-1,32	5,23	-0,20	6,10	0,60	3,23	7,64	2,92	9,45	4,62	10,77	5,86	7,71
Total CEE&CIS			7,96	2,37	9,21	3,53	10,13	4,38	3,57	12,24	7,27	14,20	9,08	15,66	10,42	9,24

1/ For explanation see main text and annex IV

Scenario explanation:

eg	Growth scenario for Eastern Europe
en	No-growth scenario for Eastern Europe
wmg	Moderate growth scenario for OECD countries (1993 and 1994: OECD forecasts; 1995 to 2000: 2% p.a.)
2,0/2,5/3,0/c	Alternative exchange rate mark-up assumption: constant throughout projection period
2,0/2,5/3,0/f	Alternative exchange rate mark-up assumption; geometric decline accumulating to 20% over the projection period

Sources: IMF, Direction of Trade Yearbook 1993; OECD, Main Economic Indicators; and own calculations.

III. The Gravity Model

Introduced by Linnemann (1966), the gravity equation is used to explain trade flows between countries. Its basic form is

$$X_{ij} = \alpha_0 + \alpha_1 * Y_i + \alpha_2 * Y_j + \alpha_3 * POP_i + \alpha_4 * POP_j + \alpha_5 * D_{ij} + \text{dummies}$$

where all variables are in logs. X_{ij} stands for country i´s exports to country j, Y is value of nominal GDP in common currency (e.g. US $) and POP is the population of the exporting (i) and importing country (j), respectively, and D_{ij} stands for the distance between country i and country j. Dummy variables can be included for adjacency/border and mutual membership in preferential trade areas such as the EC or the EFTA.

The gravity model is used in this or slightly different forms by Aitken (1973), Wang and Winters (1991) and Hamilton and Winters (1992). Bergstrand (1985 and 1989) provides a possible theoretical foundation of the model. He derives the equation from a general equilibrium model of world trade. The equation can also be derived from Krugman´s (1979) model of intra-industry trade. Baldwin (1993) stresses the analogy between an individual´s pattern of purchases and a country´s imports and derives the equation from plausibility considerations. Nevertheless, a fully-fletched theoretical foundation of the gravity model is still missing despite its empirical robustness.

We estimated the gravity model in a different form:

(i) The nominal value of $GDP^{\$}$ in US $, which is the nominal value in national currency divided by the exchange rate $XR^{c/\$}$ (national currency to US $) is split up into the GDP^{P}, the Gross Domestic Product in Purchasing Power Parity in US $ (P), and into an exchange rate mark-up MU (current exchange rate $XR^{c/\$}$ to PPP exchange rate $XR^{P/\$}$):

$$Y = \log GDP^{\$} = \log (GDP^{c}/XR^{c/\$}) = \log (GDP^{c}/XR^{P/\$}) - \log (XR^{c/\$}/XR^{P/c}) =$$
$$= Y^{P} - MU^{c/P}.$$

The first term should have again a positive effect on trade flows, the second a negative. In the equilibrium state, which the gravity model in the absence of prices should represent, the estimated parameters for both income and exchange rate term should be equal in absolute terms. This proves not to be the case within a reasonable interval of confidence, although the coefficient for the exchange rate term for the exporting country has the correct sign and is statistically significant. The coefficient of the exchange rate term for the importing country is always lower, and in addition exhibits for the EC/EFTA data set the wrong sign and is statistically insignificant. This suggests that the used annual data does not reflect an equilibrium state of intra country trade, but is likely to contain trade adjustments effects not taken care of in the specification. The difference between OECD and EC/EFTA estimates, however, also point data accuracy problems. If the US, the PPP numeraire, is included, there is more variation in the data set of MU and the estimates for the exchange rate mark-up improves. For all countries, PPP rates have only been available with two decimals, which may effect the estimates for the EC/EFTA data since variation in MU for these countries is small. Nevertheless, the derived extended specification of the gravity model, and the size and significance of the MU-coefficients for the exporting country suggest that an estimation of the trade potential for Eastern Europe to the West will tend to be exaggerated if a GDP in PPP is included, but the countervailing mark-up effect not taken into account. Assuming that the law of one price holds for all tradable goods, the exchange rate mark up can be written as

$$MU = \log(XR^{c/\$}/XR^{P/\$}) = \log[(P^{*}_{n}/P^{*}_{t})^{\alpha^{*}}/(P_{n}/P_{t})^{\alpha}]$$

where P_n and P_t represent the price level for nontradables and tradables of the domestic economy, respectively, and corresponding variables marked with "*" relate to the foreign country; the variable α is the share of nontradables in total output (see Gulde and Schulz-Ghattas 1993). As can be easily seen, MU will be positive if (i) the domestic relative prices of nontradables are lower (at equal share of nontradables), or (ii) the domestic share of nontradables is lower (at equal relative prices of nontradables). Consistent with traditional explanations of PPP-market exchange rate differences, both conditions definitly apply for transition economies,

rendering the inclusion of GDP measured at PPP only a upward biased approach to proxy the export-supply and import demand potential of a country.

The estimated specification has thus the form:

$$X_{ij} = \alpha_0 + \alpha_1 * Y^P_i + \alpha_2 * Y^P_j + \alpha_3 * MU_i + \alpha_4 * MU_j + \alpha_5 * POP_i + \alpha_6 * POP_j + \alpha_7 A_i + \alpha_8 A_j + \alpha_9 * D_{ij} + \alpha_{10} B_{ij} + \alpha_{11} * EC_{ij} + \alpha_{12} * EFTA_{ij}$$

(ii) The estimated income elasticity parameters for the exporting and for the importing country, α_1 and α_2 differed little for both data sets and their equality could not be rejected. Since this symmetry of the pure income effect has attractive implications, such as balanced changes in the trade account resulting from changes in income, the restricted version $\alpha_1 = \alpha_2$ is used for the scenario projections.

(iii) We estimated the gravity model for two sets of OECD countries: (1) all OECD countries, except New Zealand, which had to be left out for reasons of data problems, and (2) the EC/EFTA countries of the OECD, i.e. all European OECD countries, except Turkey.

(iv) As sample period, the years 1985 to 1990 are selected and the applied parameters are estimated with cross-pooled section data. The use of pooled data may introduce an estimation bias, since the model does not distinguish between real and nominal developments. However, the period 1985 to 1990 is characterised by low inflation in most OECD countries so that the inflationary basis is likely to be small and outweighed by the high number of observations. The parameters are also estimated for individual years to test for parameter stability. The parameter estimates for cross-pool section data and Table A IX. For the base year of the of the scenario, 1992, the constant is calibrated to derive the actual trade volume of total OECD.

Data Sources

Export Data are taken from the OECD: *Monthly Statistics of Foreign Trade*, Paris, monthly, and complemented by the IMF: *Direction of Trade Statistics Yearbook 1993*, Washington, D.C., 1993.
Nominal GDP data are taken from the IMF: I*nternational Financial Statistics Yearbook 1993*, Washington, D. C., 1993.
Purchasing Power Parities are taken from various editions of the OECD: *Main Economic Indicators*, Paris.
Areas and populations are taken from *Gabler Wirtschaftslexikon*, Wiesbaden 1988.
Distances are calculated from *Diercke Weltatlas*, Braunschweig 1957, from *Der Neue Große Shell Atlas*, 1987/1988, and from: *Encyclopaedia Britannica World Atlas*, Chicago London Toronto Geneva Sydney 1963.

Results

The following variables are used:

Y_i : GDP (in PPP) of the exporting country
Y_j : GDP (in PPP) of the importing country
MU_i : Exchange rate mark-up of the exporting country (ratio of the market exchange rate and the purchasing power parity rate in national currency to the US $)
MU_j : Exchange rate mark-up of the importing country (ratio of the market exchange rate and the purchasing power parity rate in national currency to the US $)
POP_i : Population of the exporting country
POP_j : Population of the importing country
A_i : Area of the exporting country
A_j : Area of the importing country
D_{ij} : Distance between the trading countries
B_{ij} : Dummy variable for mutual border between the trading countries
EC_{ij} : Dummy variable for mutual EC membership
$EFTA_{ij}$: Dummy variable for mutual EFTA membership

Parameter estimates:

The parameter estimates for both data sets are exhibited in Table A IX, jointly with the estimates by Wang and Winters (1991) for comparison. On the whole, the parameters have similar magnitudes and the correct sign, except the mark-up variable for the import country in the EC/EFTA data set. Most variables are statistically highly significant, except for the population and area (which may be caused by multicollinearity with GDP) and the exchange rate mark-up for the importing country in the smaller data set. The latter may be caused by the little variance in the PPP among EC/EFTA countries during this period and by problems in precision of the variable. As expected, the more integrated and similar the set of countries investigated, the higher the explanatory power of the model. The difference in the parameters between the OECD and EC/EFTA data set suggests that for the latter countries income and population, compared to proximity (distance and border) are less important to explain trade flows.

Table A IX. Empirical Results of the Gravity Model

VARIABLE	**Wang/Winters**	**OECD** **Trade pattern**	**EG&EFTA** **Trade pattern**
Constant	-12,49 (32,42)	3,35 (12,51)	- -
Y_i	1,02 (42,75)	1,17 (24,08)	0,95 (10,50)
POP_i	-0,22 (8,19)	-0,30 (-5,81)	-0,08 (-0,85)
A_i	- -	-0,10 (-9,31)	-0,12 (-4,18)
Y_i	1,17 (58,19)	1,17 (24,08)	0,95 (10,50)
POP_i	-0,38 (15,67)	-0,34 (-6,62)	-0,25 (-2,51)
A_i	- -	-0,05 (-4,71)	0,011 (0,40)
D_{ii}	-0,75 (22,28)	-0,85 (-39,02)	-0,91 (-21,01)
B_{ii}	0,78 (3,27)	0,34 (5,57)	0,54 (7,84)
EC_{ii}	0,70 (2,17)	0,15 (3,54)	5,23 (8,44)
$EFTA_{ii}$	-0,02 (0,05)	0,17 (2,71)	5,18 (7,95)
MU_i	- -	-0,89 (-15,11)	-0,55 (-5,22)
MU_i	- -	-0,22 (-3,70)	0,10 (1,01)
R^2	**0,7**	**0,86** *(corr.)*	**0,92** *(corr.)*
DW	- -	**1,66**	**1,67**
Number of obs.	**4320**	**2772**	**778**

IV. Main Projection Assumptions

For the OECD countries, the real growth rate projections reported in the OECD Economic Outlook (OECD, 1993a) are taken for 1993 and 1994. For the remainder of the projection period, common constant growth rates of 2 and 3 percent, respectively are selected in two scenarios. The assumption reflects the average historical experience and is in line with most OECD scenarios of medium- and long-term growth (OECD, 1992b). These projected country GDPs in constant 1992 US $ are converted into PPP values in order to be used in the extended gravity model, applying 1992 PPP (national currency to US $, see OECD, 1993b). The exchange rate mark-up (ratio of current exchange rate in national currency/US $ to PPP exchange rate in national currency/US $) is kept constant for OECD countries throughout the projection period. For information, these exchange rate mark-ups range in 1992 from 0,67 (Japan) to 1,92 (Turkey), with most European OECD countries lying between 0.7 and 0.8.

For the reform countries, the starting income level is the GDP in national currency converted by the current US $ exchange rate. For most reform countries, preliminary estimates for 1992 GDP are available through national, IMF and World Bank papers; for a few countries (in particular in the CIS and Balkan group), adjusted 1991 World Bank estimates in US $ had to be used. The conversion of national currencies into current US $ values is less problematic for 1992, since most countries have a single exchange rate and have by and large achieved current account convertibility by that year. Furthermore, any inexactness in GDP estimation and exchange rate is relativised by the use of alternative assumption of exchange rate mark-ups in the range of 2 to 4. Such a range is suggested by various estimations of income levels per capita (e.g. Baldwin, 1993). For these mark-ups, constancy as well as annual percentage reduction, amounting to an accumulated effect of 20 percent increase in the PPP exchange rate over the projection period, are investigated. The assumed real growth rates (in national currency) differ between the four country groups (see Table M-2) for the period 1993 and 1994, when recession in all countries is assumed to bottom out, and the period 1995 to 2002, when a period of export-led growth is assumed to take place. The highest growth rate of 8 percent p.a. is assumed for the Central Eastern economies, since they are most advanced in the reform process, and such a rate is consistent with the experience of countries that have experienced export-led growth like Germany (1950-60), Korea (1961-76) and Singapore (1963-76), but is also almost reached by Malaysia (1978-90) and Chile (1984-92) in more recent years (see Annex Table A-2).

Given these income levels and growth rate assumptions, the closing of the trade gap (potential trade calculated from the model to actual trade) applies again alternative scenario assumptions, based on the estimated gap of 1992 (Annex Table A X). Under the slow trade gap adjustment assumption, 10 percent of the gap are closed every year. For example, if the gap is 50 percent in 1992, the gap is reduced to 55 percent in 1993 and, in consequence, to 83 percent in 2002. Under the extreme trade gap adjustment, 50 percent of the gap are reduced every year, resulting by 2002 in an almost full exploitation of the trade potential. The gradual adjustment specification does not allow an overshooting in trade adjustment and reduces the trade path for countries which, under some parameter configurations, have in 1992 an actual trade above the estimated potential. A further consequence of the selected adjustment path is the higher relative increase for countries with a lower initial trade gap and the reverse. Since countries with a lower initial trade gap already have a higher import volume from the reform countries (absolute in US $ and relative to own GDP), the specification may tend to underestimate the import growth path.

Table A X. Scenario Assumptions of Real Growth Rates, 1993-2002

	1993	1994	1995-2002
Central Eastern Europe	2,0%	2,0%	8,0%
Croatia	2,0%	2,0%	8,0%
CR	2,0%	2,0%	8,0%
Hungary	2,0%	2,0%	8,0%
Poland	2,0%	2,0%	8,0%
SR	2,0%	2,0%	8,0%
Slovenia	2,0%	2,0%	8,0%
Baltic States	-3,0%	-3,0%	6,0%
Estonia	-3,0%	-3,0%	6,0%
Latvia	-3,0%	-3,0%	6,0%
Lithuania	-3,0%	-3,0%	6,0%
Balkan	-5,0%	-5,0%	4,0%
Albania	-5,0%	-5,0%	4,0%
Bosnia-Herzegovina	-5,0%	-5,0%	4,0%
Bulgaria	-5,0%	-5,0%	4,0%
Macedonia	-5,0%	-5,0%	4,0%
Romania	-5,0%	-5,0%	4,0%
Serbia and Montenegro	-5,0%	-5,0%	4,0%
European CIS	-10,0%	-10,0%	2,0%
Belarus	-10,0%	-10,0%	2,0%
Russian Federation	-10,0%	-10,0%	2,0%
Ukraine	-10,0%	-10,0%	2,0%
EFTA	-0,6%	1,5%	2,0%
Austria	-0,6%	1,5%	2,0%
Finland	0,0%	1,7%	2,0%
Iceland	-1,8%	0,1%	2,0%
Norway	1,5%	2,9%	2,0%
Sweden	-2,0%	1,4%	2,0%
Switzerland	-0,5%	1,6%	2,0%
EU	0,2%	2,0%	2,0%
Belgium-Luxembourg	-0,7%	1,2%	2,0%
Denmark	0,7%	2,8%	2,0%
France	-0,7%	1,5%	2,0%
Germany	-1,9%	1,4%	2,0%
Greece	1,1%	1,7%	2,0%
Ireland	2,6%	3,4%	2,0%
Italien	-0,2%	1,7%	2,0%
Netherlands	-0,3%	1,4%	2,0%
Portugal	0,6%	1,9%	2,0%
Spain	-0,6%	1,7%	2,0%
United Kingdom	1,8%	2,9%	2,0%
Others	2,9%	3,5%	2,0%
Australia	2,9%	3,1%	2,0%
Canada	3,1%	4,5%	2,0%
Japan	1,0%	3,3%	2,0%
New Zealand	3,1%	3,5%	2,0%
Turkey	4,5%	3,5%	2,0%
USA	2,6%	3,1%	2,0%

Sources: OECD Economic Outlook 1993, June, and own assumptions.