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Macroeconomic Developments in the Czech Republic and the EU Accession Process

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Abstract

This paper evaluates the macroeconomic performance of the Czech Republic since the start of economic reforms and discusses the implications of its accession to the European Union. In particular, because of the high degree of economic interdependence between the Czech and Slovak Republics, the implications of EU membership will crucially depend on (i) whether the Czech and Slovak Republics enter simultaneously the union and (ii) whether the Czech-Slovak customs union can be sustained if Slovakia is excluded from the first round of the EU enlargement. The second part of the paper then discusses the patterns of growth in the transition and post-transition periods and forecasts potential growth prospects of the Czech Republic, with or without entry to the European Union.

Acknowledgments

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1   Introduction

The Czech Republic arose as an independent country after the break-up of the former Czechoslovak Federation on January 1, 1993. The split of Czechoslovakia occurred as a consequence of the parliamentary election in June 1992. In the Czech Republic a coalition of three right-of-center parties led by Václav Klaus won, whereas a left-wing nationalist party won in Slovakia. Soon it became clear that the two sides were unable, or unwilling, to form a federal government together. The main points of conflict were the redistribution of power between the federation and the constituent republics, and the design of further reforms. Eventually, the Czechs and Slovaks agreed to disagree by deciding to dismantle the federation and create two independent countries as of January 1, 1993, only half a year after the elections.

The newly acquired independence had rather different repercussions for the Czech Republic and Slovakia. Generally, it was expected that independence would help stabilize the political situation in both countries at some costs to economic development. In particular, the split of the federation removed an important source of political conflict, stemming from Slovakia's desire to reassert itself and increase its autonomy within the federation. Consequently, the break-up reaffirmed the Czech Republic's position in the first group of candidates for EU enlargement, and entry to NATO. Moreover, the dissolution of Czechoslovakia freed the Czech Republic from the implicit liability to continue the fiscal transfers that it had paid to Slovakia in the past.

2   Political Developments and Implications for Accession

Unlike Slovakia, the Czech Republic secured its position on the fast track to EU accession by being included in the first wave of EU enlargement. However, compared to the other first-wave countries, the Czech Republic has been criticized for lagging behind in making progress toward EU entry. Most recently, the October 1999 recommendation of the European Commission criticized the Czech Republic for being too slow in adapting its legislation to EU standards. Further criticism was raised over the spread of corruption and organized crime in the Czech Republic, and the treatment of the Romany minority.

The slow progress of the Czech Republic in preparing for the accession and adopting the *acquis* initially reflected the reluctant attitude of the previous government led by Václav Klaus towards adopting the bulk of EU legislation. However, little has changed under the current government led by Milos Zeman. Although the Zeman government is clearly more committed to pursuing the prospects of Czech membership in the EU, its progress towards this objective has been hindered by its fragile political standing. Following the national election in June 1998, the two major parties, the Civic Democratic Party (ODS) of the former prime minister Klaus and Zeman's Social Democrats (CSSD), signed a so-called *opposition agreement*, which

allowed Zeman to form a minority government with ODS support. The government thus does not muster sufficient support in the parliament and the passage of crucial accession legislation has been blocked or stalled by euroskeptics from the ODS, the Communist Party as well as from within the CSSD.

Another serious threat to the prospects of Czech Republic's EU membership has been posed by Austria's opposition to the completion of the Temelin nuclear plant. In May 1999 the government approved the completion of the controversial plant, despite Austria's objections. In turn, the European Parliament passed a non-binding resolution calling on the Czech Republic to halt the construction. Recently, the Austrian government indicated that Austria may veto Czech EU accession unless the Czech government scraps the plans to complete the Temelin plant.

The Czech Republic attracted criticism for the treatment of the Romany minority. In particular, the Romanies have been the object of racially motivated attacks as well as open and covert discrimination in the labor market. The problem culminated in the Romany exodus to Canada, the UK and elsewhere during 1998-99. In 1998, Canada reintroduced visa requirement for Czech citizens, the UK is reportedly currently considering such a measure. Another manifestation of the problem was the building of a wall in Usti nad Labem to separate an apartment block inhabited chiefly by Romanies from their non-Rommany neighbors.

The Czech Republic's slow progress toward accession, ironically, may remove another point of contention that could arise in the run-up to the Czech membership in the EU—that of sustaining the above standard economic relations with Slovakia. Since the break-up of Czechoslovakia, the Czech and Slovak Republics have sustained a customs union, allowed (nearly) unrestricted mobility of labor and implemented a rather liberal border protection regime. The EU currently insists that in case it became EU member the Czech Republic would have to abandon the customs union and free movement of labor with Slovakia and intensify the border enforcement. The loss of preferential trade relations with Slovakia would clearly have adverse economic implications for the Czech Republic, as Slovakia is still the Czech Republic's second most important trading partner (accounting for 13% of total exports and 8% of total imports in 1997). Nonetheless, in the light of recent improvements in Slovakia's progress toward the EU membership and the lack of progress in the Czech Republic, it now seems increasingly likely that the two countries will indeed gain the EU membership at the same time.

3   Macroeconomic Developments since 1989

Recent macroeconomic developments in the Czech Republic were crucially affected by two major economic and political events: first, the start of economic reforms in 1990 and 1991 and, second, the dissolution of Czechoslovakia in 1993.

Until the dissolution, the economies of the two republics were to a large extent subjected to centralized economic policies, both before and after the collapse of communism and central planning in 1989. The reform program implemented in 1991 and 1992 also followed a centralized scenario, without much differentiation in policies implemented in the two republics, although the effects of the reforms were rather asymmetric. This high degree of initial centralization of economic policies, along with a high extent of interdependence of the Czech and Slovak economies, were

important factors underlying the macroeconomic developments in the two countries since the collapse of communism.

The economic relationship between the Czech Republic and Slovakia before the disintegration of Czechoslovakia was characterized by two important features: (i) high degree of economic interdependence, in particular via Czech-Slovak trade (see section 4.1) and (ii) the dependence of Slovakia on a transfer of resources from the Czech Republic. The latter aspect of Czech-Slovak economic relations presented a source of much controversy, especially during the political debates that preceded the break-up of Czechoslovakia. The controversy stemmed from the fact that the actual size of the transfers was never disclosed, and any attempt to estimate the transfers was marred by the centralization of tax collection and the opaqueness of government finances in former Czechoslovakia.[1] Nonetheless, the importance of this transfer reveals itself quite forcefully in the evolution of the ratio of Slovak per capita income to the Czech per capita income (Figure 1). While in 1948 the per capita Slovak NI (National Income) was approximately 61% of the Czech figure, it grew to 88% in 1989. Even more convincing evidence of the importance of the transfers appears in the development of the disposable NI. Per capita Slovak disposable NI exceeded the produced NI in every single year between 1950 and 1991, and it increased from 71% of the Czech value in 1948 to its peak at 96% in 1976, after which it fell again to some 90% in the late 1980s. Although the difference between produced and disposable NI can also be due to Czech-Slovak trade and/or net borrowing by the Czechoslovak government, it is clear that the transfer was substantial during the postwar period, especially until the late 1970s. The transfers probably increased again in the early 1990s in response to the asymmetric effects of the reforms. Again, no precise data are available. According to estimates computed by Hajek *et al.* (1993), the net transfer amounted to 1.5, 2.6 and 4.4% of Slovak GDP in 1990, 1991 and 1992, respectively. OECD (1994) put the estimate for 1992 even higher, at 8% of Slovak GDP. Hence, the transfers were far from negligible, and their elimination after Czechoslovakia broke up in 1993 had important effects on macroeconomic developments in the Czech and Slovak Republics.[2]

Unlike other socialist countries, Czechoslovakia was not hit by major macroeconomic imbalances or severe shortages of basic commodities in the late 1980s. In fact, the economy grew at a respectable average rate of 2.1% between 1981 and 1990 (IMF, 1999). Open unemployment and inflation were almost non-existent. Czechoslovakia was also a relatively advanced industrialized economy and it had a favorable geographical location, bordering Germany and Austria. On the other hand, compared to Poland and Hungary, Czechoslovakia was more dependent on trade with the Soviet Union and the CMEA. As late as in 1991, 42% of Slovak exports and 35% of Czech exports went to the former CMEA (including the Soviet Union), whereas this figure was only 19% for Poland and Hungary (Fidrmuc and Fidrmuc, 1997, p.194). Moreover, unlike some other socialist countries, the private enterprise was all but unknown in Czechoslovakia prior to 1989.

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[1] One such attempt is Krovak and Zamrazilova (1990), whose results are also reported by Dedek *et al.* (1996). According to their estimates, the average transfer was some 14% of Slovak disposable national income during the 1950s and 1960s and 10% during the 1970s and 1980s. However, their methodology probably overestimates the size of the transfer. In particular, they disregard the effects of Czech-Slovak bilateral trade and the borrowing by the federal government, and attribute the lion's share of the contribution of Czechoslovak foreign trade to the Czech national income. See also the discussion in Fidrmuc *et al.* (1999), section 4.

[2] Fidrmuc *et al.* (1999) discuss the causes of the break-up and some of its implications.

Figure 1   **Slovak per capita National Income (solid line) and per capita disposable National Income (dashed line), as a fraction of the Czech level, 1950-1991.**
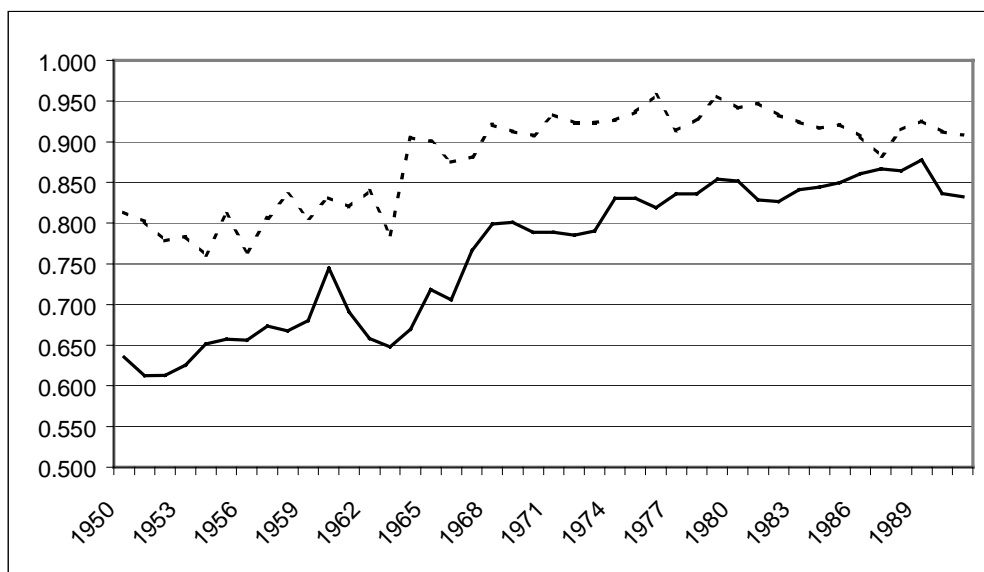
Sources: Historical Statistical Yearbook of Czechoslovakia (1985) and Statistical Yearbook of Czechoslovakia (various volumes), Federal Statistical Office of Czechoslovakia.

There were, however, important differences in industrial structures of the two republics. While the structure of output appeared similar at the aggregate level, there were differences at the disaggregate level. In particular, large parts of the Slovak industry were built only after the communist takeover in 1948 within the policy of *industrialization* of Slovakia. Hence, the Slovak industry was much more affected by the communist political objectives, in particular the emphasis on heavy engineering, metallurgy, and chemical industry (see Pavlinek, 1995, and Capek and Sazama, 1993). As a result, Slovakia was more dependent on trade with the member countries of the CMEA and thus was more adversely affected by the collapse of the CMEA trade. Slovakia also had a greater concentration of military equipment industry. The latter was particularly important, since the output of this industry in Czechoslovakia fell by 85% between 1987 and 1992. This decline also affected Slovakia disproportionately. Whereas Slovakia accounted for 60% of Czechoslovak military equipment production in 1987, its share fell to 40% by 1992.[3] Finally, the Slovak industry was also more strongly regionally concentrated as enterprises were, on average, larger and often constituted the dominant source of regional employment.

The economic reforms in former Czechoslovakia started in their earnest as of January 1991, more than a year after the collapse of the communist regime made them possible. The reform followed a centralized "scenario" with main elements being restrictive fiscal and monetary policies, a large initial devaluation followed by a fixed exchange rate regime, introduction of current-account convertibility, the liberalization of price setting and a rapid privatization with emphasis on the voucher method.[4] Despite the centralized approach, the effects of the reforms were largely asymmetric.

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[3] These are figures reported by Dedek *et al.* (1995, p.56) and Kiss (1993, p. 1046). According to Kiss, military industry accounted for 3% of Czechoslovak GDP and 10.5% of industrial output in 1987.

[4] For a detailed account of the reforms, see Dyba and Svejnar (1994).

The transformation depression started in Slovakia one year earlier, already in 1990, with a fall in GDP of 2.5%. The major impact of the reforms in 1991 was again more profound in Slovakia, its GDP fell by 14.6% compared with 11.5% in the Czech Republic. The overall cumulative output contraction (Figure 2) was deeper by ten percentage points in Slovakia than in the Czech Republic, and lasted one year longer. The break-up of Czechoslovakia negatively affected both Republics. Sujan and Sujanova (1994) estimate that the break-up reduced the Czech GDP by 2.2 percentage points during the first half of 1993.[5] Overall, the Czech economy essentially stagnated with an increase of 0.6%, whereas Slovakia's GDP fell by nearly 4% during 1993.

Eventually, growth resumed in 1994. After sustaining growth for several years, the Czech economy turned out to be in need of further reforms and austerity measures. The government covertly accumulated sizeable debts even though it officially reported fiscal surpluses, for example by transferring bad loans from major banks to the state Consolidation Bank. The voucher privatization failed to deliver effective ownership structures. Enterprise restructuring was delayed, as owners and/or managers found it more profitable to divert assets to their own means. The absence of restructuring was particularly evident in the extremely low unemployment rate in the Czech Republic.

After prime minister Klaus publicly proclaimed in 1995 that the transition was over, the trade unions responded by pushing for rapid real wage growth. Rising incomes, fiscal expansion, and appreciating currency (in real terms, see below) led to deepening the current-account deficit. After reporting a current-account surplus in 1993 of 1.3% of GDP, the current account ended in deficit of 2% in 1994, 2.7% in 1995, 7.6% in 1996, 6.2% in 1997 and 1.9% in 1998. Nevertheless, the current-account deficit was more than compensated by a capital-account surplus until 1997. In 1997, in the wake of the Asian and Russian crises, the Czech Republic experienced a substantial outflow of portfolio investments, which, in turn, precipitated the Czech currency crises (see below). The fiscal deficit also deteriorated, albeit not so dramatically; after reporting surpluses under 1% of GDP in 1993-95, the deficit gradually deepened to reach 1% in 1997 and 1.6% in 1998. The gravity of the economic situation became fully realized in the Czech Republic by 1997, following the currency crisis in May 1997 (see Begg, 1998). GDP growth slowed down in 1997 and the economy entered recession in 1998.

The Czech Republic, compared to the other transition countries, was rather successful in keeping inflation under control. The price liberalization in 1991 was followed by a one-time increase of the price level, which resulted in an annual consumer-price inflation of 57% in that year. Subsequently, inflation remained around 10%, except for 1993, when after the introduction of the VAT inflation increased to 21%.

The asymmetric effects of economic reforms were most clearly revealed in the evolution of unemployment rates in the Czech and Slovak Republics. While unemployment followed similarly shaped paths in both countries, the difference in levels is striking. Starting from virtually zero, the Slovak unemployment rate reached almost 12% in 1991 and has never fallen to one-digit levels ever since. On the other hand, the Czech unemployment rate peaked at 4% in the same year and remained very low until the 1997 crisis and subsequent austerity measures.[6] As of mid 1999,

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[5] The overall decline was 0.5%, the other factors that they identify and their contributions were as follows: world recession (-2.1%), inflow of FDI (+2.7%), export growth (+3.1%), restrictive fiscal policy (-1.3%), and other factors (-0.2%).

[6] The potential causes of the differences in unemployment between the Czech Republic and

unemployment rates have been rising in both countries, reaching 8% in the Czech Republic and 17% in Slovakia.

The exchange rate policy has been characterized by strong emphasis on exchange rate stability. The Czech Republic kept its exchange rate fixed from January 1991 until it was forced to float the *koruna* in May 1997. This policy led to a substantial gradual real appreciation of the Czech currency and resulting deterioration of competitiveness and worsening current-account balances. The decision to float the currency improved the situation somewhat; however, the bias towards currency stability in the Czech National Bank and the government persists. The *koruna* depreciated by 21% against the US dollar and by only 8% against the *Deutsche Mark* between March 1997 and July 1999.

The Czech economy, like most small economies, is strongly dependent on foreign trade. However, the policy of fixed exchange rate along with a continuing moderate inflation led to real appreciation of the currency and subsequently a trade deficit. The depreciation following the depegging of the Czech currency and the austerity package implemented in 1997 curbed imports and encouraged exports. Nonetheless, falling domestic demand, both public and private, implied that the economy entered a recession by 1998 (see Figure 2).

Figure 2   **Growth contributions by components of GDP in the Czech Republic, percent**
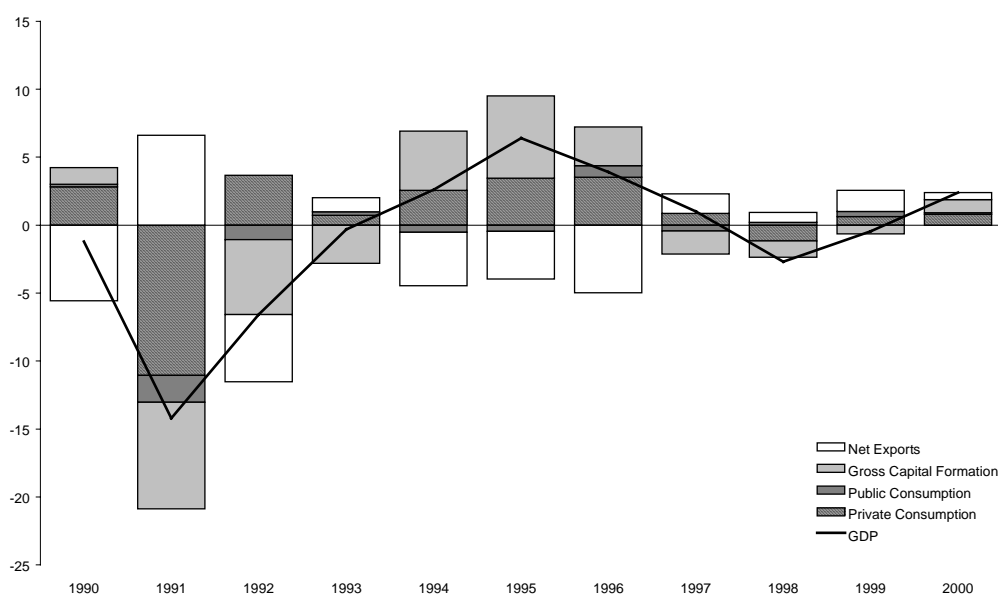
Source: Czech Statistical Office and OECD Economic Outlook, June 1999. Values for 1998 are preliminary estimates, values for 1999 and 2000 are forecasts.

Slovakia are explored by Ham, Svejnar and Terrell (1998). They find that about one-half of the difference in unemployment duration is explained by differences in demographics and demand conditions. The remainder can be attributed to differences in labor market efficiency, institutions, etc.

4 Accession and Trade

4.1 Czech-Slovak Bilateral Trade:

To mitigate the economic effects of Czechoslovakia's disintegration, the Czech Republic and Slovakia retained the common currency, the customs union, and the common labor market. While the customs union and the free movement of labor were intended to remain in place indefinitely, the monetary union was conceived to be a temporary measure, initially supposed to last for at least six months. However, the monetary union proved to be unsustainable and it was abandoned as of February 8, 1993. Thus, the Czech-Slovak Monetary Union ceased to exist less than six weeks after the break-up of Czechoslovakia.

The extent of bilateral trade between the Czech and Slovak Republics has always been relatively high. Due to the different sizes of the two republics (the population ratio of the Czech Republic to Slovakia is roughly 2:1), Slovakia has been dependent on the Czech Republic to a much greater extent than vice versa. In 1991, the Czech Republic accounted for some 50% of the Slovak exports and imports. On the other hand, Slovakia accounted for about a third of the Czech trade.[7] After the break-up, the share of Slovak trade with the Czech Republic fell to about 25% of the total exports and imports in 1997. Czech trade with Slovakia declined to 13 and even 8% of total exports and imports in 1997, respectively.

This points to an extraordinarily high degree of interdependence between the two republics prior to the split. Slovakia was the Czech Republic's most important trading partner and vice versa until the split. Such a pattern of bilateral trade is rather untypical for two adjacent small open economies. For example, Norway only accounts for 6% of Sweden's exports—although these two countries could be compared with the Czech Republic and Slovakia in terms of similarities in culture, language, relative and absolute size, geographical proximity, openness and liberalization of mutual trade. The Czech Republic's share in Slovak exports is similar to, for instance, Germany's share in Dutch exports (28%)—even though the Czech Republic's population is only twice as large as that of Slovakia, whereas the ratio between Germany and the Netherlands is 5:1.

The high degree of interdependence between the Czech and Slovak economies had important implications on macroeconomic developments in the two countries after the break-up of Czechoslovakia, as already discussed in section 3. The continuing high intensity of trade relations, facilitated by the customs union created after the disintegration of Czechoslovakia, would again have important economic consequences if the two countries entered the EU at different dates. In particular, if the customs union had to be abandoned in the wake of the Czech Republic's early accession, this would imply reimposition of some barriers to trade between the Czech and Slovak Republics, which, in turn, would adversely affect both economies. To examine the potential importance of this alternative, this section studies the extent and the dynamics of the trade interdependence between the Czech and Slovak Republics.

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[7] These figures are based on statistics reporting deliveries of Slovak medium and large enterprises (enterprises with more than 25 employees) to and from the Czech Republic. Hence, these data are not directly comparable with custom statistics on trade flows available since 1993.

The comparison of Czech-Slovak trade with other countries is difficult because bilateral trade is determined by a variety of factors: the countries' size, distance, common border and/or language and other determinants. Fidrmuc and Fidrmuc (1999) estimate a gravity model on a data set of bilateral trade flows among OECD and Eastern European countries for each of the seven available years from 1991 to 1997. Using estimates of the Slovak Statistical Office of trade flows between the Czech Republic and Slovakia, they illustrate the dynamics of bilateral intensity of trade between the two countries in the wake of the division of Czechoslovakia.

The intensity of Czech-Slovak trade relations is measured by the coefficient estimated for a dummy variable assigned to bilateral trade flows between the Czech and Slovak Republics.[8] The coefficient estimate for 1991 is 2.56 (see Figure 3). This implies (after transformation from logs) that trade flows within Czechoslovakia exceeded their *normal* level[9] by nearly 13 times. Moreover, the intensity of trade relations remained relatively stable until one year after the division of Czechoslovakia. Eventually, the demise of common state resulted in a sharp decline in the intensity of bilateral trade. The estimated coefficient for former Czechoslovakia fell to 2.02 (corresponding to 7.5 times higher trade volume than the normal level) in 1994 and, finally, to only 1.67 (still more than five times above normal) in 1997. The intensity of trade relations between the Czech Republic and Slovakia declined continuously since 1993, although the bilateral trade volume recovered slightly between 1993 (minimum value) and 1997. Nevertheless, trade intensity remains very high, to a large extent because the two countries retained a customs union after the break-up of Czechoslovakia.[10] The trade relations between the Czech Republic and Slovakia continue to be more intensive than those among the selected FSU countries and the Baltic States (see Fidrmuc and Fidrmuc (1999) for econometric results). The intensity of trade among Belarus, Russia and the Ukraine has been falling rapidly since 1994, also converging to the level of EU trade intensity. Trade between the Baltic States has been relatively stable and at a much lower level, exceeding the *normal* trade intensity less than three times.

In fact, the customs union between the Czech Republic and Slovakia is largely comparable to trade relations within the European Union. Comparison of the evolution of the coefficient estimates of trade flows among the EC12 countries and those of the former Czechoslovakia reveals that the trade intensity between the Czech and Slovak Republics has gradually converged to that prevailing among the EU countries (Fidrmuc, 1999b explores this point in greater detail). In 1997, the trade between two EU countries was still more than five times higher than the *normal* trade level. Fidrmuc (1999b) concludes that the trade intensity between the Czech Republic and Slovakia could stabilize at this level if no further relaxation of economic relations takes place. However, a further decline of bilateral trade intensity is to be expected if

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[8] The estimated equation is $M = \beta_1 + \beta_2 Y_M + \beta_3 Y_X + \beta_4 d + \Sigma_i \beta_i D_i + \varepsilon$, where M denotes bilateral imports, Y is the GDP of the exporting and the importing countries (denoted by X and M, respectively), d is the distance between the capital cities of both countries, and ε is the disturbance term. All variables are in logs. D_i denotes dummy variables for common border, common language, and preferential trade areas, such as the EU, EFTA, or the Czech-Slovak customs union. See Fidrmuc and Fidrmuc (1999) for further details on the setup of the model.

[9] The normal level is that predicted by the gravity model given the distance between the countries and their economic size (measured by their GDP's).

[10] For a more extensive analysis of the economic factors underlying the break-up of Czechoslovakia, see Fidrmuc *et al.* (1999). Dedek *et al.* (1996) give a description of the process of the break-up and the events that preceded it.

the customs union is dissolved because of the Czech Republic's accession to the European Union while Slovakia is left out of the first wave of the Eastern enlargement of the Union. This issue is considered in section 4.2.

Figure 3 **Coefficients of the dummy variable indicating preferential trade relations between the Czech Republic and Slovakia**

4.2 Trade Development under Various Scenarios of Eastern Enlargement of the EU

The high intensity of trade relations between the Czech and Slovak Republics can potentially have important implications for both countries if they enter the EU at different dates. Slovakia accounted for 13% of Czech exports and 8% of Czech imports in 1997. Slovakia currently trades relatively little with the EU: in 1997 the EU accounted for 40 and 45% of Slovak imports and exports, respectively, compared with 62 and 58% of Czech imports and exports. However, Slovakia will become much more dependent on the trade with the EU after the EU's eastward enlargement. The Czech Republic, Poland and Hungary accounted for 28% and 37% of Slovak imports and exports, respectively, in 1997. The Czech and Slovak Republics have the highest shares of exports (Figure 4) to European countries, including the EU, EFTA and all associated countries. The exclusion of the Slovak Republic from the first wave of the Eastern enlargement, and the subsequent emergence of trade barriers, especially with respect to Czech-Slovak trade, may result in high trade diversion and welfare losses for Slovakia. These could, in turn, make later integration of Slovakia into the EU even more difficult.

Figure 4 **Export shares with groups of countries**
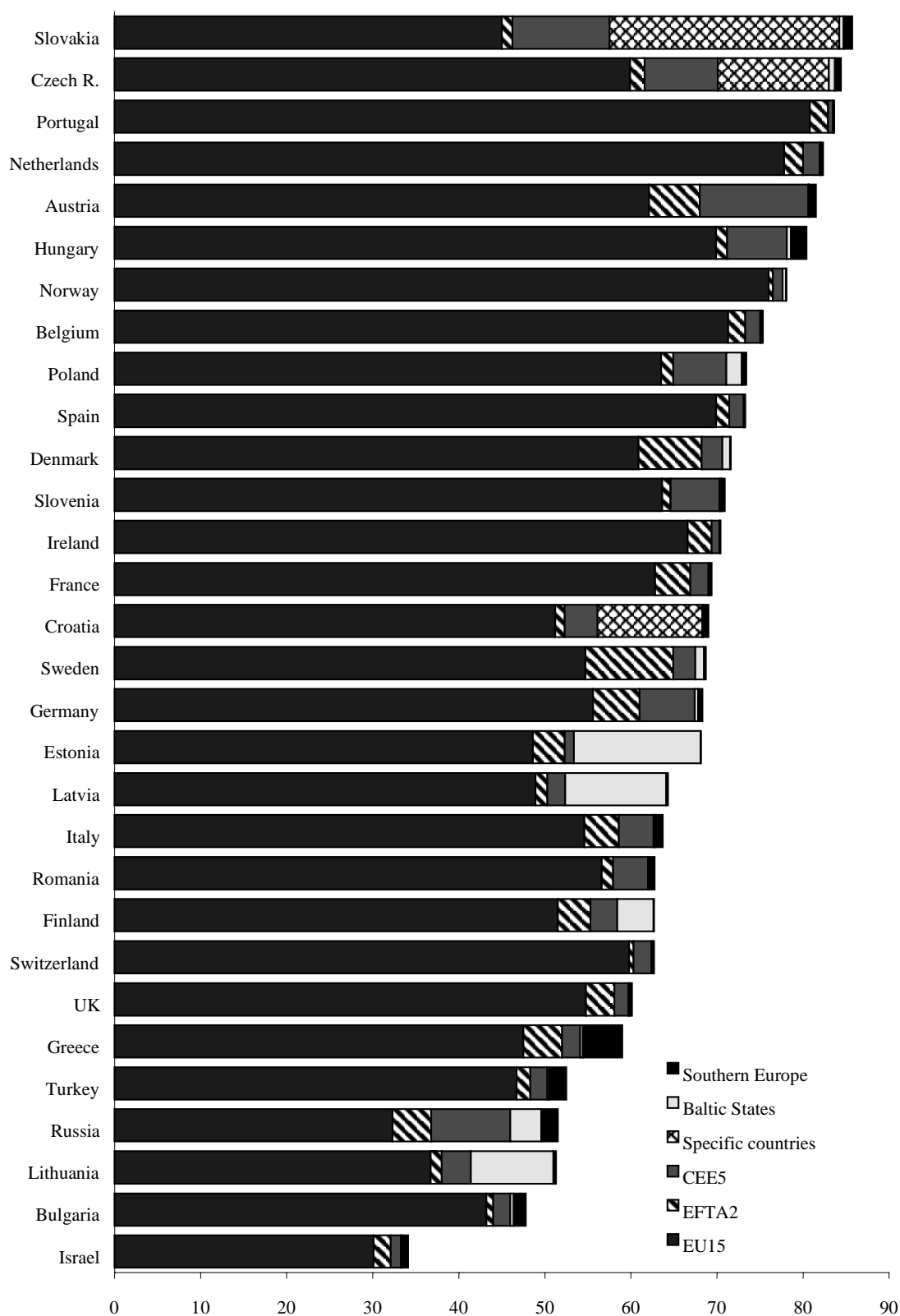
Note: The *specific countries* are the following: the Czech Republic for Slovakia, Slovakia for the Czech Republic and Slovenia for Croatia.

Using a gravity model similar to that of Fidrmuc and Fidrmuc (1999), Fidrmuc (1999b) simulates the development of Czech and Slovak trade with six EU countries (Austria, France, Germany, Italy, the UK and the Netherlands) and their Central European neighbors (Hungary, Poland, and the Czech Republic or Slovakia, respectively) for the major SITC one digit commodity groups. The effect of accession is modeled as an increase of trade to the level of trade predicted by the coefficient estimated for the dummy variable for EU membership. This increase is to occur between 2003 and 2010 under the assumption of continuing growth in the simulated period (1998 to 2010).[11] The growth forecasts used were based on long-term forecast of the Institute for Advanced Studies (IHS) for Austria (and selected European countries), the forecasts of the EU, the OECD and Šujan and Šujanová (1997).

In 1996, these six EU countries (EU6) accounted for 91.4% of Czech exports to the EU. These six EU countries together with Slovakia, Poland and Hungary accounted for 74.7% of Czech total exports. Moreover, Czech exports to other countries will be less influenced by the different scenarios of the eastward enlargement of the European Union owing to similar rules in the European Union and the Czech Republic.

Fidrmuc (1999b) analyzes three scenarios of the process of European integration: no eastward enlargement of the European Union, early accession of the four CEECs (Hungary, Poland, Slovakia and the Czech Republic), and the exclusion of the Slovak Republic from the first wave of the enlargement while the Czech Republic, Hungary and Poland join the European Union. The exclusion of Slovakia from the first wave of eastward enlargement of the EU causes an erosion of the traditional trade relations with the Czech Republic. All scenarios assume full convergence to trade potentials until 2010 without explicitly modeling accession dates and transition periods.

The analysis assumes a continuation of growth of GDP in CEECs and in the EU in the simulation period (1997 to 2010). All scenarios are characterized by the same set of assumptions on economic growth, although Baldwin, Francois and Portes (1997) argue that the cumulated growth gain in Eastern European countries due to the accession to the EU could be between 1.5% to 18.8% in the long run. This restrictive assumption was adopted in order to analyze only the direct effects of the enlargement on trade of the EU with CEECs (that is, the effects of trade liberalization) and to exclude the indirect effects through stronger growth in the entrant countries.

Following the opening up of Eastern Europe, the European Union became the Czech Republic's most important trade partner. This development was driven by the convergence to the trade potential. By now Czech trade with the EU6 has already reached the potential level. In turn, trade with Hungary and Poland declined in response to output declines in these countries and the dissolution of the CMEA. Czech trade with Hungary and Poland has now also reached the potential level, whereas trade between the Czech and Slovak Republics exceeds this level significantly.

The forecasts constructed by Fidrmuc (1999b) are reproduced in Table 1. They reveal a significant potential for increasing trade flows through liberalization of trade barriers and GDP growth. The results of the simulations are similar to earlier studies (cf. Hamilton and Winters, 1991). Czech trade with the EU6 was significantly below its potential level at the beginning of the transition. The opening of Eastern Europe laid ground for rapid growth of both exports and imports in excess of 20% annually

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[11] GDP is measured in constant prices and market exchange rates of the US Dollar.

between 1993 and 1997 (Table 1). The Czech Republic thus closed much of the gap between actual pre-transition trade and the potential trade (as predicted by the gravity model). Nonetheless, there is still significant potential for further growth of trade flows through a deeper liberalization of trade and catching-up of the Czech Republic. However, trade growth will be significantly lower than in the first half of 1990s.

Table 1 **Projections of Czech trade with EU6 (average annual growth rates)**

Exports	Description	Realized 1993-1996	No enlargement 1997-2010	Enlargement 1997-2010
SITC0-8	Total exports	22.37	10.67	13.94
SITC0	Agricultural products	0.08	17.96	33.08
SITC2	Raw materials	12.41	12.59	13.19
SITC3	Fuels	13.16	5.51	11.16
SITC5	Chemicals	20.83	10.45	14.23
SITC6	Intermediate products	20.11	9.26	10.49
SITC7	Machinery	37.30	4.13	8.42
SITC8	Finished products	17.79	7.88	12.05
SITC5-8	Industrial products	25.08	9.13	11.75

Imports	Description	Realized 1993-1996	No enlargement 1997-2010	Enlargement 1997-2010
SITC0-8	Total imports	27.43	7.88	11.07
SITC0	Agricultural products	27.18	8.03	21.87
SITC2	Raw materials	26.81	21.21	21.85
SITC3	Fuels	31.10	12.10	18.10
SITC5	Chemicals	30.08	3.31	6.84
SITC6	Intermediate products	28.69	9.36	10.60
SITC7	Machinery	28.50	-1.21	2.86
SITC8	Finished products	22.06	7.87	12.04
SITC5-8	Industrial products	27.72	5.85	8.39

Note: See text for description of scenarios. EU6 includes Austria, France, Germany, Italy, UK and the Netherlands. The non-enlargement scenario can be taken as trade projection for trade with non-European countries (share of about 20%) in both scenarios. Source: Fidrmuc (1999b).

These estimates of the potential trade between the EU and the Czech Republic are similar to those of Holzmann and Zukowska-Gagelmann (1996). Without the enlargement of the European Union, Czech exports to the EU6 will grow on average only by 10.7% annually between 1997 and 2010. The average growth rate of imports will be even lower: 7.9% annually. However, these results are based on the technical assumption that the EU6 trade with the Czech Republic will be balanced at the end of the simulations.[12]

Further insights can be obtained by inspecting the simulation results for different SITC commodity groups. We can see significant variance of projected growth rates by commodity groups due to different utilization ratios (ratio of realized trade to trade

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[12] All growth rates are the average annual growth rates either for the realized trade in the first transition years, 1991 and 1992 (that is, the average of the growth rate in 1991 respective to 1990 and the growth rate in 1992 respective to 1991) and the later transition years, 1993 - 1996, or for the simulation period (1997 to 2010).

projection) in 1996 and the estimated income elasticities. In the scenario assuming no enlargement, the highest growth of exports to the selected EU-countries will occur in agricultural products (average growth rate 18.0% annually between 1997 and 2010), raw materials (12.6%), and chemicals (10.4%).

On the import side, the highest growth is predicted for intermediate products (average growth rate 9.4% between 1997 and 2010) and consumer products (7.9%). However, the forecasts for imports of raw materials (21.2%) and fuels (12.1%) are probably overvalued, as the EU6 is unlikely to reach a balanced trade with the Czech Republic in these commodity groups in the simulation period.

Under the accession scenario, the average annual growth of imports and exports of the selected EU countries will be higher than that of the basic scenario by 3.3 and 3.2 percentage points between 1997 and 2010, respectively. This illustrates that the major source of the expected growth is the catching-up of CEECs and only to a lesser extent the liberalization of trade. The highest direct accession effects for both imports and exports are found for agricultural products with a difference of average growth rates by about 14 percentage points.

An early accession to the EU by the Czech Republic ahead of Slovakia will have significant effects on trade flows between the two countries. The volume of trade with Slovakia will fall if both countries cannot join the European Union simultaneously. Although this trade loss will present a significant burden to Slovakia, the positive effects of the EU accession in the Czech Republic will be larger than the possible negative effects in trade with Slovakia, which accounts for only 10% of the Czech trade. Nevertheless, the continuation of preferential trade relations with Slovakia (that is, continuation of the customs union between both countries), in addition to EU membership, would be optimal for the Czech economic policy.

Our trade projections with the EU6 in the non-enlargement scenario can be taken as a forecast for trade with non-EU countries in both scenarios. The export share of the EU and that of other associated countries was about 60% and 20% of total trade (excluding trade with Slovakia) in 1996, respectively. This implies an approximate growth of total exports by 13.29% in the enlargement scenario.

5 Economic Performance and Growth Prospects in Transition

The body of literature analyzing the patterns of economic performance and future growth prospects of the post-communist countries in transition has recently grown substantially. The literature started with the pioneering and thought-provoking study of de Melo *et al.* (1996a) who were quickly followed by other contributors. This upsurge of interest was motivated by the desire to take stock of the results after half a decade of transition and made possible by the growing availability of data that enables such an analysis.

Two approaches can be identified in the literature. The first is mainly retrospective and focuses on the importance of government policies in determining economic performance during transition. The initial contribution in this direction is de Melo *et al.* (1996a,b, 1997a) who analyze the relationship between economic liberalization and economic performance. De Melo *et al.* construct indices measuring liberalization of internal and external markets and private-sector developments. Based on these indices, they compute a weighted average liberalization index (with weights 0.3, 0.3

and 0.4, respectively), and the Cumulative Liberalization Index (CLI), i.e. the sum of the annual weighted liberalization indices starting with 1989. In their analysis they use the CLI along with other explanatory variables (initial per capita GNP and monetary overhang, both as of 1989, and a dummy for countries stricken by regional tensions) to account for the patterns of economic performance during transition. They conclude that greater liberalization is associated with lower inflation and more favorable growth performance (the average growth rate of 1989-94).

The analysis of de Melo *et al.* was later replicated and extended by others, with alternative measures of economic liberalization and/or varying degrees of econometric sophistication. Many find results confirming the conclusions of de Melo *et al.* (see, e.g., Sachs, 1996). Fischer *et al.* (1996, 1997) extend the model to a panel-data framework covering 1992-94 and including country fixed effects and additional measures of government policies. In particular, their analysis includes a dummy for fixed exchange range regime, government fiscal deficit, and a dummy for the year 1992 (to capture the effects of the CMEA disintegration and the break-up of the Soviet Union). They conclude that these variables, alongside cumulative liberalization, have a significant and favorable effect on economic performance. Finally, Fidrmuc (1999) includes political liberalization alongside the economic liberalization index and finds that it also significantly improves economic performance over 1989-97.

On the other hand, Aslund *et al.* (1996) find only partial support for de Melo's results after including a dummy for the ruble zone[13]. In particular, the effect of cumulative economic liberalization on average growth over 1989-95 is no longer significant when the ruble zone dummy is included. This result is not surprising, since the dummy effectively divides the post-communist countries into groups with high and low cumulative liberalization. Given the small sample size (24 countries), the CLI becomes insignificant. Nonetheless, Aslund *et al.* (1996) report a significant effect of cumulative liberalization on the growth rate as of 1995.

Finally, Heybey and Murrel (1999) and Krueger and Ciolko (1999) challenge de Melo's results and stress the importance of initial conditions. Both papers argue that economic liberalization is endogenous in economic performance. They present results, which indicate that liberalization (Heybey and Murrel) or cumulative liberalization (Krueger and Ciolko) is no longer significant after controlling for a variety of initial conditions. Heybey and Murrel's initial conditions include the pre-reform level of liberalization, average GDP growth in the last two years before the reform and exports to CMEA countries as a percentage of GDP at the outset of reforms. In addition, they measure growth as the average growth rate in the first four years from the start of the reforms (rather than using calendar time). Krueger and Ciolko's measure of initial conditions are a dummy for the FSU (Former Soviet Union), GNP per capita as of 1988 and the ratio of exports to GDP. As these two papers argue, the progress in economic liberalization merely reflects initial conditions.

The second stream in the literature, pioneered by Fischer *et al.* (1997, 1998a,b), is more forward-looking. It focuses on the future prospects of the transition countries rather than their past economic performance. It is motivated by the voluminous literature on the determinants of economic growth in cross-sections of countries. In particular, Fischer *et al.* forecast the future growth prospects of selected transition

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[13] All members of the former Soviet Umunion, including the Baltic states.

countries by applying the results of Barro (1991) and Levine and Renelt (1992) to data from these countries. This approach differs from the previous one in that it de-emphasizes the effects of government policies. Instead, it assumes that growth is determined by the country's economic and demographic characteristics, such as the initial level of income, the quality of human capital, population growth and the rate of investment. The role of the government is limited to its size.

This approach, however, involves several pitfalls, as pointed out by Campos (1999). In particular, Fischer *et al.* make growth forecasts for the transition countries based on regression results obtained for a completely different set of countries and for a different time period. One can doubt whether the results obtained from a data set dominated by developing countries make a good basis for growth predictions for the transition countries. Moreover, it seems reasonable to assume that the transition and post-transition periods are rather specific and hence the determinants of growth can be very different from those obtained for market economies. Indeed, Campos (1999) estimated Barro and Levine-Renelt types of regressions on data for transition countries and obtained strikingly different results. Finally, Fischer *et al.* based their growth forecasts on the most limited regressions estimated by Barro and Levine-Renelt. Both Barro and Levine-Renelt report also regressions with dummies for Sub-saharan Africa and Latin America. Inclusion of these dummies alters some coefficient estimates substantially, for instance the coefficient on secondary-school enrollment in Barro's equation more than halves, and so does the coefficient on investment in the Levine-Renelt equation.[14]

In this section, we attempt to unite the two approaches discussed above. We analyze the determinants of growth during transition, using variables capturing the effect of policy, in particular the liberalization index, initial conditions, as well as some of the variables that were found to be significant in the growth literature. Moreover, we follow Havrylyshyn *et al.* (1998) and look separately at growth determinants during the period of *output contraction* and *recovery*, which we set, somewhat arbitrarily, as 1990-93 and 1994-98, respectively. We then use the results obtained for the latter period to forecast the future growth prospects of the post-communist countries.

Table 2 summarizes the results. The first regression is based on the entire period, the second one considers the first four years of transition (the contraction) and the third analyzes the last five years (the recovery). The regressions were estimated for 25 transition countries listed in Table 3. The unweighted average rate of growth during the entire period was –4.33% annually, during the contraction period GDP on average fell by -9.71% per year, whereas the growth rate during the recovery was essentially zero, -0.03%. The first explanatory variable is the liberalization index. For the contraction period we used the liberalization index as of 1991 constructed by de Melo *et al.* (1996b). For the recovery regression as well as the regression for the entire period we used the average of EBRD Progress-in-Transition indices as of 1994. Using indices for later years yielded less significant or insignificant results. Apparently reforms need time to take effect. The effect of liberalization on economic performance is positive and significant in all sub-periods, moreover, the effect is considerably stronger for recovery than for contraction. Hence, more liberalization implies higher growth, especially during the recovery.

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[14] These comparisons refer to equations (1) and (14) in Barro (1991), and equations (i) and (ii) in Levine and Renelt (1992). Levine and Renelt's equation (ii) also includes additional variables besides the two dummies.

Table 2 **Determinants of economic growth in transition - regression results**

	1990-98	t-stats	1990-93	t-stats	1994-98	t-stats
Constant	-18.744	-5.20	-18.246	-3.08	-20.279	-4.66
Liberalization Index	12.952	5.86	9.055	2.56	15.980	5.09
Distance from Brussels [km]	-0.0010	-3.07	0.0000	0.02	-0.0013	-2.66
Conflict Dummy	0.341	0.42	-7.830	-3.49	5.752	3.42
Population Growth	0.462	1.63	0.991	1.08	-0.441	-0.87
Sec. School Enroll.	0.191	4.03	0.113	1.89	0.252	4.54
1989 GNP p.c. [US$ at PPP]	-0.0005	-2.69	-0.0004	-1.24	-0.0006	-1.66
R^2	0.76		0.55		0.70	
Adj.R^2	0.67		0.40		0.60	

Note: Estimated with OLS, t-statistics are heteroscedasticity robust. See Table 3 for description of explanatory variables. The 1991 liberalization index reported by de Melo *et al.* (1996b) is used in the regression for 1990-93, the EBRD 1994 liberalization index is used for the other regressions. The conflict dummy equals one for Croatia, Macedonia, Armenia, Azerbaijan, Georgia and Tajikistan. The initial per capita GNP is in purchasing power parity terms, in US dollars.

We control for initial conditions by including the distance from the country's capital to Brussels in the regressions. The distance from Brussels serves as a proxy for a variety of factors such as historical legacies, social and cultural traditions, quality of institutions and the rule of law, as well as the cost of establishing economic relations with Western Europe.[15] Aslund *et al.* (1996) find that the effect of economic liberalization on economic performance becomes insignificant after controlling for initial conditions by including dummies for the FSU and countries affected by military conflicts. After controlling for the initial conditions by the distance from Brussels along with the dummy for military conflicts, however, the effect of liberalization remains strongly significant.[16] The initial conditions are more important during the recovery, each one thousand kilometers from Brussels reduces growth by 1.3 percentage points. The dummy for military conflicts has a strongly negative effect on economic performance during the contraction (reducing growth by 7.8 percentage points annually) and a positive effect during the recovery (increasing growth by 5.8 percentage points). The latter effect apparently reflects catching up after the conflict has ended or subsided.

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[15] Fischer *et al.* (1998b) use the distance from Brussels, Murrel (1996), on the other hand, uses the distance from Vienna. Neither, however, use it as an explanatory variable in determining economic performance.

[16] We believe that the distance from Western Europe reflects the differences in the initial conditions better than the FSU dummy. Clearly, the initial conditions were dramatically different in Estonia and Tajikistan.

Table 3   **Growth in transition: actual and fitted values, forecasts**

	Avg. Growth 1990-98	Avg. Growth 1994-98	Fitted Growth 1994-98	Forecast Growth 1999-04	EBRD Index 1994	EBRD Index 1998	Dist. fr. Brussel [km]	Pop Growth 1990-94	Sec.Sch Enrlmnt 1993	GNP p.c.PPP 1989
Czech Rep.	-0.26	2.46	4.64	5.14	0.63	0.66	913	-0.10	85	8600
Slovakia	0.22	5.86	4.54	5.21	0.58	0.63	1223	0.30	87	7600
Hungary	-0.42	3.06	3.05	4.71	0.58	0.69	1412	-0.30	79	6810
Poland	1.98	6.00	4.67	5.34	0.58	0.63	1338	0.30	82	5150
Slovenia	0.43	4.04	3.14	3.97	0.54	0.59	1352	-0.10	88	9200
Bulgaria	-4.39	-1.98	-3.16	-2.17	0.38	0.44	2175	-0.80	66	5000
Romania	-2.56	0.56	3.30	3.13	0.42	0.41	2234	-0.50	86	3470
Albania	-0.77	5.68	1.96	2.46	0.38	0.41	2427	-0.60	79	1400
Croatia	-2.42	5.52	8.67	8.50	0.54	0.53	1399	0.00	80	6171
Macedonia	-5.32	0.86	0.84	0.50	0.46	0.44	2225	0.90	53	3394
Estonia	-2.58	4.34	2.77	3.44	0.58	0.63	2508	-1.20	87	8900
Latvia	-4.88	2.68	0.60	1.77	0.46	0.53	2197	-1.20	84	8590
Lithuania	-4.43	1.66	0.60	0.60	0.50	0.50	1785	0.00	76	6430
Russia	-6.17	-4.86	-0.56	-1.23	0.42	0.38	2607	0.00	84	7720
Ukraine	-10.29	-10.02	-8.91	-4.74	0.08	0.34	2215	0.00	65	5680
Belarus	-2.54	-0.30	-2.03	-2.69	0.17	0.13	1881	0.20	89	7010
Moldova	-10.58	-9.18	-4.42	-2.59	0.29	0.41	2233	-0.10	67	4670
Armenia	-7.24	5.34	-0.35	2.81	0.21	0.41	4167	1.40	80	5530
Azerbaijan	-8.06	-2.88	0.47	4.13	0.08	0.31	4321	1.00	89	4620
Georgia	-9.63	3.30	-1.38	3.78	0.08	0.41	4193	-0.20	n.a.[1]	5590
Kazakhstan	-5.14	-4.16	-5.98	-1.66	0.17	0.44	6000[2]	0.10	89	5130
Kyrgyzstan	-5.20	-1.96	-2.17	-2.00	0.46	0.47	6000[2]	0.40	n.a.[1]	3180
Tajikistan	-8.61	-5.76	2.53	3.36	0.17	0.22	6000[2]	2.00	98	3010
Turkmnen.	-8.28	-11.30	-11.34	-10.01	0.04	0.13	6000[2]	4.60	n.a.[1]	4230
Uzbekistan	-1.18	0.34	-2.32	-1.32	0.25	0.31	6000[2]	2.20	96	2740
Average	**-4.33**	**-0.03**	**-0.03**	**1.22**	**0.36**	**0.44**	**2992**	**0.33**	**81.32**	**5593**
Source:	EBRD	Ebrd98			Ebrd94	Ebrd98	Shell	WDR96	WDR96	de Melo

Note: Fitted values and forecasted growth rates based on the recovery regression in Table 2, percent. Conflict dummy equals one for Croatia, Macedonia, Armenia, Azerbaijan, Georgia and Tajikistan. CEE dummy equals one for the Czech Republic, Hungary, Poland, Slovakia and Slovenia. The EBRD Liberalization Index is based on the average of the progress in transition indicators reported by the EBRD and normalized so that it ranges between zero and one. Population growth and secondary school enrolment are in percent, secondary school enrolment is only for males. Sources: EBRD Transition Reports 1994 and 1998, World Development Report 1996 (World Bank), de Melo *et al.* (1997b) and the Shell Route Planner (http://shell.route66.nl/shell/routenl.html).

[1] To compute the fitted and forecasted growth rates for Georgia, Kyrgyzstan and Turkmenistan, we used the sample average school enrollment.

[2] Distances between Brussels and the capitals of Central Asian republics were not available, instead we used an estimate of 6000 km for each. Eliminating these countries from the regression does not significantly affect the results.

Population growth, secondary-school enrollment and the initial level of GNP are variables found to be important in the growth literature.[17] In the transition countries, however, the population growth appears insignificant, although it has the expected sign, in the recovery period. During the contraction period, on the other hand, it actually appears with the wrong sign, but it is not significant. The secondary-school enrollment has the right sign and is significant in both sub-periods (though only at 6% during the contraction). When we included additional variables suggested by the growth literature, in particular primary-school enrollment and government expenditure, they were generally not significant. In fact, if anything, government expenditure appears to have a mildly positive effect on growth during transition (Campos, 1999 obtained a similar result). Investment (as a share of GDP) has a significant and positive effect during the contraction only, whereas it is insignificant and negative during the recovery (not reported). Finally, the coefficient on the initial GNP per capita is negative, although it is not very strongly significant (at 10% during the recovery). The negative coefficient indicates convergence, in line with neoclassical growth theory, though this result is not very strong.

The regressions reported in Table 2 provide a rather good account of the determinants of growth in the transition countries, the regressions explain between 55 and 76% of the variance of growth rates across countries. The most important explanatory variable is the liberalization index, which alone explains 39% of the variance for the recovery period. The distance from Brussels, as a measure of initial conditions, explains alone 21% of the variance during recovery. Population growth explains 20% of the variance when included as the sole explanatory variable. The initial GNP and secondary-school enrollment alone explain 7 and 3% of the variance, respectively.

Table 3 utilizes the results of the recovery regression to construct fitted growth rates for 1994-98 and forecasts of potential future growth rates. The growth prospects were computed by substituting the 1998 EBRD Liberalization Index into the regression equation estimated for the recovery period. We used the actual values for all the other variables. Comparing the actual and fitted values reveals countries that performed significantly better or worse than predicted by the model. Armenia, Albania and Uzbekistan outperformed the model by three to six percentage points on average per year. On the other hand, Romania, Russia, Moldova, Azerbaijan and Tajikistan performed worse by three to eight percentage points. In the case of Tajikistan, this clearly reflects the continuing hostilities both in Tajikistan and the neighboring Afghanistan.

The model predicts that the transition countries will on average grow by 1.2% annually in the near future. However, a steep decline is predicted to continue in Bulgaria, Moldova, Belarus, Ukraine, and most notably Turkmenistan. Besides low liberalization, the mediocre growth prospects in these countries reflect low secondary-

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[17] The data we used can be criticized. We chose contemporaneous population growth and secondary-school enrollment even though these variables obviously need time to take effect. However, the alternative was to use data stemming from the communist period, which are known to be unreliable. Using more recent data can also capture the post-reform demographic changes, in particular falling fertility rates, which can be important for making forecasts about future growth rates. Since demographic data typically show very high serial correlation, using older data would hardly change the results. The estimates of the initial GNP seem to be unrealistically high for the FSU republics. Given that these figures are in purchasing-power-parity terms, the high figures reported for the FSU probably reflect, among other factors, low prices for energy and housing.

school enrollment in Bulgaria, Ukraine and Moldova and very high population growth in Turkmenistan. On the other hand, the countries with the best growth prospects are Croatia, Hungary, Poland, the Czech Republic and Slovakia.

The growth forecasts reported in Table 3 differ from those computed by Fischer *et al.* (1999a), some even substantially (e.g. Albania). This is so because our method gives large weight to the effect of liberalization, which the estimates of Fischer *et al.* do not consider at all. Our method, in contrast, underscores the crucial importance of sound economic policies for achieving sustained recovery.

A word of caution is in place regarding the interpretation of these growth forecasts. The model predicts potential growth rates based on the economic performance over the past five years. Clearly, these growth forecasts do not take account of the potential effects of external or internal exogenous shocks or changes in policies. In particular, these are the growth rates that can be achieved in the absence of extraordinary exogenous shocks and under sound economic policies. Moreover, these figures should be seen as medium-term rather then long-term growth forecasts. Transition is a transitory phenomenon and it is reasonable to expect that the post-communist countries will eventually converge to the growth patterns observed in market economies.

6   Potential Growth Prospects: 2000-2010

In this section we construct estimates of the potential medium and long-term growth of the Czech economy. One possible approach is based on the previous section and utilizes the growth projections as reported in Table 3, whereas another approach is that suggested by Fischer *et al.* (1998a). Alternative growth forecasts based on the two approaches are presented in Table 4. The upper part of the table (rows A-C) reports growth projections based on the recovery regression from Table 2, along with the underlying indicators. The lower part (E-F) reports growth projections based on the approach suggested by Fischer *et al.* (1998a).

It is important to emphasize again that the figures obtained using both approaches are the potential growth rates. Currently, the Czech Republic is implementing austerity measures and struggling with economic downturn caused by delayed reforms and twin deficits and, accordingly, is expected to report substantially lower growth rates in 1999 and 2000 (see next section).

The first forecast (row A) uses the 1998 value of the EBRD liberalization index. All other variables are given the same values as those used in the regression. Hence, this growth projection is identical with the one reported in Table 3. The forecasted growth rate is 5.1%. The estimate reported in row B was computed with higher value of per capita initial income: 10,000 US$. This change is supposed to take account of the convergence effect; as the countries' income increases, they tend to grow more slowly. The figure used roughly corresponds to that reported by the Vienna Institute (WIIW) for 1996 (in PPP terms). In addition, the row B forecast assumes an increase in the liberalization index by 10%. The projected growth rate thus becomes 5.3%. Row C retains the higher liberalization and higher per capita income, and additionally assumes lower population growth (in line with the current demographic trends). This increases the forecasted growth rate slightly to 5.4%.

Table 4   Potential growth forecasts: the Czech Republic

Mid-term Growth Prospects (2000-2004)

Based on Table 2	EBRD Index	Pop Growth	Sec. Sch. Enrollmnt	Initial GDP	Distance Brussels	Forecast Growth, percent
A Baseline	0.66	-0.10	85	8600	913	**5.14**
B Lib.↑, Init.GDP↑	0.72	-0.10	85	10000	913	**5.32**
C Pop.growth ↓	0.72	-0.20	85	10000	913	**5.36**

Long-term Growth Prospects (2005-2010)

Based on Fischer *et al.* (1998a)	Pop Gowth	Prim Scool	Sec School	Initial GDP	Govt Cons [%]	Investmnt [% GDP]	Forecast Growth, percent
E Barro	-0.20	99	85	10000	20		**3.97**
F Levine-Renelt	-0.20		85	10000		34	**4.40**

Finally, the lower part of Table 4, rows E and F, reports the values based on the approach utilized by Fischer *et al.* (1998a), but with the same values for population growth, school enrollment, and initial income as in the upper part of the Table.[18] We assume that the government consumption remains 20% of GDP (this is the value reported by Fischer *et al.*, 1998a, Table 6) and investment increases by 10% (the figure reported by Fischer *et al.*, 1998a in Table 6 is 31% of GDP).[19] Then, the Czech Republic should grow at an average annual rate of 4% according to the Barro regression, and 4.4% according to the Levine-Renelt regression.

The variety of growth projections presented in Table 4 can be reconciled as follows: The figure reported in row A can be interpreted as the immediate growth potential of the Czech economy (assuming no accession), given the current level of liberalization and demographic characteristics. The figure in row C reflects the medium-term potential, assuming continuing liberalization and further declines in their population growth rates. However, it is reasonable to assume that the post-communist countries will eventually converge to the growth patterns observed in market economies. Thus, the estimates presented in the lower part of the Table can be interpreted as the long-term growth prospects. Nevertheless, it should be emphasized that these figures only reflect potential growth. Actual growth performance will depend on whether the economy lives up to our expectations on continuing liberalization, as well as a variety of endogenous and exogenous factors that are not captured by this simple framework.

The effects of EU accession will come through several channels (see Baldwin *et al.*, 1997). The economy will gain from the elimination of trade barriers on EU-CEEC trade, adoption of the more liberal EU external tariffs, and becoming part of the 'single market.' Baldwin *et al.* (1997) estimate that the potential cumulative gain to 7 CEEC (Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovakia and Slovenia) of joining the EU can be between 1.5% and 18.8% of their total GDP. The former figure only considers the aforementioned effects (conservative scenario), the latter figure also considers the effects of EU accession on reducing the risk premium on investments in the CEEC. The acceding countries will also benefit form receiving

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[18] Using different values, Fischer *et al.* arrive at somewhat higher estimates of growth prospects.

[19] Fischer *et al.* make a different assumption on government consumption and investment when constructing their growth projections. They assume that the former will fall to 10% of GDP, and the latter will reach 30% of GDP, in all the countries they consider.

significant subsidies from the EU Structural Funds. Last but not least, EU membership will largely stabilize and improve the overall economic environment by precluding abrupt policy changes, implanting well-defined property rights, minimum legal standards and regulation of capital markets. It will also facilitate further economic liberalization. The acceleration of liberalization will have an important effect as can be seen from comparing rows A and B in Table 4. Therefore, row C can be interpreted as the medium-term forecast for growth of the Czech economy (if the current demographic trends continue). Accordingly, the Czech Republic can be expected to grow by 5.4% per annum.

To account for the additional effects of the accession, stemming from trade liberalization and subsidies from the Structural Funds, we believe it is prudent to expect these effects push the growth rates up by approximately one percentage point annually after the accession. Given the estimates of Baldwin *et al.* (1997), as well as the potential size of the transfers from the EU Structural Funds, this expectation seems reasonable. Hence, the long-term growth potential of the Czech Republic after accession is 5.2% per annum (compared with 4.2% without the accession). These figures were obtained by averaging the estimates reported in rows E and F and adding one percentage point as the effect of EU accession. Table 5 summarizes these considerations.

Table 5   Growth forecasts: different scenarios, percent

Description	Forecasted Average Growth	
	2000-04	2005-10
No enlargement	5.36	4.19
EU membership from 2005	5.36	5.19

Note: The no-enlargement scenario projections are based on Table 4, row C for 2000-04 and the average of figures reported in rows E and F for 2005-10. The enlargement scenario assumes that the growth rates will increase by one percentage point after accession.

7   Forecasts of Macroeconomic Developments for Alternative Scenarios

In the previous section we constructed medium- and long-term forecasts of the potential growth of the Czech economy for two alternative scenarios: failure to gain EU membership, and EU accession in 2005. In this section we present past statistics and forecasts for further macroeconomic indicators for the two alternative scenarios.

We present the forecasts of developments of the Czech economy in three periods (1999-2000, 2001-2004 and 2005-2010) under two alternative scenarios (accession and no accession). The short-term forecast is based on the OECD forecast for the Czech Republic. It envisages an improvement of growth performance from -0.5% in 1999 to 2.4% in 2000. An acceleration of capital formation and external demand will be the major sources of growth in this period, while public and private consumption will experience moderate growth. We assume that the economic development in the Czech Republic in 1999-2000 will not yet be influenced by integration or non-integration into the European Union.

The development in the subsequent periods will crucially depend on whether the Czech Republic will become a member of the European Union. Technically speaking,

the accession will influence macroeconomic developments via interest rates, public consumption, and real wages.

We estimate the determinants of consumption and investment functions for a panel data set of CEECs (Bulgaria, Hungary, Poland, Romania, Slovakia, Slovenia and the Czech Republic). The results are summarized in Table 6. They show that the interest rates and public consumption (and real income in the regression for private consumption) are significant determinants of private consumption and investment in CEECs. Furthermore, these factors are more similar to OECD countries in the Czech Republic than in other CEECs.

The Czech Republic has experienced a significant reduction of real interest rates (lending rate, according to IMF, deflated by CPI) since the publication of the opinion of the European Commission on the accession of the Czech Republic to the European Union. The perspective of an early membership in the EU, which reduced the risk premium for investment in the Czech Republic, and declining inflation allowed stable interest rates at about 12%. Thus, the real interest rates have ranged between 3.4% and 4.3% since 1995, the relatively higher unexpected inflation of 1998 caused a decline to only 2%. This level has been even lower than in Portugal in the whole quoted period.

In the enlargement scenario, we assume a continuation of low real interest rates both in the period before the accession (2.9% annually between 2001 and 2004) and after the accession to the European Union (1.7% between 2005 and 2010). In contrast, we assume that the real interest rates will significantly increase in the non-enlargement scenario. Consequently, we assume an average rate of 4.8% and 3.8% in the periods 2001-2004 and 2005-2010, respectively.

We assume that public consumption will grow faster as a result of the preparatory measures for the accession and possibly the influx of EU-Funds under the enlargement scenario. We expect that the difference between the two scenarios will be 0.5 percentage points before the accession (2001-04) and 1.8 percentage points after the accession (2005-10).

Nominal wages are a result of formal negotiations between enterprises and trade unions in the most important sectors in various countries. These negotiations more or less determine the wage level in the whole economy. This system was the so-called triparty negotiations in the Czech Republic. Although this system has lost much of its importance recently, we can still consider nominal wages as an exogenous variable. Although the wage growth (above productivity growth) is one important source of inflation, the negotiations on nominal wages try to take into account also the possible implications of inflation development on real wages. Thus, our assumption that real wages are exogenous does not seem to be a strong simplification. We assume a higher real wage growth in the enlargement scenario by 1.0 and 1.5 percentage points in the respective periods.

Table 6   **Panel data estimations of private consumption and capital formation in CEECs, 1993-1997**

	Private Consumption	Capital Formation
Real public consumption (first diff.))	0.085	0.425
	(1.801)	(1.847)
Real wage growth (first differences)	0.400	
	(6.442)	
Country Specific Interest Rate Effects		
CZLNR	-0.079	-1.521
	(-2.758)	(-2.799)
HULNR	-0.086	-1.924
	(-2.988)	(-3.320)
PLLNR	-0.076	1.351
	(-2.627)	(1.202)
SKLNR	-0.081	1.104
	(-2.834)	(2.499)
SILNR	-0.077	0.024
	(-2.609)	(0.760)
BGLNR	-0.078	-0.164
	(-2.578)	(-2.141)
ROLNR	-0.079	-0.226
	(-2.517)	(-2.538)
Constant	2.762	
	(8.085)	
Country Specific Fixed Effects		
HU		11.627
		(3.664)
PL		-3.443
		(-0.650)
CZ		9.732
		(3.908)
SK		-2.375
		(-1.251)
SI		2.629
		(2.373)
RO		3.645
		(3.115)
BG		3.410
		(3.701)
Adjusted R^2	0.793	0.323
Number of observations	35	35

Note: The dependent variable is the index of real private consumption and the index of real capital formation in CEECs (Bulgaria, Hungary, Poland, Romania, Slovakia, Slovenia and the Czech Republic). All dependent and explanatory variables (except for dummy variables) are in logs and in first differences. The covariance matrices of the coefficients are corrected for possible heteroscedasticity. T-values are shown in parenthesis. The data used in the regressions are from the EBRD Transition Report 1998.

As a result, investment and consumption paths will differ significantly between the two alternative scenarios. Private consumption will grow faster by 0.5 percentage points in 2001-04 and by 1.8 percentage points in 2005-10 when comparing the accession scenario and the non-accession scenario. Furthermore, the growth differentials in capital formation in the accession scenario in comparison to the non-accession scenario will reach 3.1 and 4.0 percentage points in 2001-04 and 2005-10, respectively. The growth of the domestic demand will be 1.3 and 2.0 percentage points above the growth rates in the respective periods.

Finally, we assume that GDP will reach the rates reported in Table 5 in the previous section at the end of the period 2001-2004. Accordingly, GDP growth is forecasted to be 4.5% and 5.0% in 2001-04 and 4.2% and 5.2% in 2005-10 for the accession and non-accession scenarios, respectively. Note that we have different sets of assumptions for the accession and the non-accession scenarios already in the pre-accession period. These differences influence the speed of convergence to the potential growth, although the potential growth is the same in both scenarios.

For both scenarios, we expect a significant reduction of the trade balance deficit between 2000 and 2010. In the non-enlargement scenario we expect that the net exports get positive in this period, while net exports will remain slightly negative in the enlargement scenario. The improvement of the trade balance in the non-enlargement scenario is reached by exchange rate devaluation and reduction of growth. The trade deficit is expected to be greater in the accession scenario, reflecting the faster growth of the domestic demand and available subventions from the European Union.

From a technical point of view, in our estimations net exports are computed as residual. However, this can also be presented as a comparison of two different forecasts of the economic development: First, we estimate the potential growth in the Czech Republic in the enlargement and the non-enlargement scenarios. Second, we provide a structural forecast of GDP components under the assumption of net exports converging to zero. We show that both forecasts are consistent. The exact path of net exports is then determined residually. Alternatively, we could also use assumptions on development of exports (usually exports are exogenous in forecast models because of the variety of factors influencing them). This two-way forecast of GDP growth shows the high robustness of the figures presented.

In the enlargement scenario, our assumption of improving the trade balance is based on the reduction of trade barriers in the European Union against these countries. These barriers include not only tariffs, but mainly non-tariff restrictions to trade. For Austria, Fidrmuc and Pichelmann (1999) expect (based on the well-known Cecchini report) a reduction of real exports of Austria to the European Union (12 member states) by 4.7% (that is, about 0.9 percentage points annually) between 1995 and 2000 in the non-Europe scenario. Note that Austria has been much better integrated into the European division of labor than CEECs are now. Therefore, we assume that the Czech exports will increase by about 1.0 percentage point in 2001-04 and 2.0 percentage points in 2005-10. The comparison with the Austrian example shows that we are still relatively cautious with our assumptions, which are also confirmed by our trade projection by gravity models.

Table 7 lists the actual values for 1990-98, the forecasts for 1999 and 2000 and the projections of average growth rates for periods 2001-04 and 2005-10. The projections for 2001-04 and 2005-10 have been constructed for two alternative scenarios: no

accession and accession in 2005. The first part of Table 7 reports the main components of national accounts, in constant prices. The second part then reports the growth rates of these indicators. Finally, the third part reports some other indicators of interest.

Table 7 lists only average forecast values for the periods 2001-04 and 2005-10 as is obvious in this kind of analysis. In the general assessment, we expect the Czech economy's high (down) in 2004 to 2007 in the accession (non-accession) scenario. Thus, the accession scenario follows the current cyclical pattern (recession 1998-1999, recovery 2000-03, boom 2004-2007, and a soft landing in the following years), while the non-accession scenario would extend the current recession until 2005. The international experience (e. g. in Latin America) shows that it is much more difficult to reach growth after a long period of recession. The expectations of continued stagnation have to be broken by a credible change in the economic policy. Thus, the recovery after 2007 could be brought about, for example, by progress in the (delayed) enlargement of the European Union.

8   Summary

In this study we assess the macroeconomic developments in the Czech Republic with respect to the process of accession to the European Union. We evaluate the past macroeconomic and political development and assess the progress made by the Czech Republic towards securing a place in the group of countries that started negotiations about EU accession. Finally, we construct forecasts of macroeconomic developments in the medium and long term for two alternative scenarios: the Czech Republic gains EU membership by 2005 (accession scenario), or it fails to gain accession (non-accession scenario).

The EU accession will bring about higher economic growth through several channels. The EU membership (and its prospects already in the run-up to accession) will increase private investment, both because of greater inflow of FDI, as well as because of lower risk premium and hence lower real interest rates. Real wages are expected to grow faster in the accession scenario, thus fueling private consumption (and at the same time, worsening the trade balance). EU membership will have a strong positive effect on both imports and exports. Overall, it will bring about a moderate deterioration of the current account balance. However, the deterioration of the current account will be sustainable because of the greater inflow of FDI. Finally, the higher growth will also be fueled by the subsidies from EU Structural Funds.

Table 7   **Basic macroeconomic indicators: actual values and forecasts**

| National Accounts | | | | | | | | | | | | | | Non-Accession | | Accession | |
Constant prices of 1995		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2004	2010	2004	2010
GDP	CZK bn	1546.9	1327.0	1239.4	1235.5	1267.6	1348.7	1401.3	1415.3	1377.1	1370.7	1403.5	1673.7	2141.1	1705.9	2267.4
Domestic Demand	CZK bn	1562.6	1240.5	1218.8	1202.2	1282.7	1408.4	1528.1	1522.0	1473.3	1445.5	1471.2	1667.3	2080.5	1755.1	2330.5
Private Consumption	CZK bn	706.0	534.8	583.6	592.5	623.9	667.6	715.0	727.2	710.4	719.0	729.7	864.7	1121.6	884.6	1181.9
Public Consumption	CZK bn	335.5	305.0	290.8	294.0	287.2	281.5	293.0	286.9	289.8	295.0	296.7	327.5	384.3	334.0	426.6
Gross Capital Formation	CZK bn	540.9	419.6	346.6	311.7	365.6	442.4	480.9	457.3	440.4	431.6	444.8	475.0	574.6	536.5	722.0
Net Exports	CZK bn	-15.7	86.5	20.6	33.3	-15.1	-59.7	-126.8	-106.7	-96.2	-74.8	-67.8	6.4	60.5	-49.1	-63.1
Exports	CZK bn	NA	NA	NA	649.7	651.0	755.8	796.2	877.7	978.2	1034.9	1104.3	1368.0	1973.7	1420.59	2292.1
Imports	CZK bn	NA	NA	NA	616.4	666.1	815.5	923.0	984.4	1074.4	1109.7	1172.0	1361.6	1913.2	1469.7	2355.3

Real Growth		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001-04	2005-10	2001-04	2005-10
GDP	%	-1.22	-14.21	-6.60	-0.32	2.60	6.40	3.90	1.00	-2.70	-0.46	2.39	4.50	4.19	5.00	5.19
Domestic Demand	%	4.55	-20.61	-1.74	-1.37	6.70	9.80	8.50	-0.40	-3.20	-1.89	1.78	2.53	4.53	3.59	6.93
Private Consumption	%	6.66	-24.25	9.12	1.53	5.30	7.00	7.10	1.70	-2.30	1.20	1.50	4.33	4.43	4.93	5.35
Public Consumption	%	0.88	-9.09	-4.68	1.12	-2.30	-2.00	4.10	-2.10	1.00	1.80	0.60	2.50	2.70	3.00	4.50
Gross Capital Formation	%	3.69	-22.43	-17.40	-10.06	17.30	21.00	8.70	-4.90	-3.70	-2.00	3.05	1.66	3.22	4.80	7.23
Exports	%	NA	NA	NA	NA	0.20	16.10	5.35	10.24	11.45	5.80	6.70	5.50	6.30	6.50	8.30
Imports	%	NA	NA	NA	NA	7.80	22.00	12.90	6.70	9.00	5.40	5.50	3.04	7.04	4.63	9.89

													Non-Accession		Accession	
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001-04	2005-10	2001-04	2005-10
CPI	%	9.70	56.60	11.10	20.80	10.00	9.10	8.80	8.50	10.70	3.50	5.50	4.00	3.55	4.50	3.20
Real Wages	%	-5.50	-24.50	10.20	3.80	7.80	8.70	8.80	1.80	-1.30	5.60	5.00	5.00	5.00	6.00	6.50
Lending Rate	%					13.10	12.80	12.50	13.20	12.80	8.00	9.00	9.00	7.50	7.50	5.00
Real Interest Rate	%					2.82	3.39	3.40	4.33	1.90	4.35	3.32	4.81	3.82	2.87	1.74
FDI	USD ml				654.30	878.20	2567.60	1435.30	1286.50	2654.50	2800.00	2800.00	500.00	500.00	2000.00	1500.00
Current account deficit	USD ml				466.40	-819.90	-1373.60	-4298.90	-3270.90	-1065.00	-828.19	-750.12	70.83	670.13	-543.97	-699.04
Exch. rate of USD, eop	CZK/USD		29.47	28.26	29.15	28.79	26.54	27.15	31.70	32.28	34.94	35.57	38.06	40.72	35.60	35.60
Nom. eff. exch. rate, eop	1995=100				95.60	98.60	100.00	101.80	98.80	100.70	98.20	97.80	92.91	88.26	97.80	97.80
Real eff. exch. rate, eop	1995=100				93.62	99.60	100.00	103.65	102.92	108.50	101.87	100.03	89.31	80.28	94.04	90.47
Consumption/GDP	%	45.64	40.30	47.09	47.96	49.22	49.50	51.02	51.38	51.59	52.45	51.99	51.67	52.38	51.85	52.13
Investment/GDP	%	34.97	31.62	27.96	25.23	28.84	32.80	34.32	32.31	31.98	31.49	31.69	28.38	26.84	31.45	31.85
GDP, current price, eop	CZK bn					1148.60	1348.70	1532.60	1649.50	1776.51	1863.56	2023.83	3068.47	4484.98	3218.85	4852.57
Population	mn.	10.36	10.31	10.32	10.33	10.34	10.33	10.31	10.29	10.26	10.24	10.24	10.16	10.05	10.16	10.05
GDP per capita	CZK th					111.13	130.55	148.67	160.36	173.08	181.95	197.60	301.90	446.31	316.69	482.89

Note: Values for 1989-1998 are the actual values, 1999-2000 are forecasts and 2001-2010 are forecasts of average values; eop = end of period.

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