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EFFECTS OF EU ENLARGEMENT ON TRANSPORT IN AUSTRIA

Once the Central and Eastern European Countries (CEECs) will join the European Union, existing restrictions in their economic relations will be eliminated and the CEECs will be included in the EU's economic aid schemes. A greater division of labour between countries and the expected acceleration of their economic growth will intensify passenger and goods transport between the CEECs and the EU countries. Liberalisation of cross-border road transport of goods will add substantial further volumes to present truck traffic.

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The entry into the European Union of the Central and Eastern European countries poses a crucial challenge for the transport sector in Austria. Common borders with the CEECs constitute almost one half of Austria's frontiers. Given the relatively low volume of cross-border transport to date, a large portion of the transnational traffic network has not yet been sufficiently improved to face the new challenge. The shortest links between the north-eastern applicant countries and Italy, and between the south-eastern candidates and Western Europe pass through Austria. Bottlenecks have already emerged in the Vienna region and on the western motorway; the Tauern and Pyhrn motorways traverse ecologically sensitive Alpine regions. Whereas the EU as a whole benefits from the integration process, it is the people living in the transit regions who bear a disproportionately large share of the external costs generated by traffic on account of pollutant emissions, noise, congestion and road accidents. It is exactly this imbalance between burdens and benefits which is at the core of the current transit problem.

EU enlargement is expected to invigorate the economy in the CEECs and encourage trade between the CEECs and Western Europe. Liberalisation of the cross-border road transport of goods will have a crucial impact on the modal split.

This report investigates the growth of traffic between Austria and the CEEC 5 (Poland, Czech Republic, Slovakia, Hungary, Slovenia) and, to the extent that Austria is affected, between the other EU countries and the CEEC 5.

Integration effects and traffic policies influence transport growth

Until 1989, trade by the CEECs was focused on the COMECON members, a USSR-dominated economic area which dissolved in 1991. Already in 1989-90, the EU concluded trade and co-operation agreements with most of the CEECs (*Breuss – Schebeck,* 1996). Interim and association agreements ("European Agreements") liberalised international trade with industrial goods and reduced customs tariffs. The European Agreements also provided for some relief for agricultural trade. In 1993, duties were abolished on about 50 percent of the trade in industrial goods. The remaining duties and quotas for sensitive goods, coal, steel, textiles and clothing were eliminated in 1997. This gradual association process was reflected in a substantial growth of trade between the EU and the CEECs.

Integration of the CEECs in the internal market will further strengthen economic relations. The CEECs will be granted the "four freedoms" and will be incorporated in community policies (common trade policy, common agricultural policy, common competition policy, regional policy, etc.). Free movement of capital, the lower investment risk offered by the single market and EU aid combine to encourage investment in the CEECs. Labour-intensive production in particular is being shifted to the CEECs in order to exploit the wage gap. By optimising the allocation of resources, this process will enhance the international division of labour.

Export of personal services (e.g., cleaning), installation and construction services (rendering, tiling, painting, etc.) will grow and in turn drive up business traffic in the border regions. Free movement of labour increases cross-border commuting. Integration improves real incomes and boosts demand for goods and services. Together with a greater division of labour within the single market, this will intensify international trade. Greater

In a single market, the free movement of labour and higher incomes in the CEECs will fuel commuter traffic in the border regions and holiday traffic on transit routes.

affluence in the CEECs will in turn expand traffic in connection with shopping, leisure and holiday activities.

Transit Agreement

Until Austria joined the European Union, transit through Austria of heavy-goods vehicles registered in the EU and Austria, with a gross weight in excess of 7.5 tons including trailer, was regulated by the Transit Agreement (Federal Law Gazette no. 823/1992). The Agreement remained in force after accession since it became part of the Accession Agreement of 1994, as its Protocol no. 9. The regulation also covers transit by Austrian vehicles for third countries. For the duration of the Agreement (which expires at the end of 2003 at the latest under Protocol no. 9), the number of transits remains limited to the 1991 level. Initially, 1,264,000 runs were agreed for EU countries and 211,100 for trucks registered in Austria. The third meeting of the transit committee on 14 July 1994 decided to increase the number of licences for the transit of Austrian vehicles for third-country runs and for the transit of new EU members (Finland, Sweden). Currently, the upper limit is 1,490,900 runs. This figure may be exceeded by up to 8 percent in any one year provided that the carrier has an adequate number of ecopoints at its disposal. The ecopoints system also applies to heavy-goods vehicles from the EEA (Liechtenstein, Norway).

Within the CEECs, *Slovenia* enjoys a special position: In 1993, the European Economic Community entered into a transit agreement with the Republic of Slovenia (1993/409/EEC), which was intended to complete the internal market by ensuring free overland transit between Greece and the EEC member states and thus "enables the handling of international trade at the lowest cost for a broad public and the reduction of administrative and technical obstacles to a minimum". The parties agreed to permit unlimited EU transit through Slovenia and Slovenian transit through the Community. Austria's accession to the EU and the exemptions for transit through Austria as regulated in Protocol no. 9 required a change in the Agreement of 1993. As of 1 January 1995, "non-discriminating" treatment of heavy-goods vehicle from the Community and Slovenia had to be ensured for transit through Austria. Initially, the bilateral arrangements between Austria and Slovenia still applied, but as of 1 January 1997 the ecopoints system became effective.

The increase in CEE passenger and goods transport volumes will put a burden on the traffic system in Austria. The decisive factor will be which of the transport modes will experience the greatest growth rate. *Transport policy* will play a crucial part. For the road haulage of goods to and from the CEECs, growth has so far been limited to a scope fixed by the ecopoints consumed by transit runs of EU trucks and the licensing requirement for truck runs from the CEECs (see box on the Transit Agreement and on Bilateral and Multilateral agreements). Any change in the regulation will have a substantial impact on the modal split, i.e., the distribution of transport volumes among different transport modes. Once the ecopoints system expires and the CEECs join the EU, cross-border road transport of goods to and from the CEECs would be fully liberalised. With this, truck transport could grow without limitation and gain market shares from the rail and Danube waterway.

Bilateral and Multilateral Agreements

The transport of goods by road between the CEECs (apart from Slovenia) and the EU member states is regulated on a bilateral basis. In Austria, an official application has to be made for the commercial transportation of goods on heavy-goods vehicles registered in non-EU countries with a gross weight of more than 6 tons and/or a payload of 3.5 tons (including trailer). The licence is issued by the Austrian Federal Ministry of Transport, Innovation and Technologies via the states governments. It is based on bilateral and multilateral agreements governed by the principle of reciprocity. Agreements are concluded on reciprocal quotas for bilateral, third-country, transit and border-area traffic. Special quotas apply for on- and off-carriage. A distinction is made between single and permanent licences. A specified share of the licences applies only to "green lorries", heavy-goods vehicles which meet the strict exhaust gas standards of the EU (Euro II).

Multilateral agreements have been concluded within the framework of the European Conference of Ministers of Transport (ECMT). The licences issued by the ECMT are the most comprehensive authorisation for international road freight transport, permitting the holder to make bilateral, transit and third-country transports, but not cabotage.

High growth potential for passenger traffic

Restrictions imposed on CEE citizens, the need to obtain a visa and the obligation by foreigners entering a CEE country to change money kept passenger traffic between the CEECs and Austria at a very low level until the eastern opening in 1989. The only exception was ex-Yugoslavia. The Austrian-Slovenian border was busy with guest workers, holiday makers and shopping tourists already in the 1970s. When the eastern borders opened, the border crossing points between Austria and Czechoslovakia and Hungary experienced a flood of traffic already in late 1989. In December 1989, the number of people crossing the borders had grown almost 20fold over the previous year. The flood continued until people's initial curiosity of how things were on the other side had been satisfied. The need to catch up in terms of shopping, sightseeing and holidaying ensured that travelling between Austria and the CEECs would continue to be intense. The more

recent trend can no longer be quantified owing to the lack of statistical reporting (registration of border crossings was terminated in 1994).

Glossary

Bilateral traffic:	Transport between two countries (import and export traffic)
Transit traffic:	Transport for which both the source and destination are external to the (state) territory crossed
Cabotage:	Transport for which both the source and destination are in one state and the vessel is from abroad
Business traffic:	Transport to and from business activities outside the permanent workplace
Commuter traffic:	Transport to and from the permanent workplace
Modal split:	Breakdown of transports by carriers (road, rail, waterways)
Balanced traffic:	Same traffic volume for incoming and outgoing traffic

The growth of passenger traffic from the CEECs is primarily determined by income growth in the CEECs, employment opportunities for CEEC citizens in Austria and the other EU member states and the level of motorisation. In 2000, per-capita GDP in the candidate states was less than one fifth of the EU average (Table 1); yet the start of holidays in the CEECs already has a marked impact on Austrian roads. Their holiday destinations are the ski resorts in the Alps in winter and the traditional tourist centres in Austria, Italy and Croatia in summer.

Table 1: Population, GDP and passenger car stock in the EU and CEEC 5

	Population	Per capita GDP	Passenger cars per 1,000 inhabitants
	1999	2000	1997
	In 1,000	In $	
EU 15	375,379	22,577	442
Austria	8,092	25,395	469
Germany	82,087	24,741	504
Italy	57,078	20,193	535
The Netherlands	15,808	25,158	372
CEEC 5	66,389	4,394	243
Poland	38,654	4,105	221
Czech Republic	10,286	4,820	339
Slovakia	5,395	3,556	213
Hungary	10,068	4,604	228
Slovenia	1,986	9,128	375

Source: OECD, Eurostat.

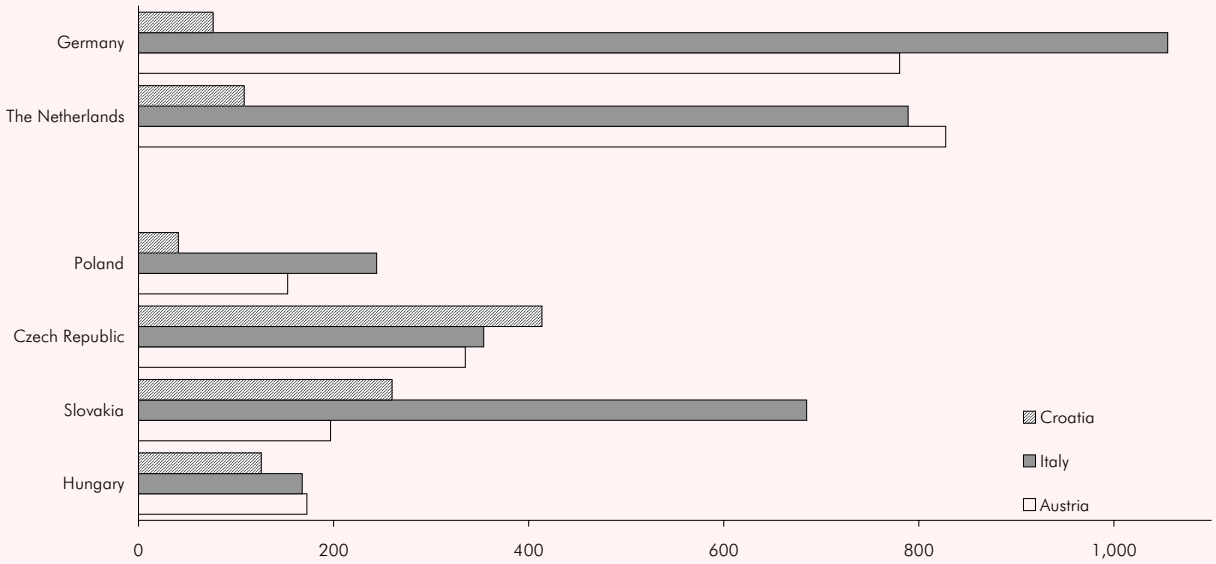
By comparing the travelling rate of people from Germany and the Netherlands to that of CEEC citizens we obtain an indication of the potential for tourist traffic from the CEECs to and through Austria: in 1999, for every 1,000 inhabitants of Germany, 781 overnight stays by Germans were recorded in Austria, 1,055 in Italy and 77 in Croatia (Figure 1). If CEE citizens were to develop similar travelling habits as the Germans and Dutch, travel from the CEECs to Austria and Italy would explode. Already now, Croatia receives a large number of tourists from the CEECs.

The greater economic growth rate expected from integration will also give a push to tourism traffic from the CEECs. Additional passenger traffic will be generated by the free movement of labour introduced with accession to the EU. It will be in particular daily commuters who will impact on the traffic volume in Austria's border regions to the CEECs. Similarly, CEE citizens working in western EU countries will noticeably increase traffic volumes in Austria by commuting weekly or monthly and at the main holiday periods.

Already today, the greater part of the holiday and commuter traffic uses the road. The potential for its further growth is considerable: in 1997, the EU average was 442 passenger cars per 1,000 inhabitants, compared to about 375 in Slovenia and just 213 in Slovakia (Table 1). With the motorisation rate on the rise, individual traffic will similarly increase for cross-border passenger transport, since motorisation generally enhances mobility.

Figure 1: Overnight stays in Austria, Italy and Croatia, 1999

Per 1,000 inhabitants of the source country



Source: European Travel Monitor 1999, WIFO calculations.

Considering the still low travelling rate among CEE citizens and their relatively low motorisation rate, it can be expected that their desire to catch up will, at the very least, double passenger car traffic in Austria over the next 15 years. If and when the CEECs join the European Union, free movement of labour and more rapid economic growth will accelerate the trend. Any more quantifiable projections are impossible, due to the lack of suitable data.

Projection for goods transport

The association agreements already had the effect of boosting the exchange of goods between the CEECs and the EU. The CEEC's integration would further promote growth by the elimination of remaining barriers to trade, by establishing the common agricultural market, by granting more EU aid to CEECs, and by liberalising transports by heavy-goods vehicles. Below, two scenarios (association and integration of the CEEC 5) are analysed to estimate the development of CEEC goods transports in Austria up to 2015.

International trade determines transport volume

Forecasts of the potential volume of international goods transport are based on projections for international trade. Trade is affected by a multiple number of factors, such as economic growth, balance of payments between partners, changes in tariff and non-tariff barriers to trade, the cost of transport, cross-border direct investment, production shifts, etc. The projections show expected developments in terms of monetary units. But for goods transport, the relevant figures are transport volumes in tons. When deriving the goods transport potential from monetary projections it should be noted that any change in the goods structure can in turn change the relationship between quantities and unit values. If trade in bulk goods (low unit value) were to grow at a lower speed, this would lower real foreign trade figures just marginally, but would result in considerable reductions for goods transport volumes. In 1994-1999, imports of high-value goods from the CEECs into Austria grew by about 60 percent more than imports of bulk goods, and the figure for exports was about 40 percent.

Association and integration effects have little influence on the development of trade in bulk goods, where other factors play a key part:

- World markets may offer cheaper sources of ores, coal, fertilisers, timber and other raw materials.
- Minerals and coal mines may become exhausted within the period of projection.
- Production of sustainable raw materials (e.g., timber) is subject to biological restrictions on growth.

- For the CEECs who have a large agricultural potential (in particular Hungary) the decisive factor will be how they can utilise this potential in the common agricultural market.
- Exports by the CEEC 5 are dominated by resource-intensive sectors, which have been partly subsidised by the state. Eliminating these subsidies will reduce their competitive trade position, whereas labour-intensive sectors that produce semi-finished or finished goods will be able to maintain their competitive edge provided that the wage gap is not bridged (*Weise et al.*, 1997).

Based on these consideration, the forecast for transport volumes is divided as follows:

- *Growth assumptions for trade in bulk goods* are founded on the development between 1993 and 1999, information on the future raw material supply potential, and assumptions on developments in agricultural trade with the CEECs.
- The *projection for other goods transport volumes* is based on the real annual rate of change for CEEC imports and exports up to 2008, as estimated by *Landesmann – Pöschl* (1995).

The growth of international trade is restricted by developments of the balance of payment. The *association scenario* is a rather optimistic continuation of current developments in the relations between the CEECs and EU and uses as its average rate of change the estimate on international trade developments by *Landesmann – Pöschl* (1995) for 2006. The *integration scenario* assumes that the CEECs will join the EU and assumes accession by 2004. For this scenario, trends in international trade are obtained from extrapolating the growth rates in the association scenario up to 2005 and those in the integration scenario for 2004 to 2015.

Bilateral traffic between Austria and the CEEC 5

In order to project goods transport volumes, a suitable base had to be identified at first. Transport statistics recorded runs by non-domestic heavy-goods vehicles only up to 1994. The figures up to 1998, the base year for the forecast, were extrapolated (see box "Estimating Transports by Non-Domestic Heavy-Goods Vehicles in Bilateral Traffic").

Estimating Transports by Non-Domestic Heavy-Goods Vehicles in Bilateral Traffic

In order to estimate the scope of transports by non-domestic heavy-goods vehicles, the scope of transports by their Austrian counterparts is used. In line with the reciprocal licences for cross-border truck transports, and assuming that all licences are fully utilised and that the cargo capacity is used to the same level, then the transport volume by non-Austrian trucks should be the same as that of Austrian trucks. In 1994, however, Austrian trucks transported considerably larger volumes in import and export runs (bilateral transport) than the non-Austrian ones. This is explained by the fact that most of the licences applied not just to bilateral transport but also to transit and third-country transport. Since non-Austrian carriers handled substantially more transit runs through Austria than Austrian carriers did through the CEEC 5, CEEC carriers were left with fewer licences for bilateral trade than Austrian ones had. This has changed since 1994 to the extent that the Austrian government has always tried to keep increases of "universal licences" (for bilateral, third-country and transit transport) as low as possible, whereas licences for bilateral and third-country transport, and in particular for border zone transport, were substantially raised. It should also be noted that the CEEC 5 increasingly use small lorries (of a gross weight of less than 6 tons) for bilateral transports, which do not require licences. In view of these shifts it was assumed that the transport volume was shared equally between domestic and non-domestic heavy-goods vehicles in 1998.

The loading/unloading country recorded by transport statistics is frequently not the same as the export/import country recorded by international trade statistics. The forecast base had to be modified accordingly (see box "Adjusting Data from Transport Statistics to the International Trade Statistics).

According to the model calculations and the assumptions used, the *transport volume* of imports from the CEECs will, for the forecast period of 1999-2015, rise by an annual average of 2.1 percent in the association scenario, and by 3.4 percent in the integration scenario (Table 2). The volume of exports from Austria to the CEECs will, during the same period, rise much faster than incoming transports, both in the association and the integration scenarios; the result, on the one hand, of a structural effect (imports have a much larger share of bulk goods, which grow at a lesser rate, than exports), and, on the other hand, of the growth advantage in real terms for exports of other goods. The highest growth rates are found for bilateral transport with Slovenia, the lowest for the Czech Republic. Between 1999 and 2015, the transport volume under the integration scenario will rise by about 70 percent for imports and almost 2.5 times for exports. With that, transports between the CEECs and Austria will become much more balanced.

Adjusting Data from Transport Statistics to the International Trade Statistics

The weight of imports and exports to/from the CEEC 5 in the international trade statistics was lower by about 20 percent in 1994, and by 30 percent in 1998, than the volume of goods in the transport statistics (1998: estimated transports by non-Austrian heavy-goods vehicles; Table 3). Values differed considerably between countries. Proportions similarly changed, often substantially, between 1994 and 1998. The excess in the goods transport statistics over figures of the international trade statistics for 1994 and 1998 was particularly great with regard to imports from Slovenia and, in 1994, for exports to Poland. These excess figures can be explained mainly by transits through Koper port and Polish ports at the Baltic Sea. For shipments from overseas via Koper, the transport statistics records Slovenia as the sender country, and for shipments from Austria via Polish ports, Poland is named as the recipient country. The international trade statistics, on the other hand, report the actual overseas source and destination countries.

The relatively high volume for exports to Hungary given in the transport statistics can be explained mostly by rail transports to CIS countries. Their destination was given as the Hungarian border station of Záhony, because it was there that the goods were shifted from standard to wide gauge. The same applies to rail transports via Poland to Russia. An additional explanation for the excess is provided by double reporting for combined transports (road and rail carriers report the same transport run).

Similarly remarkable is the shift in proportions between transport and international trade statistics when it comes to exports to Poland. In 1994, the goods transport volume under the transport statistics was triple that of the international trade statistics; in 1998, the goods transport volume was 15 percent lower than the figure given in the international trade statistics. The reduction can be explained by fewer shipments that are sent from Austria through Polish ports.

Accordingly, a suitable database needs to be found to forecast the effect that CEEC 5 integration will have on traffic in Austria. Since transport statistics assign part of the transit traffic through the CEECs (from and to CEE ports and to the CIS countries) to bilateral trade, it will be necessary to start out from the tonnage given in the international trade statistics. As a consequence, the modal split as given in the transport statistics needs to be modified.

Transit shipments from the Slovenian port of Koper and into the CIS countries via Hungary or Poland were almost always done by rail. Accordingly, rail data from the transport statistics were reduced to evidence based on international trade statistics. For the other transport destinations, the values between the two statistics do not deviate so much, so that the modal split was not changed.

Table 2: Forecasts of volumes for incoming and outgoing transports

	1999-2015 Scenario						2015 Scenario					
	Association			Integration			Association			Integration		
	Bulk goods[1]	Other goods	Total	Bulk goods[1]	Other goods	Total	Bulk goods[1]	Other goods	Total	Bulk goods[1]	Other goods	Total
	Average year-to-year percentage changes[2]						1,000 tons					
From Poland	+ 1.1	+ 5.8	+ 1.9	+ 2.5	+ 7.2	+ 3.3	2,246	597	2,843	2,808	747	3,555
To Poland	+ 2.1	+ 3.7	+ 3.0	+ 2.9	+ 6.4	+ 5.0	339	503	841	387	774	1,161
From Czech Republic	+ 1.1	+ 1.7	+ 1.2	+ 1.6	+ 5.5	+ 2.2	6,618	948	7,566	7,170	1,741	8,910
To Czech Republic	+ 2.1	+ 6.6	+ 3.8	+ 2.9	+ 9.2	+ 5.5	1,631	1,397	3,028	1,864	2,118	3,982
From Slovakia	+ 1.6	+ 6.1	+ 3.0	+ 2.5	+ 7.6	+ 4.1	2,885	1,741	4,626	3,329	2,213	5,542
To Slovakia	+ 2.1	+ 8.7	+ 4.5	+ 2.9	+ 10.8	+ 6.0	708	692	1,400	810	968	1,778
From Hungary	+ 1.6	+ 5.4	+ 2.6	+ 2.9	+ 7.3	+ 4.1	3,557	1,675	5,232	4,378	2,270	6,648
To Hungary	+ 1.6	+ 3.6	+ 2.6	+ 2.5	+ 7.7	+ 5.4	1,034	1,217	2,250	1,193	2,345	3,537
From Slovenia	+ 2.1	+ 6.9	+ 4.7	+ 2.9	+ 9.9	+ 7.0	414	745	1,159	474	1,204	1,678
To Slovenia	+ 1.1	+ 6.7	+ 3.1	+ 2.5	+ 10.6	+ 5.8	1,225	1,069	2,294	1,532	1,995	3,527
From the CEEC 5	+ 1.4	+ 5.0	+ 2.1	+ 2.3	+ 7.2	+ 3.4	15,720	5,706	21,426	18,157	8,175	26,332
To the CEEC 5	+ 1.8	+ 5.6	+ 3.4	+ 2.7	+ 8.9	+ 5.6	4,937	4,878	9,814	5,785	8,201	13,985

[1] SITC 041, 042, 043, 044, 045, 08, 2, 3, 4, 51, 52, 53, 56, 57, 67, 68. – [2] Continuous growth rates.

For a *projection of the modal split*, a number of assumptions needs to be made, based on traffic policies and changes that have already occurred in other countries.

For the *association scenario*, it is assumed that Austrian transport policy will permit an increase in *transport licences for road-transported imports and exports by 30 percent*. The estimated road transport volume of 1998 is extrapolated accordingly, based on the assumption that the distribution of import and export volumes will be more balanced. For Danube transports, the projection assumes that the volume will triple between Austria and Slovakia and Hungary, respectively. The remaining transport volume is allocated to the rail (which is being expanded to accommodate the expected growth in volume).

When, as provided in the integration scenario, cross-border goods transport by road is liberalised, the share of the road in the modal split will grow strongly, as had already

been observed with regard to cross-border traffic within the EU's single market. The liberalisation of bilateral traffic with the CEECs can be utilised by the road, especially over short distances (e.g., between Slovenia and Austria). For longer distances (Austria and Poland, central and eastern Hungary or the north of the Czech Republic), the rail is in a better position. The relatively low growth of bulk goods transports during the forecast period has a negative effect on the market shares for rail and waterways. The forecast does not foresee any significantly higher road use fees (within the meaning of the EU white book on fair prices for the use of infrastructure). In addition, it is assumed that road bottlenecks, which might impair the competitive position of road transport, will be successively eliminated.

Table 3: Forecast of the modal split for incoming and outgoing transport

	From Poland	To Poland	From Czech Republic	To Czech Republic	From Slovakia	To Slovakia	From Hungary	To Hungary	From Slovenia	To Slovenia	From CEEC 5	to CEEC 5
	Percentage shares											
1998												
Road	6.6	34.1	19.8	37.5	8.6	39.1	30.8	59.4	62.7	31.7	19.6	42.1
Rail	93.4	65.9	80.2	62.5	78.1	60.9	55.6	40.6	37.3	68.3	75.3	57.9
Waterway	–	–	–	–	13.3	0.0	13.6	0.0	–	–	5.1	0.0
2015, association scenario												
Road	7.4	21.4	22.7	35.6	6.3	16.4	25.4	47.6	36.2	21.4	18.5	31.1
Rail	92.6	78.6	77.3	64.4	79.0	76.4	48.8	34.7	63.8	78.6	72.0	63.8
Waterway	–	–	–	–	14.7	7.1	25.8	17.8	–	–	9.5	5.1
2015, integration scenario												
Road[1]	25.0	50.0	40.0	60.0	50.0	65.0	65.0	75.0	75.0	60.0	48.6	63.6
Rail	75.0	50.0	60.0	40.0	40.0	34.0	25.0	24.0	25.0	40.0	46.8	36.0
Waterway[2]	–	–	–	–	10.0	1.0	10.0	1.0	–	–	4.6	0.4
	Million tons											
1998												
Road[3]	0.16	0.14	1.32	0.54	0.22	0.18	1.02	0.82	0.32	0.38	3.04	2.06
Rail	2.27	0.27	5.35	0.90	2.00	0.28	1.84	0.56	0.19	0.82	11.65	2.83
Waterway	–	–	–	–	0.34	0.00	0.45	0.00	–	–	0.79	0.00
2015, association scenario												
Road	0.21	0.18	1.72	1.08	0.29	0.23	1.33	1.07	0.42	0.49	3.97	3.05
Rail	2.63	0.66	5.85	1.95	3.66	1.07	2.55	0.78	0.74	1.80	15.43	6.26
Waterway[2]	–	–	–	–	0.68	0.10	1.35	0.40	–	–	2.03	0.50
2015, integration scenario												
Road	0.89	0.58	3.56	2.39	2.77	1.16	4.32	2.65	1.26	2.12	12.80	8.90
Rail	2.67	0.58	5.35	1.59	2.22	0.60	1.66	0.85	0.42	1.41	12.32	5.03
Waterway	–	–	–	–	0.55	0.02	0.66	0.04	–	–	1.21	0.06

[1] Assumptions on liberalisation effects. – [2] By assumption. – [3] Estimated volume, 1998.

The forecast for the *association scenario* (Table 3) shows no essential change in the modal split with regard to incoming transports from the CEEC 5, whereas for outgoing transports, rail and waterways gain substantial market shares from the road (Figure 2).

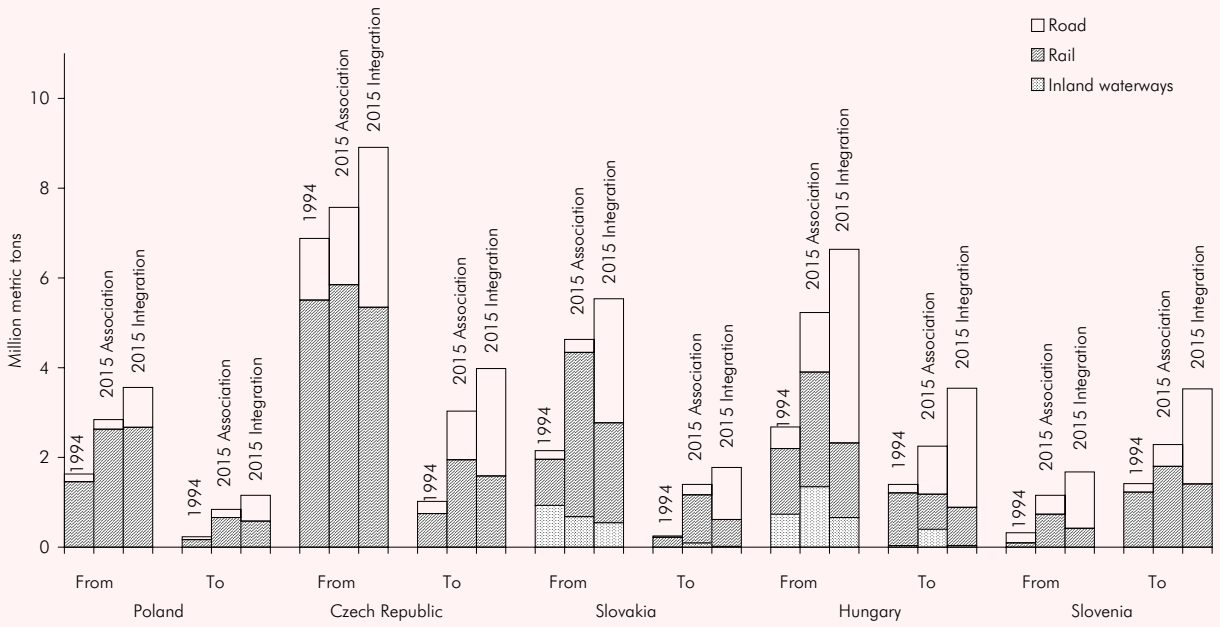
As expected, the *integration scenario* shows a strong increase of the road share in bilateral transport. At about 49 percent for imports and 64 percent for exports, it will nevertheless take until 2015 to reach the current level of bilateral transports to and from Germany.

According to the forecast, the *association scenario* provides for the volume of road-transported goods to be higher in 2015 than in 1998 by 30 percent for imports and by 50 percent for exports.

The *integration scenario* foresees goods transport on the road to quadruple between 1998 and 2015, both for incoming and outgoing transports, and an increase of rail transports by just 6 percent for imports (due to stagnating imports of bulk goods) and by 80 percent for exports.

In the association scenario, a more restrictive regulation for the cross-border road transport of goods with the CEECs would greatly raise rail's share in the modal split for bilateral transport. In the integration scenario, road's share will, by 2015, rise to a level currently achieved by bilateral transport with Germany.

Figure 2: Forecast of bilateral transport: transport volume for 1994 and projection for 2015



CEEC 5 transit transport through Austria

Trade by the CEEC 5 with EU member countries that can be reached via Austria is a potential source of transit traffic through Austria. How much of this potential will pass through Austria will depend on:

- the relative transport costs and the time it takes for transports using alternative routes, and
- transport policy intervention, such as quotas for truck runs, road use fees and the improvement of infrastructure.

With regard to the statistical evaluation of transit transports through Austria, a gap has developed since its accession to the EU. As already noted, the transport statistics after 1994 no longer cover transports by non-domestic heavy-goods vehicles in Austria. In 1994, their share was 88 percent of the total transit volume transported on the road. It differed considerably between destinations, so that it appears impractical to derive the development of road transit volumes up to 1998 from the transit volumes of Austrian trucks. Assumptions on the share in the transport potential going through Austria according to international trade statistics and regarding the modal split thus need to start out from the situation prevailing in 1994. The projections for the potential are based on the international trade data for 1998.

The transit traffic analysis bundles traffic flows into four axes:

- The *Danube axis* transports goods between Slovakia and Hungary on the one side and the western EU countries (Germany, France, the Netherlands, Belgium, Luxembourg, U.K., Ireland, Portugal and Spain) on the other side.
- The *Pontebbana axis* links Poland, the Czech Republic, Slovakia and Hungary to Italy.
- The *Tauern and Pyhrn axis* is the shortest connection between Slovenia and the north-western EU countries (Germany, the Netherlands, Belgium, Luxembourg, U.K., Ireland, Denmark, Sweden).
- If and when the CEEC 5 join the EU (integration scenario), greater traffic flows need to be considered between Slovenia on the one side and Poland, the Czech Republic, Slovakia and Hungary on the other side, to the extent that they use the *Austrian Semmering or Wechsel axis*.

A comparison of international trade flow to transit volumes in Austria shows the following situation:

- Danube axis: in 1994, 55 percent of shipments from Hungary, and 16 percent of shipments from Slovakia to western EU member countries were transported through Austria (Table 4). Shipments in the other direction were 65 percent for Hungary and 36 percent for Slovakia. Austria thus was frequently bypassed, usually via the Czech Republic.

Table 4: International trade and transit between western Europe[1] and the CEECs along the Danube axis

1994

		From	To
		1,000 tons	
Slovakia	International trade	3,223	607
	Transit	512	219
Hungary	International trade	2,592	1,764
	Transit	1,415	1,146
Total	International trade	5,815	2,371
	Transit	1,927	1,365
		Transit as a percentage of international trade	
Slovakia		15.9	36.1
Hungary		54.6	65.0
Total		33.1	57.6

Source: United Nations database, Statistics Austria. – [1] Germany, France, the Netherlands, Belgium, Luxembourg, U.K., Ireland, Portugal, Spain.

- Pontebbana axis: In 1994, only a third of the trade between Italy and Poland, the Czech Republic, Slovakia and Hungary ran across Austria. Most of the trade between Poland and Italy used ocean-going vessels. Trade between Italy and Hungary and Slovakia usually bypassed Austria by flowing through Slovenia and Croatia (Table 5).

Table 5: International trade and transit between Italy and the CEECs along the Pontebbana axis

1994

		From	To
		1,000 tons	
Poland	International trade	1,090	1,530
	Transit	340	344
Czech Republic	International trade	1,192	280
	Transit	513	202
Slovakia	International trade	492	118
	Transit	73	44
Hungary	International trade	2,075	429
	Transit	536	183
Total	International trade	4,849	2,357
	Transit	1,462	773
		Transit as a percentage of international trade	
Poland		31.2	22.5
Czech Republic		43.0	72.1
Slovakia		14.8	37.3
Hungary		25.8	42.7
Total		30.2	32.8

Source: United Nations database, Statistics Austria.

- Tauern-Pyhrn axis: In 1994, the volume of transits running through Austria from Slovenia to the north-western EU countries was almost the same as the international trade volume, but exceeded it by 14 percent in the reverse direction (Table 6). This

excess is explained by transit shipments, especially from southern Germany, via the Slovenian port of Koper.

Table 6: International trade and transit between north-western Europe[1] and Slovenia along the Tauern-Pyhrn axis

1994

		From	To
		1,000 tons	
Slovenia	International trade	769	739
	Transit	759	841
		Transit as a percentage of international trade	
Slovenia		98.7	113.8

Source: United Nations database, Statistics Austria. – [1] Germany, the Netherlands, Belgium, Luxembourg, U.K., Ireland, Denmark, Sweden.

- Semmering-Wechsel axis: The transit volume differed considerably compared to the international trade flows along this axis (Table 7). Trading between Poland and Slovenia used mainly ocean-going vessels; the Czech Republic used Koper for its overseas exports, and Slovakia used the port for its imports. Hungary usually ran road transports to and from Slovenia directly across their common border and rail transports via Croatia. Meanwhile, a direct railway link has been completed between Maribor and Budapest, which will draw a substantial part of transports between Slovenia and Italy, Poland, the Czech Republic and Slovakia from Austria to Hungary.

Table 7: International trade and transit between Slovenia and the CEECs along the Semmering-Wechsel axis

1994

		From	To
		1,000 tons	
Poland	International trade	26	21
	Transit	2	5
Czech Republic	International trade	327	42
	Transit	514	22
Slovakia	International trade	119	12
	Transit	113	28
Hungary	International trade	742	138
	Transit	3	0
Total	International	1,214	213
	Transit	632	55
		Transit as a percentage of international trade	
Poland		7.7	23.8
Czech Republic		157.2	52.4
Slovakia		95.0	233.3
Hungary		0.4	0.0
Total		52.1	25.8

Source: United Nations Database, Statistics Austria.

Transport potential

The potential for transit transport (i.e., the international trade volume) in 2015 is projected with basically the same method as was used for bilateral transport. Accordingly, separate forecasts are made for bulk goods and higher-valued goods ("other goods").

International trade in bulk and other goods developed quite differently between 1993 and 1998. EU exports of other goods to the CEEC 5 rose much more than imports. Shipment of other goods from Poland and the Czech Republic to Italy declined. But for the forecast period it is assumed that trade in other goods will pick up in line with the growth rates estimated by *Landesmann – Pöschl* (1995). Trade in bulk goods is expected to decelerate; for this, account is taken of developments between 1993 and 1998 as well as the effects that liberalisation of agricultural trade may have: the share of agricultural trade by the CEECs in total trade with the EU, while declining in the past few years, might still grow when they join the common agricultural markets, especially with regard to exports from Hungary and Poland.

Under these assumptions, the potential for transit during 1998-2015 along the *Danube axis* in both directions will grow by 4 percent as an annual average according to the association scenario (Table 8). Under the integration scenario, westerly traffic along this axis will grow by 5.7 percent p.a., and easterly transports by 6.1 percent. Along the *Pontebbana axis*, transports to the south are expected to grow more strongly. For the *Tauern-Pyhrn axis*, projections foresee a major growth of transports to Slovenia.

Liberalising the heavy-goods road transit would switch transports both from the rail and from truck bypass routes towards Austrian roads.

Table 8: Projection of the transit potential

	1998-2015						2015					
	Association			Integration			Association			Integration		
	Bulk goods[1]	Other goods	Total	Bulk goods[1]	Other goods	Total	Bulk goods[1]	Other goods	Total	Bulk goods[1]	Other goods	Total
	Average year-to-year percentage changes						1,000 tons					
Danube axis												
From Slovakia	+ 0.0	+ 6.1	+ 4.0	+ 1.0	+ 7.6	+ 5.4	1,293	4,230	5,523	1,531	5,371	6,902
To Slovakia	+ 2.0	+ 8.7	+ 5.9	+ 2.5	+10.8	+ 7.6	916	2,292	3,208	995	3,173	4,168
From Hungary	+ 1.6	+ 5.4	+ 4.0	+ 4.0	+ 7.3	+ 6.1	1,758	4,237	5,995	2,614	5,741	8,355
To Hungary	+ 1.6	+ 3.6	+ 2.5	+ 2.0	+ 7.7	+ 5.1	1,536	1,649	3,186	1,642	3,190	4,833
From CEECs	+ 0.9	+ 5.7	+ 4.0	+ 2.7	+ 7.4	+ 5.7	3,051	8,468	11,518	4,145	11,112	15,257
To CEECs	+ 1.7	+ 6.0	+ 4.0	+ 2.2	+ 9.0	+ 6.1	2,452	3,941	6,393	2,638	6,363	9,001
Pontebbana axis												
From Poland	+ 1.1	+ 5.8	+ 3.9	+ 2.5	+ 7.2	+ 5.3	687	1,520	2,207	867	1,901	2,768
To Poland	+ 2.1	+ 3.7	+ 2.3	+ 2.9	+ 6.4	+ 3.4	1,419	247	1,666	1,621	382	2,003
From Czech Republic	+ 1.1	+ 1.7	+ 1.5	+ 1.6	+ 5.5	+ 4.3	334	642	976	363	1,198	1,560
To Czech Republic	+ 2.1	+ 6.6	+ 3.1	+ 2.9	+ 9.2	+ 4.4	608	249	857	694	375	1,069
From Slovakia	+ 3.0	+ 6.1	+ 5.4	+ 3.5	+ 7.6	+ 6.7	261	1,130	1,391	284	1,435	1,718
To Slovakia	+ 2.0	+ 8.7	+ 6.4	+ 2.5	+10.8	+ 8.2	274	962	1,237	298	1,332	1,630
From Hungary	+ 2.0	+ 5.4	+ 5.0	+ 4.0	+ 7.3	+ 6.9	475	4,890	5,365	660	6,626	7,286
To Hungary	+ 1.6	+ 3.6	+ 2.2	+ 2.0	+ 7.7	+ 4.2	651	367	1,018	696	709	1,405
From CEECs	+ 1.6	+ 5.2	+ 4.3	+ 2.9	+ 7.1	+ 6.2	1,756	8,182	9,938	2,174	11,159	13,333
To CEECs	+ 2.0	+ 6.2	+ 3.3	+ 2.7	+ 9.0	+ 4.8	2,953	1,825	4,777	3,309	2,798	6,108
Tauern-Pyhrn axis												
From Slovenia	+ 0.0	+ 6.9	+ 2.9	+ 0.0	+ 9.9	+ 4.8	442	597	1,039	442	956	1,398
To Slovenia	+ 1.0	+ 6.7	+ 5.0	+ 0.0	+10.6	+ 8.1	388	1,563	1,951	328	2,877	3,205
Semmering-Wechsel axis[2]												
From Poland	+ 2.0	+ 4.6	+ 3.8	+ 2.1	+ 5.8	+ 4.7	38	107	145	38	130	169
To Poland	+ 1.0	+ 3.0	+ 1.8	+ 1.1	+ 5.1	+ 2.9	45	36	81	46	51	97
From Czech Republic	+ 1.1	+ 1.4	+ 1.4	+ 1.2	+ 4.4	+ 4.0	101	608	709	103	998	1,101
To Czech Republic	+ 2.1	+ 5.3	+ 3.8	+ 2.2	+ 7.4	+ 5.1	58	87	145	59	121	181
From Slovakia	+ 1.0	+ 4.9	+ 4.6	+ 1.1	+ 6.1	+ 5.7	23	336	359	23	408	431
To Slovakia	+ 2.0	+ 7.0	+ 4.4	+ 2.1	+ 8.6	+ 5.3	32	44	76	33	57	90
From Hungary	+ 1.6	+ 4.3	+ 4.0	+ 1.7	+ 5.8	+ 5.3	161	1,499	1,661	164	1,911	2,075
To Hungary	+ 1.6	+ 2.9	+ 2.4	+ 1.7	+ 6.2	+ 4.9	71	148	219	72	253	325
From CEECs	+ 1.4	+ 3.5	+ 3.3	+ 1.5	+ 5.4	+ 4.9	323	2,551	2,873	328	3,448	3,776
To CEECs	+ 1.7	+ 4.0	+ 2.9	+ 1.8	+ 6.6	+ 4.7	206	315	521	210	482	692

[1] SITC 041, 042, 043, 044, 045, 08, 2, 3, 4, 51, 52, 53, 56, 57, 67, 68. – [2] Growth rates compared to the projection of transit traffic between EU and CEEC 5, reduced by 20 percent.

Trade between Slovenia and the other accession candidates along the *Semmering-Wechsel axis* will intensify, according to estimates by Slovenian economists[1] at a lesser rate than relations to the EU. Accordingly, lower growth rates are used for the present projection.

Transport volume

Projected trade between the CEEC 5 and the EU (excluding Austria) provides the potential for transit traffic through Austria. Assumptions need therefore to be made which part of this potential will be transported through Austria. The forecast starts off from the share that the transit volume had in international trade in 1994. Slovenian transports are adjusted for shipments through the port of Koper.

For the *association scenario*, it is assumed that Austria will be increasingly bypassed by road transports due to the restrictive quota policy pursued in Austria. Transit runs by heavy-goods vehicles from the EU through Austria are not expected to grow to any significant extent, as would be possible after expiry of the Transit Agreement.

Under the *integration scenario*, truck transports can grow unchecked and choose the optimum route without restrictions. This route usually leads through Austria, which in turn will raise the road share of the total transit volume flowing through Austria.

[1] Source: letter by Boris Majcen, Institute of Macroeconomic Analysis and Development of Slovenia, Ljubljana.

According to estimates, the total volume of CEEC 5 transit transports will rise, compared to 1994, by 65 percent to 13.8 million tons under the *association scenario*, and to 25 million tons, or more than triple the 1994 figure, under the *integration scenario* (Table 9).

Table 9: Projection of the volume of transit transports by the CEEC 5 through Austria

2015

	Potential		Of which transit through Austria			
	Scenario				Scenario	
	Association	Integration	Association	Integration	Association	Integration
	1,000 tons		Percentage shares		1,000 tons	
Danube axis						
From Slovakia	5,523	6,902	20.0	25.0	1,105	1,725
To Slovakia	3,208	4,168	35.0	45.0	1,123	1,876
From Hungary	5,995	8,355	55.0	65.0	3,297	5,431
To Hungary	3,186	4,833	60.0	75.0	1,912	3,625
From CEECs	11,518	15,257	38.2	46.9	4,402	7,156
To CEECs	6,393	9,001	47.5	61.1	3,034	5,500
Pontebbana axis						
From Poland	2,207	2,768	25.0	35.0	552	969
To Poland	1,666	2,003	20.0	30.0	333	601
From Czech Republic	976	1,560	45.0	55.0	439	858
To Czech Republic	857	1,069	65.0	80.0	557	855
From Slovakia	1,391	1,718	15.0	30.0	209	515
To Slovakia	1,237	1,630	25.0	50.0	309	815
From Hungary	5,365	7,286	20.0	35.0	1,073	2,550
To Hungary	1,018	1,405	35.0	55.0	356	773
From CEECs	9,938	13,333	22.9	36.7	2,273	4,893
To CEECs	4,777	6,108	32.6	49.8	1,556	3,044
Tauern-Pyhrn axis						
From Slovenia	1,039	1,398	70.0	75.0	727	1,048
To Slovenia	1,951	3,205	70.0	75.0	1,366	2,404
Semmering-Wechsel axis						
From Poland	145	169	5.0	15.0	7	25
To Poland	81	97	20.0	30.0	16	29
From Czech Republic	709	1,101	40.0	60.0	284	661
To Czech Republic	145	181	45.0	65.0	65	117
From Slovakia	359	431	20.0	30.0	72	129
To Slovakia	76	90	25.0	35.0	19	31
From Hungary	1,661	2,075	0.0	0.0	0	0
To Hungary	219	325	0.0	0.0	0	0
From CEECs	2,873	3,776	12.6	21.6	363	815
To CEECs	521	692	19.4	25.7	101	178
Total						
From CEECs	25,369	33,763	30.6	41.2	7,764	13,912
To CEECs	13,644	19,006	44.4	58.5	6,057	11,126

Modal split

In projecting the modal split, the situation prevailing in 1994 is used as a basis. The *association scenario* assumes that transit by heavy-goods vehicles will increase by 20 percent between 1994 and 2015. Road carriers from the EU will make little use of transit runs through Austria to the CEECs; for Slovenian carriers, it is not assumed that transit will be liberalised. The number of transit licences for road carriers from the CEECs will not be increased. Rail and waterways will profit from the restrictions imposed on road transport. Both will gain market shares, and the rail in particular will benefit regarding transports to the CEEC 5.

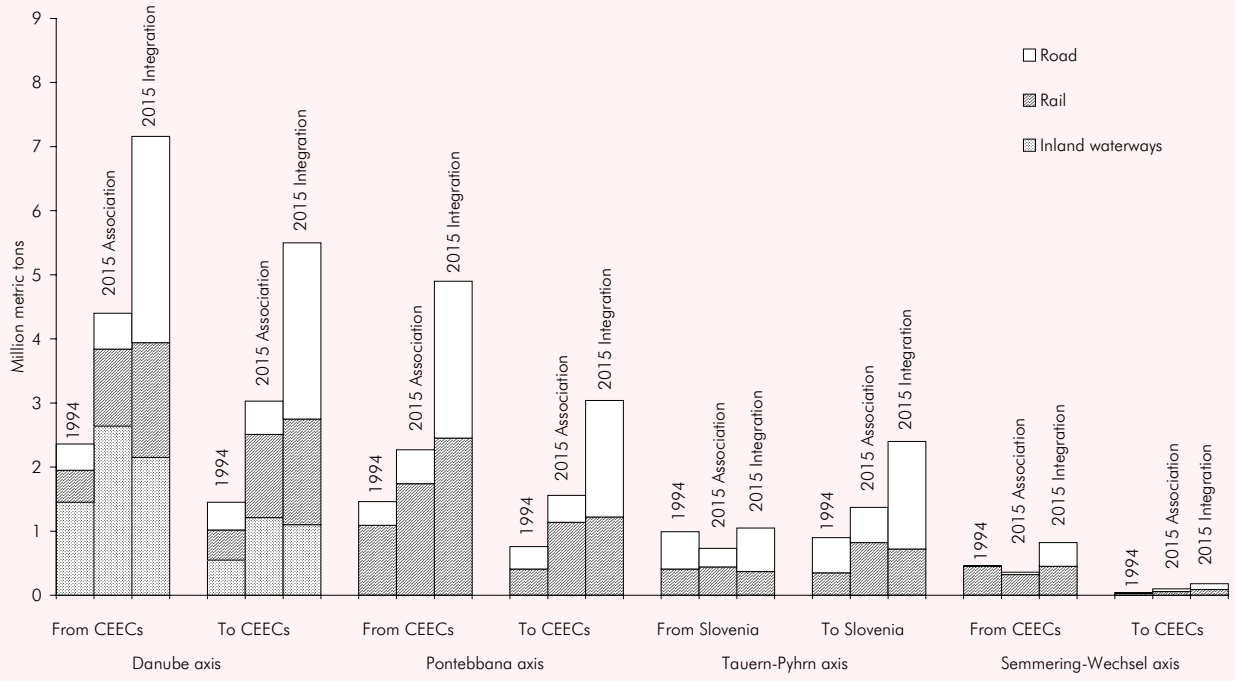
The *integration scenario* assumes that the road will gain a substantial share of the modal split, achieving 48 percent for transits from the CEECs and 57 percent for transits to the CEECs (Table 10). Compared to these figures, the road had already obtained a 70 percent share of the intra-EU trade in 1998. The gain of market share for road transports will be made at the expense of rail and waterways.

According to the projections, the association scenario foresees road transit transports to grow by 10 percent, transits by about 90 percent and Danube transits similarly by 90 percent. Under the integration scenario, road transits will increase fivefold, rail transits by 140 percent and waterway transits by about 60 percent (Figure 3).

Table 10: Projection of modal split for transit traffic in 2015

	Danube axis		Pontebbana axis		Tauern-Pyhrn axis		Semmering-Wechsel axis		Total	
	From CEECs	To CEECs	From CEECs	To CEECs	From Slovenia	To Slovenia	From CEECs	To CEECs	From CEECs	To CEECs
	Percentage shares									
1994										
Road	17.4	29.7	25.3	46.1	58.6	60.2	1.5	25.0	25.0	42.7
Rail	21.2	32.4	74.7	53.9	41.4	39.8	98.5	75.0	48.4	40.2
Waterway	61.4	37.9	–	–	–	–	–	–	26.6	17.1
2015, association scenario										
Road	12.8	17.0	23.3	27.0	40.0	40.0	10.0	40.0	17.9	23.6
Rail	27.2	43.0	76.7	73.0	60.0	60.0	90.0	60.0	50.4	57.8
Waterway	60.0	40.0	–	–	–	–	–	–	31.7	18.6
2015, integration scenario										
Road	45.0	50.0	50.0	60.0	65.0	70.0	45.0	50.0	48.2	57.5
Rail	25.0	30.0	50.0	40.0	35.0	30.0	55.0	50.0	36.3	34.1
Waterway	30.0	20.0	–	–	–	–	–	–	15.4	8.5
	Million tons									
1994										
Road	0.41	0.43	0.37	0.35	0.58	0.55	0.01	0.01	1.37	1.34
Rail	0.50	0.47	1.09	0.41	0.41	0.35	0.45	0.03	2.45	1.26
Waterway	1.45	0.55	–	–	–	–	–	–	1.45	0.55
2015, association scenario										
Road	0.56	0.52	0.53	0.42	0.29	0.55	0.04	0.04	1.42	1.53
Rail	1.20	1.30	1.74	1.14	0.44	0.82	0.32	0.06	3.70	3.32
Waterway	2.64	1.21	–	–	–	–	–	–	2.64	1.21
2015, integration scenario										
Road	3.22	2.75	2.45	1.82	0.68	1.68	0.37	0.09	6.72	6.34
Rail	1.79	1.65	2.45	1.22	0.37	0.72	0.45	0.09	5.06	3.68
Waterway	2.15	1.10	–	–	–	–	–	–	2.15	1.10

Figure 3: Projection of transit traffic: transport volume in 1994 and forecast for 2015



Strong growth of CEEC truck transport share

A comparison of the projection for road transports to and from the CEEC 5 with the goods transport forecast in the Federal Transport Plan (*Herry,* 2000) for Austria modifies the expected burden imposed on Austrian roads by CEEC 5 traffic. *Herry* (2000) based his projections on the traffic policy prerequisites underlying the integration scenario. Accordingly for the 1994-2015 period, the road transport volume will grow:

- by 33 percent in internal traffic,
- by 220 percent in bilateral traffic,
- by 130 percent in transit traffic, and
- altogether by 61 percent.

According to the present forecast, CEEC 5 traffic will rise by 480 percent; its share of the overall road transport volume in Austria will grow from 2.3 percent to 6.9 percent.

More heavy-goods vehicle traffic to and from the CEEC 5 will place their greatest burden on eastern Austria and the east-west and northeast-southwest transit axes. A comparison of the number of truck runs provides an idea of how the additional burdens will be distributed:

- In 2015, the number of laden runs for bilateral CEEC 5 traffic will be 460,000 in the association scenario, and 1.28 million in the integration scenario. For transit traffic, the estimated figures are 164,000 and 706,000 runs, respectively. To this, empty runs need to be added; experience has shown that their number is lower when strict quotas are imposed than when cross-border traffic is liberalised. The integration scenario sets the share of CEEC 5 runs at about 25 percent of overall cross-border runs (as compared to 11 percent at present).
- EU Eastern enlargement will increase the traffic flow on the western and southern motorways. The *additional*[2] *CEEC 5 transit traffic* triggered by integration along the Danube axis will, in 2015, add 14 percent to truck transports at the eastern motorway near Bruck an der Leitha, and 7 percent on the western motorway near Strengberg. Along the Pontebbana-Semmering-Wechsel axis, almost 8 percent will be added in transits on the southern motorway near Wiener Neustadt.

Growing passenger and goods transports on the Austrian roads will constantly create local capacity bottlenecks, which in turn make for high congestion costs. Integrating the CEEC 5 will further aggravate existing problems, especially in the Vienna region and on sections of the western motorway. Citizens are increasingly critical of traffic growth and road network expansion to keep pace with it. Bottleneck problems will no longer be amenable to a solution by expanding capacity; without proper regulations, congestion costs will explode. An economic use of scarce traffic space could be attempted by price incentives (road pricing). At the same time, a high-capacity transport offer by the rail and waterway modes should ensure that the CEEC integration process is not impaired by a decline in transport quality and increase in costs for the transport of goods by road.

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[2] Comparison between integration and association scenario.

Effects of EU Enlargement on Transport in Austria – Summary

For the five Central and Eastern European countries Poland, Czech Republic, Slovakia, Hungary and Slovenia (CEEC 5), European Union membership will foster economic development and trade with Western Europe. Greater division of labour and growing demand for goods, services and international travel, driven by rising income levels, are pushing up the growth of cross-border transport of people and goods. Passenger traffic is further multiplied by commuter traffic in the wake of the free movement of labour. The Austrian transport network will be burdened not just by bilateral traffic but also by transit traffic between the CEEC 5 and Western Europe.

With car ownership in the CEEC 5 still at a relatively low level, it is expected that the growth of passenger traffic will primarily affect road transport. If the road transport of goods were completely liberalised, as foreseen in the acquis communautaire, this would lead to unchecked growth of heavy-goods traffic to and from the CEEC 5. If we assume that the CEEC 5 will join the EU in 2004, that road use will not be subject to serious price increases and that the infrastructure capacities will be adapted to the growth of traffic on an ongoing basis, source-destination heavy-goods transport would quadruple by 2015, and transit traffic would grow fivefold in comparison to 1994. Source-destination rail transport, on the other hand, would grow by just 20 percent and rail transit traffic is expected to double up to 2015. In spite of considerable modal split shifts towards the road, the share of cross-border road transport of goods with the CEEC 5 would take until 2015 to attain the level already current in cross-border goods traffic within the EU.