Railway Developments in Transition Economies

Louis S. Thompson[1]

Just as the 1990s dawned, most of the formerly socialist economies in Europe began to adopt market-driven structures. Shortly after the transition started, economic forces in the Central and East European (CEE) countries, Commonwealth of Independent States (CIS), and Baltic region ensured that the role of the railways in hauling freight would change significantly. The change had two causes: 1. The economies themselves produced more high-value and less bulk, low-value commodities, resulting in less total tonnage and tonne-km shipped per unit of total economic activity; and 2. With the shift to higher-value commodities, trucks became much more competitive than railways for freight transport. Analysis of the changes suggested that the planned economies had long made excessive use of the rail freight mode because of an inadequate understanding of total logistics (as opposed to just transport) costs. Their passenger transport markets were similarly distorted by highly subsidized mass transport and unnaturally low rates of automobile ownership combined with a lack of a functioning real estate market.

We now have a decade of experience with rail trends in the CEE, CIS and Baltic economies and can begin to analyze the significance of what is happening.

Figures 1, 2, and 3 show the freight and passenger traffic data for most CEE[2], CIS, Baltic, and West European countries, and the USA. 1988 was chosen as the base year because it was the last full year before the unwinding of the planned economies began to effect railway traffic. Table 1 shows the change in the mix of railway traffic between freight and passenger services from 1988 to 1998. Data for Turkey is included in Fig. 1 because it is in the same geographic region as many of the CEE and CIS railways but was already a market-driven economy.

Table 1 Changing Share of Passenger Traffic

Railway:	Passenger-km as % of total traffic units [1] 1988	1993	1998
CEE COUNTRIES:			
Bulgaria	31.7%	43.1%	43.5%
Czech Rep. + Slovakia	21.8%	25.8%	25.1%
East Germany (DR)	27.7%	44.4%	NA
Hungary	32.0%	45.3%	46.3%
Poland	30.2%	28.1%	25.2%
Romania	33.4%	47.0%	41.9%
Turkey	45.9%	46.3%	42.7%
Yugoslavia	31.1%	62.0%	38.6%
Macedonia	28.9%	12.7%	27.0%
Slovenia	27.9%	20.0%	19.7%
CIS COUNTRIES AND BALTIC REGION:			
Former Soviet Union (FSU)	9.5%		
Russia	9.5%	14.4%	12.3%
Ukraine	12.6%	23.6%	23.9%
Kazakhstan [2]	4.3%	9.8%	10.7%
Belarus	16.3%	31.2%	30.4%
Estonia [2]	17.2%	16.2%	3.9%
Latvia [2]	16.4%	19.3%	7.5%
Lithuania [2]	11.7%	21.4%	8.0%
Armenia	8.0%	49.1%	11.1%
Georgia	11.5%	NA	NA
WEST EUROPEAN COUNTRIES & USA:			
Austria	42.1%	45.4%	36.9%
Finland	29.1%	24.5%	25.5%
France	55.0%	56.4%	54.5%
Sweden	25.5%	24.3%	27.7%
United Kingdom	65.5%	68.8%	66.5%
Germany [3]	41.0%	47.9%	44.7%
USA: Amtrak Only	0.6%	0.6%	0.4%

NOTES:
1. Sum of passenger-km plus tonne-km
2. Ukraine, Kazakhstan, Belarus, Estonia, Latvia and Lithuania: 1988 baseline data estimated based on percentage of total FSU traffic for most recent year
3. Only West Germany before 1994

Freight Trends

Rail freight carried by the CEE, CIS and Baltic railways has undergone a wrenching drop (Figs. 1a and 2a) that has only recently stabilized (and may still be continuing in some countries). The period of dramatic change slowed after 1994. At present, rail freight in the CEE countries ranges from about 10% to 60% of 1988 levels with most falling in the 30% to 50% band. Rail freight has grown significantly only in Macedonia, partly because of the ending of an embargo by Greece.

The CIS and Baltic countries and their railways, started the transition process later than their neighbors. Georgia and Armenia, which were cut off from the region by local conflicts, fell by 90% compared to declines of about 60% elsewhere in the CIS. However, these other regions may still be declining slowly. Only Estonia and Latvia, countries that pursued the market model vigorously, have shown a clear bottoming out and recovery towards earlier levels. It is fair to say that even the most pessimistic scenarios did not foresee the degree of traffic loss in these countries.

The data for the West European and US economies (Fig. 3a) shows that the downward spiral in rail freight was specific to the planned economies. However, although the Western economies (and

Figure 1a Freight Trends in CEE Countries and Turkey

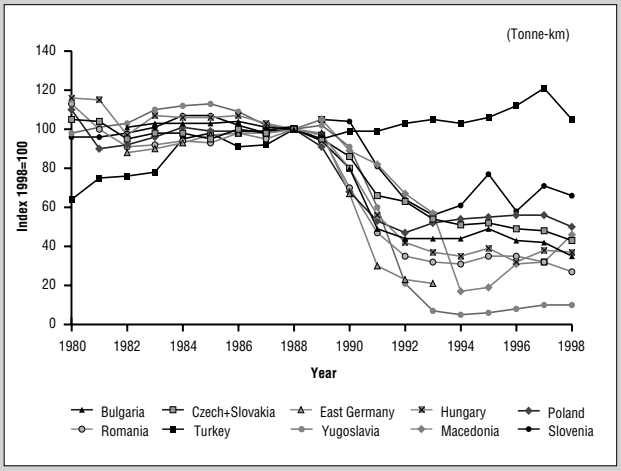


Figure 1b Passenger Trends in CEE Countries and Turkey

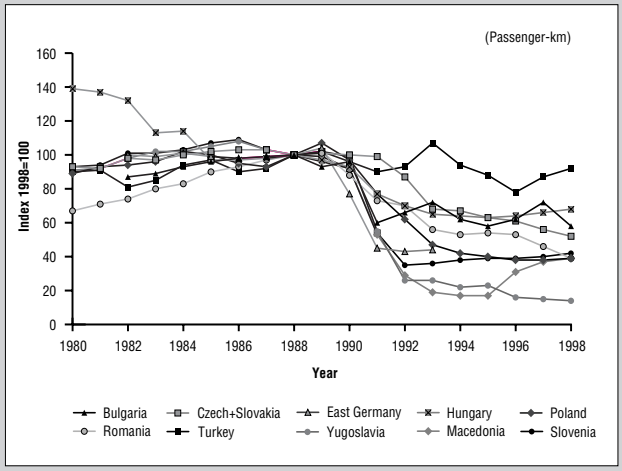


Figure 2a Freight Trends in CIS Countries and Baltic Region

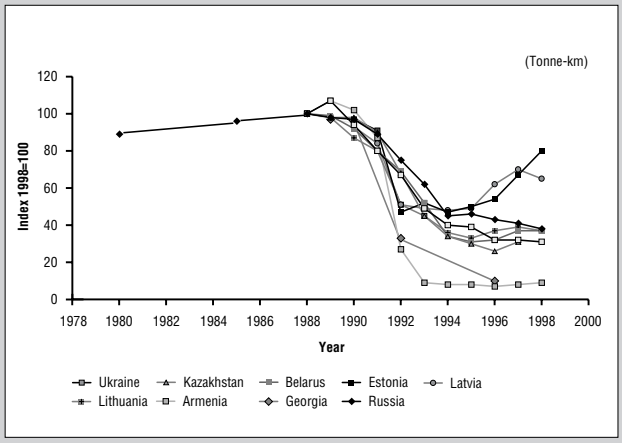


Figure 2b Passenger Trends in CIS Countries and Baltic Region

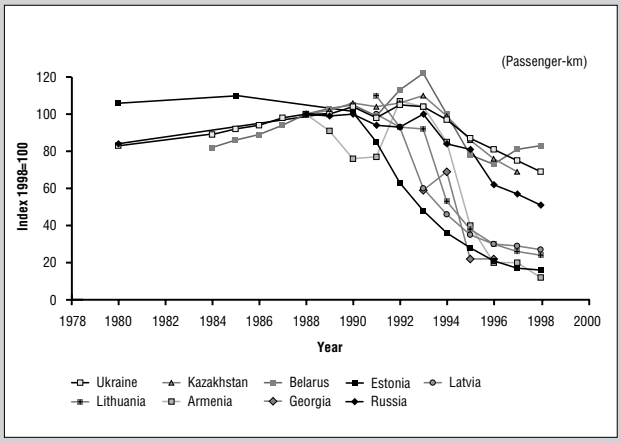


Figure 3a Freight Trends in West European Countries and USA

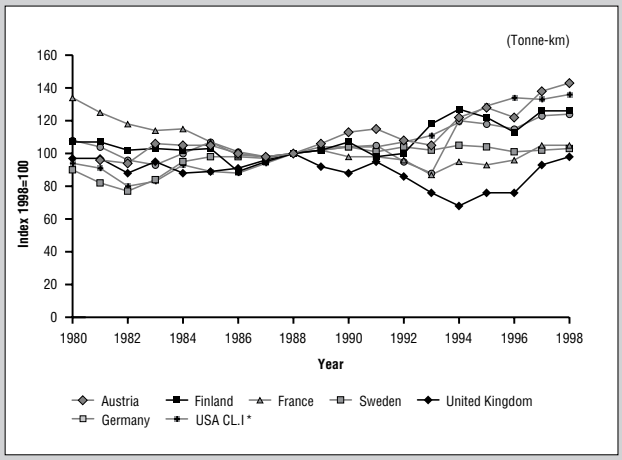
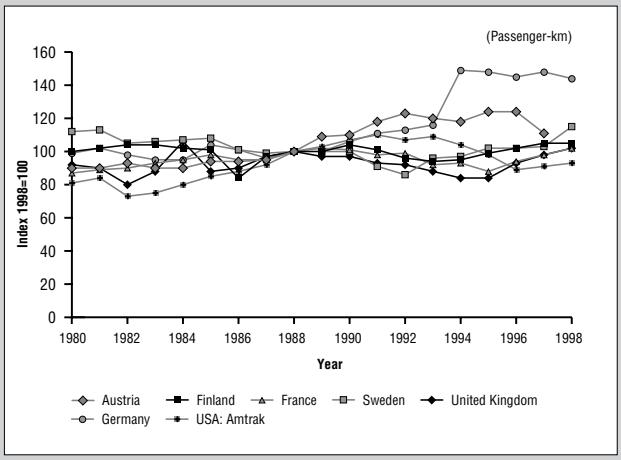


Figure 3b Passenger Trends in West European Countries and USA



* Class1 carriers with annual revenues of more than US$250 million

Turkey which adjoins many of the CEE or CIS economies and is affected by their trends) seem to have enjoyed relatively stable rail freight levels, the interpretation of the data requires some qualification. For example, only Austria has managed any significant growth in rail freight. The apparent growth for Deutsche Bahn (DB) after 1993 is an artifact resulting from the inclusion of Deutsche Reichsbahn (DR) traffic from 1993—without the added DR traffic, the DB growth would have been zero. Sweden, France, and the UK are carrying almost exactly the same amount of freight as they carried 20 years ago, a startlingly poor performance in the midst of their fast-growing economies and rapid growth in road freight traffic. Stability in this context is nothing to be proud of[3].

Several conclusions can be drawn from this data. First, the predicted shift in the role of rail freight in the formerly planned economies occurred with a vengeance. With rail traffic falling precipitously and truck traffic growing rapidly, these railways are beginning to resemble the railways of market economies and their strength in high-volume services over longer distances. At the same time, the increasingly market-driven CEE, CIS, and Baltic economies are never again going to produce as much (as a percentage of total activity) of the traditional bulk commodities on which their railways depended. It appears that the CEE, CIS and Baltic railways have bottomed out at around half their 1988 traffic levels and may grow somewhat more slowly than their economies[4].

Second, the fundamentally stable but lower market share (15%) of rail freight in the Western market economies shows that there can be a role for the CEE, CIS and Baltic railways, albeit with a somewhat different traffic mix. In fact, this role could be proportionately bigger (perhaps approaching 25% to 30%) than in Western Europe because the population centers in the CEE are further apart and overall distances in the CIS approach the North American scale. In Russia, which is larger than the USA or Canada, the railways will continue to play a vital role due to the great distances and shortage of road capacity that cannot be rectified in the short or medium term. Today, Russian railways carry more than 80% of all surface tonne-km compared to the 40% plus share in the USA and Canada.

Passenger Traffic Trends

The trend in passenger traffic (Figs. 1b and 2b) is slightly different from that of freight. Although rail passenger traffic in the CEE countries fell, it was not quite as far nor as rapid as freight. In most CEE, CIS and Baltic countries, passenger traffic is between 40% and 60% of 1988 levels. Rail passenger traffic in the CIS countries did not fall as fast as freight, but still seems to be falling from a level of between 60% and 80% of 1988 levels. In the Baltic countries, where the market model developed the most rapidly, rail passenger traffic fell dramatically but has now stabilized at around 20% of former levels. By comparison, rail passenger traffic in the Western market economies generally remained stable, or grew or shrank only slightly (actually reflecting a significant loss of market share in rapidly growing economies).

Overall, rail passenger traffic held up better than freight because employment did not change fully in step with production during the economic contraction and restructuring. People still needed to get to work, even if there was less productive work for them to do. Later in the decade, the economies in rapid transition (the Baltic countries, Poland and Slovenia) experienced more rapid shrinkage and earlier stability than the economies making a slower or less-thorough transition. If true, it is likely that some rail passenger markets will shrink further, especially in the CIS countries, as the large, state-owned dinosaurs downsize and new employment is generated by smaller, private enterprises.

Second, the CIS countries have been reluctant to allow rail passenger fares to rise in line with inflation, whereas they have usually permitted freight tariffs to rise in line with (or faster than) costs. In fact, many CIS governments used cross-subsidies from freight profits to shield passengers from fare increases and service cuts. (This was possible until recently because most freight was under tight government control so there was no effective protest against higher freight tariffs.) As a result, passenger fares may well be cheaper in real terms than they were in 1988. This imbalance does not appear sustainable in the longer term because of the losses it is imposing on the already financially weak railways, and because it is diverting freight traffic that the railways can ill afford to lose to trucks.

Third, rail passenger traffic in the CEE and the Baltic countries fell faster than in the CIS because private automobile ownership grew faster in the CEE and Baltic countries than in the CIS. Given that auto ownership in the CEE is far behind that of Western Europe, but growing rapidly, and that the trends in the CIS may be farther behind but gathering steam, the CEE and CIS railways can expect the same kind of changes in their passenger role that they experienced in freight. However, the shift may take longer due to the time it takes for auto ownership to grow. This shift to auto usage, especially as employment disperses from enormous state-owned enterprises to smaller private companies, is consistent with the West-European experience over the last 30 years.

Summary

The CEE and CIS countries face an increasingly urgent need to restructure and

'rightsize' their railways and to conserve their scarce capital resources based on the likely future traffic levels and patterns. Unfortunately, with few exceptions, it appears that the railways in these countries began neglecting track and rolling-stock maintenance around 1988 and the problem has snowballed since then. The result of under-capitalization, combined with political constraints on passenger fare increases and rapidly falling freight traffic, means that most of the CEE, CIS and Baltic railways have shifted from financial surplus to deficit, with little money left for routine maintenance or repair. So far, falling traffic levels have rescued them from the consequences of falling asset availability and reliability, but they cannot continue on their current track without a sizeable financial disaster, threatening serious macroeconomic consequences for the country (as well as for the railway).

As suggested in the comparisons of traffic trends, the EU railways have had their own problems. At a time when the EU economies and truck, auto and air traffic have been growing strongly, rail traffic has been stagnant at best. In fact, by the late 1980s, the EU railways had reached a financial dead end, even without the added pressure of economic restructuring. In response, several countries, notably Sweden, the UK, and Germany, started a process of national railway restructuring. Slightly later, the European Commission, convinced that the EU railways could not be reformed wholly within national boundaries, ordered an initial restructuring based on separation of infrastructure accounts from operations, and on a prohibition of subsidies to all competitive modes. The various EU Directives have evolved into a uniform approach to railway reform with emerging emphasis on separation of infrastructure from operations and, increasingly, separation of operations into freight, inter-city passenger, regional or local passenger, and non-rail.

Figure 4 Overall EU Railway Organization (EU Directives 91/440 EEC, 95/98 and 95/19)

<table>
<tr><th></th><th>Freight</th><th>Inter-city Passengers</th><th>Regional Passengers</th><th>Suburban Passengers</th></tr>
<tr><td>Infrastructure Ownership</td><td colspan="2" rowspan="5">Kept at national level, can be privatized</td><td colspan="2" rowspan="5">Can be devolved</td></tr>
<tr><td>Infrastructure Improvement</td></tr>
<tr><td>Infrastructure Maintenance</td></tr>
<tr><td>Control of Operations</td></tr>
<tr><td>(Dispatching and Scheduling)</td></tr>
<tr><td>Train Movement</td><td rowspan="4">Can be privatized</td><td rowspan="4">Can be privatized</td><td colspan="2" rowspan="3">Can be devolved</td></tr>
<tr><td>Equipment</td></tr>
<tr><td>Marketing</td></tr>
<tr><td>Financial Accountability</td><td colspan="2">PSO Support permitted</td></tr>
</table>

Figure 5 Deutsche Bahn Structure

<table>
<tr><th></th><th>Freight</th><th>Inter-city Passengers</th><th>Regional Passengers</th><th>Suburban Passengers</th></tr>
<tr><td>Infrastructure Ownership</td><td colspan="2" rowspan="5">DB Infrastructure</td><td colspan="2" rowspan="5">Mostly DB Infrastructure, but some involvement by regional and local governments</td></tr>
<tr><td>Infrastructure Improvement</td></tr>
<tr><td>Infrastructure Maintenance</td></tr>
<tr><td>Control of Operations</td></tr>
<tr><td>(Dispatching and Scheduling)</td></tr>
<tr><td>Train Movement</td><td rowspan="4">DB Freight (to be privatized)</td><td rowspan="4">DB Passenger (to be privatized)</td><td colspan="2" rowspan="3">Mostly operated by DB Passenger under contracts with local governments, but some operated by local governments</td></tr>
<tr><td>Equipment</td></tr>
<tr><td>Marketing</td></tr>
<tr><td>Financial Accountability</td><td colspan="2">Regional and local PSOs</td></tr>
</table>

Figure 6 British Rail Privatization

<table>
<tr><th></th><th>Freight</th><th>Inter-city Passengers</th><th>Regional Passengers</th><th>Suburban Passengers</th></tr>
<tr><td>Infrastructure Ownership</td><td colspan="4" rowspan="5">All owned and operated by Railtrack</td></tr>
<tr><td>Infrastructure Improvement</td></tr>
<tr><td>Infrastructure Maintenance</td></tr>
<tr><td>Control of Operations</td></tr>
<tr><td>(Dispatching and Scheduling)</td></tr>
<tr><td>Train Movement</td><td rowspan="4">English Welsh & Scottish Railway (Private)</td><td colspan="3">25 Franchises</td></tr>
<tr><td>Equipment</td><td colspan="3">3 Private rolling stock leasing companies (ROSCOs)</td></tr>
<tr><td>Marketing</td><td colspan="3">25 Private franchises</td></tr>
<tr><td>Financial Accountability</td><td colspan="2">Subsidies by local/national governments</td></tr>
</table>

Figure 4 shows the broad EU approach to allocating ownership of and control over the various parts of the railway systems. Figure 5 shows how the DB restructuring has developed very much along the lines of the basic EU model, but with the added element of an express intent to privatize certain parts of the system and to transfer funding and even operating control of other parts to local levels. Figure 6 shows the UK approach, with all elements of the system separated and all elements privatized. Other EU countries have (some more slowly than others) begun to institute their own approach to adopting the EC Directives. The CEE, CIS and Baltic railways are facing enormous internal pressures for change. But now they have an EU model to examine. For some of the CEE or Baltic countries, this model is mandated for joining the EU; for others, the model is optional but must still be considered carefully because inconsistent models will not be good for promoting rail traffic to and from EU countries. The question is how to find the right blend of the available general models based on the particular differences of each country.

Other articles in this issue of *JRTR* discuss the various approaches being followed. However, what are the issues to consider and steps to follow in developing the specific models?

Strategic planning

Countries have to develop a strategic plan for their railways so that each railway and government can agree on a role (or at least a set of plausible scenarios) for the railway in the next 5 to 10 years. The strategic plan will also serve to highlight necessary policy changes as well as transition issues, especially labor redundancy. The plan is also the criterion for deciding into which and how many segments the railway system is to be divided, and whether any (or all) are to be privatized. Many of the railways also have serious problems of environmental pollution that must be addressed eventually in their longer range planning. The World Bank is currently helping several CEE and CIS countries to develop strategic plans, and the European Bank for Reconstruction and Development (EBRD) is supporting parallel activities in a number of other CEE and CIS countries.

Separation of infrastructure

Infrastructure separation poses questions that are not easy to answer, including how and where dispatching and scheduling will be controlled, the structure of access prices and the priority of various competing users, regulation of relations between various users, etc.

Separation of operations accounts

Railways must disentangle the accounts and operations of freight and passenger services and, where appropriate, separate inter-city passenger services from suburban services. At a minimum, this should start with a financial, line-of-business separation between the passenger and freight services; in time, the separation should become institutional as well. As Table 1 shows, passenger services are as important as freight for many of the CEE, Baltic, and CIS railways. For many CEE countries, the passenger versus freight balance is comparable to Western Europe and will eventually evoke similar approaches for inter-city passenger services.

Urban passenger services

If urban passenger services were rapidly reorganized and strengthened, some CEE, CIS, and Baltic countries might retain their urban passengers, thereby avoiding some of the more serious problems of road congestion and pollution that the market economies have encountered. This argument may not be universally true, but there are enough valid cases to justify examining ways to strengthen urban rail passenger activities where appropriate. For example, Moscow, St Petersburg, Kiev, Warsaw, Gdansk, and Katowice are cities with clear potential to strengthen rail urban passenger services through appropriate funding and decentralization.

Railway-government relations

One of the highest priorities is to change the railway versus government relationship from one where the railway is a politically managed government ministry to one where the railway is a series of businesses (although some may still be wholly or partly owned by the government) that

Old diesel rolling stock in Suwalki, Poland *(Y. Akiyama)*

are commercially driven for freight and most inter-city passenger services. There should also be explicit government support for operations that the government considers socially important (PSOs).

Transition issues

In many formerly planned economies, the problem is not so much agreeing on what to do (in broad terms), but is more about how to do it. Aside from country-specific issues, there are three general transition problems: surplus labor; the need to free the railway quickly from the political and financial sins of the past (surplus labor, excess debt, etc.); and a difficult environmental heritage. There is no easy solution to the surplus labor problem, but all approaches in other countries have included some form of compensation for early retirement and/or the costs of professional relocation and training. The World Bank now has considerable experience in developing and funding labor transitions.

The Settlements Agency idea, first used in Japan but now under consideration in several CEE countries (and in a number of Latin American countries now concessioning their railways to the private sector), is an innovative vehicle to unburden the railway of its past sins of practice and imposed policy. Such an agency is best created for a limited life solely for the purpose of receiving surplus labor (and administering redundancy payments and training), debt and non-rail assets, so a new railway can start life worrying about the future, not the past.

The costly heritage of environmental neglect (ground water pollution from spills at workshops and fuelling facilities, asbestos tailings in ballast, discharge of human waste on tracks, etc.) will have to be identified in each case. Fortunately, there are a number of international funding sources that are willing to help with environmental cleanup.

Perhaps the most difficult transition problem is getting a better handle on passenger cross-subsidies from freight activities. The economic need for this is clear, but political pressures against change are hard to overcome.

Getting Something Done?

There is now an enormous store of experience of railway reforms. North American experience demonstrates that privatized freight and public passenger railways can coexist, and Japanese experience confirms the converse. Latin America has shown that the problems of state ownership and operation can be rectified in a surprisingly short time by judicious resort to the private sector for operations. In fact, Latin experience also showed that PSOs can be delivered effectively by private operators if given the right incentives. New Zealand, Japanese and British experience shows that state-owned railways can be privatized, in whole or in part, if that is the appropriate balance of responsibility between public and private. EU experience shows that larger markets are going to demand that railways change or die. Most EU railways are responding (however reluctantly). There is no lack of ideas or experience for countries that are ready for change.

The main challenge is political. Whatever the manifest benefits of rail restructuring and an increase in the role of the private sector, politicians have to deal with entrenched interests, be they labor unions, favored shippers, or subsidized passengers, that oppose change for their own reasons. With imagination and will, these obstacles have been surmounted in many countries.

What makes the articles in this issue of *JRTR* so interesting is that there are now clearly a number of CEE, CIS and Baltic countries where the forces for change are moving forward. Countries that only 10 years ago were completely submerged in a stultifying, 'one-size-fits-all' mandate, are now giving the rest of the world examples of how to bring their railway systems into the new millennium as healthy members of an effective transport sector.

1. The opinions in this article are those of the author and do not necessarily reflect the opinions of the World Bank or its members.
2. For comparison only, data for the Czech and Slovak railways have been added together to show the consistency of traffic trends in the formerly planned economies.
3. See "White Paper: A Strategy for Revitalizing the Community Railways", Commission of the European Communities, Brussels, July 1996, for a good discussion of the position of the EU railways in the freight and passenger markets.
4. See Bennathan, Fraser and Thompson, "What Determines Demand for Freight Transport?", WPS 998, World Bank, October 1992, for an analysis of the differences between planned and market economies in the generation of rail freight tonne-km in relation to overall economic activity. ■

Louis S. Thompson

Mr Thompson worked as a consultant engineer and economist in Cambridge, MA, and Washington, DC after graduating with an MBA from Harvard University. He has also worked for a number of years at various posts within the US Department of Transportation. He has been Railway Adviser to the World Bank since 1986 where his responsibilities include consultation about all the Bank's railway lending activities and developing reports and policy positions. He has published articles on railways statistics, restructuring and concessioning.