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Abstract

An increased role for rail freight is an objective of the British government. Limited growth potential exists in rail's traditional bulk markets, so more non-bulk volume is needed. This paper focuses on non-bulk rail freight activity in Britain, through desk-based research and company interviews. It considers changes in both the intermodal and traditional less-than-trainload (LTL) markets over the last decade. Issues relating to the use of these two types of services are presented, covering the principal opportunities and major constraints. Growth potential for both intermodal and traditional LTL flows is identified, but success is dependent upon important pre-requisites being satisfied.

Keywords: Rail freight, transport policy, mode share

1. Introduction

Transport has received a relatively high political and media profile in Britain since the mid-1990s, partly for reasons of sustainability and integration and partly due to infrastructure and service quality problems. In an attempt to deal with such issues there has been a proliferation of policy documents. There is an expectation that rail will play a greater future role, but it is not always evident how individual elements of the transport strategy should be pursued for maximum effect, not least for freight. This paper focuses on the non-bulk rail freight market, which is critical for the growth of rail's market in the light of decline of traditional industries and simultaneous growth of the consumer goods market. The non-bulk market can essentially be considered as two separate entities, intermodal and less-than-trainload (LTL). Intermodal refers to the conveyance of goods in unitised loads, where the unit itself is transferred between modes, thus avoiding the direct handling of goods at the point of modal transfer. LTL, often referred to as wagonload, is the conveyance of one or more wagons for a customer over a common-user network. Given that both intermodal and LTL potentially cater for the same relatively small volume or unit load type consignments, this paper considers the market for both categories of service provision.

As Hesse and Rodrigue (2004) identify, freight movement has been largely neglected in recent geographical research. This is particularly true when considering the extent to which service provision and network development influence mode choice for freight flows. While attention has been devoted to better understanding the spatial effects of aggregating discrete flows into larger blocks to travel through networks, this has tended to focus either on movements of passengers (for example, O'Sullivan and Patel, 2004) or international air or sea freight (Bowen, 2004; O'Connor, 2003). The previous research has, however, identified a need to consider network impacts of service provision when attempting to influence patterns of movement. In rail freight, the

academic focus (Arnold et al, 2004; Macharis and Bontekoning, 2003; van Klink and van den Berg, 1998), as well as that from government and rail freight operators, has been on the intermodal sector. Little attention has been devoted to the role (should one still exist) for the less-than-trainload (LTL) sector. Haywood (2001), however, highlights the need to develop a range of different terminal types to achieve significant growth in rail freight volumes, including major intermodal terminals and local freight depots.

The objectives of the paper are thus to identify the recent trends in the non-bulk rail freight market in Britain, and to assess the potential for growth. To meet these objectives, the paper first places British rail freight into context, focusing on the changes that have occurred in the period since privatisation in the mid-1990s. The method adopted in this research is then discussed. The analysis first considers the trends in the non-bulk sector, utilising both published statistics and original analysis. This is followed by the identification and discussion of customers' experiences and opinions of the two non-bulk markets. The paper culminates in an assessment of the prospects for growth in traffic volumes, with reference to the key opportunities for, and barriers to, growth of intermodal and LTL services.

2. Rail freight in Britain

Table 1 shows that rail has a relatively low share of freight movement compared to most other large European Union countries, resulting from a lack of investment over a number of decades when government policy favoured road construction combined with a reduced role for the rail network. In addition, the geography of Britain effectively limits the distance over which most freight moves. The majority of the British population and industry is concentrated within the southern third of the country, as are the major ports handling international freight flows. Rail typically has a higher mode

share over longer distances, but struggles to offer the flexibility of road haulage over shorter distances (Eurostat, 2003). The challenges for increasing rail's mode share in Britain, particularly for non-bulk flows that do not offer the volume benefits of bulk flows, are therefore considerable.

British Rail's freight operations were privatised in the mid-1990s. English Welsh and Scottish Railway (EWS) gained control of five of the six businesses; Freightliner, the sixth, was sold to a management buyout team. A detailed account of the privatisation process can be found in Clarke (2000). Two further operators, Direct Rail Services (DRS) and GB Railfreight have entered the market since privatisation. Despite the changes, there is still considerable public control of rail through policy, regulation and investment. The freight sector has operated with significantly less direct intervention than have passenger operations, yet government still retains much influence. A fully-competitive open market seems unlikely due to the nature of rail operations (Brewer, 1996). While Britain, like many other countries, has advanced transport deregulation and privatisation policies over the last 30 years there remain good reasons for continued government involvement (Docherty et al, 2004). Intervention to encourage an increase in rail freight transport essentially rests on the environmental benefits over road haulage. Direct financial support is based upon Sensitive Lorry Miles, whereby grant is awarded according to the level of external benefit achieved by the removal of lorry traffic (SRA, 2003a). Different monetary values are assigned to different road categories, with higher values for the more environmentally-sensitive or congested roads.

Recent government attention to rail freight has been mixed, with a period of support from 1997 to 2001 as part of the integrated transport and sustainable distribution initiatives, but followed by a shift away from this agenda in the subsequent period. The Integrated Transport White Paper (DETR, 1998) stated that more freight could and

should be moved by rail and endorsed ambitious growth targets set out by the operators. Rail freight policy was formalised within the Ten Year Plan (DETR, 2000a), which established an 80 per cent growth target for tonne kilometres by 2010 (DETR, 2000b). The Strategic Rail Authority (SRA) was formally established in 2000, providing a focus for the development of rail freight with its first strategy focusing on freight (SRA, 2001). Despite this emphasis, the Strategy opined that the growth target "is undoubtedly more difficult to achieve in the timescale now than when the Ten Year Plan was published……however, this does not detract from the validity of the Strategy" (SRA, 2001, p.3). The lack of confidence resulted from changes to lorry vehicle excise and fuel duties, together with rail network disruption in the wake of the Hatfield accident. To pacify the road haulage industry, the government had announced in late-1999 that it was to withdraw the fuel duty escalator, leading to the end of the automatic above-inflation increases in duty paid for fuel, and had also reduced excise duties for certain classes of lorry. The British rail network suffered significant disruption as a result of speed limits imposed following the broken rail at Hatfield in late-2000, severely impacting on the performance of rail freight operators and dramatically increasing costs within the rail industry, with longer-term consequences for network capability as a result of increased maintenance works overnight, when much freight traffic operates. In combination, the concessions to road hauliers and the problems with rail reduced the optimism for modal shift. In addition, the SRA's assessment showed that only one-third of the growth was expected to come from rail's traditional bulk markets, with the remainder being from "unit loads, premium logistics and new markets" (SRA, 2001, p.9). This emphasises the need to understand the characteristics of the non-bulk market, the focus of this paper.

Further setbacks have occurred since 2001. Much of the funding initially allocated to network improvement has not materialised, as a result of higher subsidies to passenger operators and cost escalation of the major West Cost Mainline infrastructure

programme. Freight-specific measures, including certain key gauge enhancement schemes, have been put on hold and in early-2003 the SRA announced a moratorium on its freight grants schemes (Railfreightonline, 2003). Despite the funding problems, the SRA (2003b) restated the growth target and remained upbeat about freight's future, with details of the new Company Neutral Grant (CNG) scheme for intermodal traffic, which was introduced in 2004. By late-2004, the rail industry remained in a state of flux. The growth target did not feature explicitly in the Rail White Paper (DfT, 2004) and it seems the target has been quietly dropped, with the White Paper concentrating primarily on efficiency and affordability. The proposed changes to the structure of the industry, not least the SRA's abolition and transfer of most of its powers to the Department for Transport, where freight may not receive the same level of representation, suggest further upheaval ahead. It is within this context that the trends and prospects for non-bulk rail freight services are considered.

3. Method

The analysis in this paper is based upon a range of quantitative and qualitative information sources, though mainly the latter. Official statistics have been analysed where available, but are of limited relevance due to the nature of their collection. As a result, analysis of original databases of rail freight activity has been conducted. Databases have been compiled on an annual basis from 1997 to 2004, with the exception of 2001 which was excluded as a result of the post-Hatfield network disruption referred to earlier. The databases exclude coal and mail trains, so the analysis is not directly comparable with published statistics. Coal trains are numerous but their schedules vary on a regular basis, making them difficult to audit. In any case, coal flows are largely dictated by the nature of power supply agreements and are of little relevance to the non-bulk sector. No national rail freight timetable is published in Britain - instead, the databases have been compiled from a range of official and rail

enthusiast sources and, based on discussions with a rail freight operator, are believed to contain more than 95 per cent of regular loaded freight trains within the non-bulk sectors upon which this paper is focused. The same data sources have been used each year to ensure consistency. The databases contain disaggregated information about each known freight service, including its origin and destination, intermediate calling points, frequency and timing of operation, commodity type and operator. Further information can be found in Woodburn (2004).

Given the relatively limited insight into the nature of the non-bulk market offered by quantitative methods, the paper focuses in considerable detail on analysis of interviews with existing and former customers. These interviews took place in 2003 and were semi-structured in nature, their purpose being the development of a deeper understanding of the issues relating to the success or failure of rail freight flows through case studies of individual operations. Table 2 summarises the case studies and shows the breakdown between existing and former rail freight customers (at the time of interview). It was not considered practical in a study such as this to ensure that those interviewed exactly matched the profile of rail freight users – the main focus was on depth of information gathered. Despite this, efforts were made to involve a range of companies with different operational requirements, in terms of commodity type, volume and geographical spread, so as to be as representative as possible. As Table 2 reveals, the interviewees represented a spread of company types. This provided details of flows across the whole of Britain, some of which were of small or infrequent volumes while others were very significant customers with a number of different flows each day. The issues discussed during the interviews were as follows:

- general background to the company's operations (or to specific contract/flow being discussed with third parties)

- commodity- and flow-specific details of current use of rail freight, together with changes in the last five years
- predicted changes in the next five years, together with any pre-conditions
- rail quality of service issues (and comparisons with alternative modes)
- responsibility for decision-making with respect to use of rail
- recent or predicted changes to supply chain structure and operation that may influence rail use
- views on the key challenges facing rail in achieving growth
- other factors influencing the success or otherwise of rail flows

4. Trends in the non-bulk markets

Table 3 displays the key trends in the British rail freight market since 1994/95, the time of rail privatisation and also the 20th century nadir of rail freight following sustained decline in volumes under the nationalised railway. The table reveals tonne kilometre growth of 45 per cent, but a 9 per cent decline in tonnes lifted, the result essentially of a smaller number of tonnes being moved significantly further. Tonne kilometres is the most commonly used measure since it reveals more about freight activity and its impacts than does tonnes lifted. Rail's share of the surface market increased from 8.3 per cent in 1994 to 11.0 per cent in 2003 (SRA, 2004a), though much of this growth can be attributed to changes in coal supply, with growth in long distance movements of imported and UK opencast coal. The growth in both freight moved and rail's share of the surface market (i.e. the road and rail modes only, which is the preferred official measure of rail's mode share and is particularly relevant when considering non-bulk flows that are not suited to inland waterway or pipeline) was achieved mainly in the mid- to late-1990s, with activity peaking around 2001. While too early to state with certainty that growth has resumed, the most recent statistics for freight moved, those

for the first quarter of 2004/05, show the highest quarterly volume for more than a decade (SRA, 2004b).

Figure 1 reveals the disaggregated data for the last six years. Unfortunately these data were not published before 1998/99, thus limiting the time series analysis. Further, the categorisation is not ideal for analysing non-bulk flows since, apart from Domestic Intermodal, they do not fit neatly into the official categories. Bulk comprises coal, metals, construction and oil and petroleum, the overwhelming majority of which are carried in dedicated trainloads, though some smaller flows use the LTL network. Most LTL volume is incorporated into the Other category, though this also includes some trainload flows that do not fall into one of the four Bulk categories, such as automotive components and products. For intermodal volumes, Domestic Intermodal covers all purely domestic flows, but is dominated by the movement of containers to and from ports which are classified as domestic since there is no cross-border rail use. Unhelpfully, the International category (solely traffic using the Channel Tunnel) consists of a mixture of intermodal, LTL and trainload flows.

From these data, there is no evidence of non-bulk flows gaining in significance. While there has been little apparent structural change to the market, bulk accounted for less than 60 per cent of tonne kilometres in each of the first three years (i.e. 1998/99 to 2000/01) and more than 60 per cent in subsequent years. Total volumes in each of the latter three years were higher than in each of the former three and it appears that growth has largely been associated with an increase in bulk, particularly coal as identified earlier. This assessment is over-simplistic, since bulk products are typically heavier than non-bulk ones so are over-represented in tonne-based statistics. The more than halving of International flows followed the Channel Tunnel asylum seeker problems, where the freight terminal at the French end of the Tunnel was essentially restricted in throughput for several months in 2001/02 due to security considerations,

but the International market had been stagnant in previous years in any case. Domestic Intermodal volumes were at their highest in 1999/00 and 2000/01, while the Other category peaked in 2003/04. Domestic Intermodal was particularly badly hit by the post-Hatfield disruption in late-2000. This category operates at higher speeds and with greater use of the core rail network and so was affected more significantly than others. Overall, there is little evidence from published data that non-bulk flows are growing in the sustained manner anticipated by government policies.

An alternative dataset is shown in Figure 2, which attempts to better reflect changes in the various rail freight sectors based on analysis of the databases of service provision. As identified earlier, these data are not directly comparable with published statistics, in that they exclude coal and mail trains. The former are numerous but their schedules vary on a regular basis, making them difficult to audit. From 1997 to 2004, the number of loaded services per week increased by 25 per cent, though as the graph shows this conceals considerable annual variation. Variations within the categories are also evident, with intermodal and LTL achieving two-thirds and one-third growth respectively in the number of services, while bulk trainload service provision barely increased. Again, annual variations in the trend are evident, in particular with the LTL category. The exclusion of coal and mail services means that the analysis is not directly comparable to published statistics. While acknowledging this caveat, it is conceivable that the growth of LTL services may have accounted for the more rapid growth in services operated compared to tonnes lifted or moved up to 2000. The LTL network operates on a hub-and-spoke basis, with trunk services linking the key hubs and feeder services radiating out on spokes to local terminals. Many wagonloads therefore require the use of at least three LTL services between origin and destination.

Figure 3 shows the proportion of services accounted for by the three categories in each year. Bulk services saw a reduction in their share of services between 1997 and 2004,

at the expense of intermodal, while LTL services accounted for a broadly similar proportion of all services in 2004 as in 1997, having declined dramatically since their peak in 2000. Despite this, the absolute number of LTL services was higher in 2004 than in 1997. Therefore, when considering more than solely tonne-based official statistics, there is some evidence of change in the market structure. There has been fairly sustained growth in intermodal, while the fortunes of the LTL sector have been poorer following rapid growth in the late-1990s. All four operators cater for intermodal traffic, contrasting with just one (i.e. EWS) for LTL services. Intermodal growth has received considerable recent attention, with the White Paper (DfT, 2004) revealing that the number of containers moved to and from the key ports had increased by over 20 per cent in the previous three years, and Freightliner reporting that its Intermodal business carried 11 per cent more containers in April to June 2004 compared to the same period in 2003 (Freightliner, 2004). There have been fewer significant developments in the LTL market, which has received little marketing as a coherent network.

5. The intermodal sector: customer experiences and opinions

The intermodal sector can be divided into three categories: movements to and from ports, Channel Tunnel traffic and domestic flows. The first is the most significant and longest-established, focusing on containers and with a heavy concentration on the corridors from Felixstowe and Southampton ports to a number of inland terminals. By contrast, Channel Tunnel and domestic volumes are much smaller, are relatively recently established and convey both containers and swapbodies. Domestic flows are dominated by Anglo-Scottish traffic. Further, where flow volumes are low, some intermodal traffic uses the LTL network.

Twelve case study operations had experience of intermodal services. Of these, eight raised concerns about the ability of the network to cope with their intermodal unit size requirements. Even where the main route has the required gauge clearance, concerns were raised that diversionary routes generally are not cleared for use when planned or unplanned blockages of the main route occur. This reduces rail's flexibility, but tends to be acceptable if known in advance (i.e. planned blockages) so that alternative arrangements can be made. Those involved in the movement of maritime containers were unanimous in highlighting the constraints involved in carrying 9ft 6in high boxes, which are increasing their share of the container market. Two major shipping lines stated that 20 per cent of containers handled in 2002 were high cube, but that their share (of a growing market) was increasing by a few per cent each year, leading to a real risk of traffic switching to road due to rail's limited ability these containers. Across much of the network, they cannot be carried on standard rail wagons. Concerns were expressed about delays in upgrading major routes, though alternatives to gauge enhancement do exist. Low floor or pocket wagons are already in use but their viability is compromised by higher operating costs for low floor wagons and reduced payloads for pocket wagons, the impacts of which are sometimes reflected in higher rail freight rates. In addition, there is only a limited supply of such wagons and demand tends to exceed supply, although the clearance in mid-2004 of the Felixstowe to London route for 9ft 6in containers should have released a large number of low floor wagons to enhance capacity for high cube containers elsewhere. Even so, rail risks losing business due to its limited ability to cater for further growth. The investment by EWS in low floor wagons for its growing intermodal network was identified as a positive development. However, concerns were still expressed about the lack of progress on clearing key routes for the carriage of 9ft 6in containers on standard wagons, given that wagon solutions were not viewed as a viable long-term proposition. In one domestic operation, the customer has chamfered swapbodies that match the loading gauge profile. The dimensions (and resultant capacity) of these units is not a major

constraint, since only one pallet fewer than the normal 26 in a road trailer could be carried in the swapbody. While loads often cube out before they reach the weight limit, leading to some loss of flexibility, many loads on the route in question are not volume constrained. Expansion of this operation to other routes is hindered by the requirement for these bespoke swapbodies, which makes traffic growth uneconomic without grant funding.

Overall, serious loading gauge concerns exist, particularly amongst those in the maritime market. The development of domestic intermodal traffic on routes other than the West Coast Mainline (WCML) is likely to be constrained without either a programme of loading gauge enhancements or an increase in the availability of wagons designed to carry high cube units within the existing gauge. Given the lengthy period required to carry out infrastructure works, further growth in high cube traffic looks far from guaranteed, despite evidence that traffic is available. While loading gauge was identified as being the most significant constraint for intermodal traffic, a number of other infrastructure issues were raised:

- railhead and container storage capacity constraints at deep sea ports, primarily Felixstowe and Southampton
- congestion at some inland intermodal terminals due to cramped facilities, lack of storage space and inadequate road-rail transfer equipment
- limited siding length at certain terminals, reducing railhead capacity

Interestingly, service performance was not generally viewed as being a problem for intermodal operations. Primarily this resulted from the vast majority of intermodal services operating punctually to a regular timetable and in trainloads from railhead to railhead, with no intermediate marshalling of wagons.

6. The less-than-trainload (LTL) sector: customer experiences and opinions

As stated earlier, most attention devoted to non-bulk flows has focused on developing the intermodal sector. As a result, the potential for the LTL sector has been little explored. It was clear from Figure 2, however, that there have been considerable changes in this sector since the mid-1990s. Of the 18 case study operations with experience of LTL services, 11 also utilised trainload making possible a comparison of the users' perspectives of the performance of the two types of operation. It should be remembered that only one operator provides LTL services, this being EWS with its Enterprise network. The analysis of LTL focuses first on the key strategic factors and then examines a number of operational issues.

The Enterprise network is perceived to be limited in its extent and scope. The number of terminals served is relatively small (compared to the LTL network operated by British Rail until 1991) and, in parts of Britain, the network is sparse. For companies distant from a network access point, there often is not a rail option or, if there is, it is not competitively priced. Interviewees reported that several flows had been lost in recent years as a result. A number of respondents criticised the lack of strategic direction in the development of the LTL network, with much of the growth in the late-1990s being misguided and unsustainable, leading to the subsequent withdrawal of many services. The disruption after Hatfield accentuated the problems. The resulting decline is borne out by the analysis of the databases (see Figure 2), though growth appears to have resumed more recently. Interviewees were critical that, particularly in the early days, EWS tended not to stick with flows for long enough to establish them, remove teething problems and achieve long-term viability. The differing requirements for managing trainload and LTL operations were emphasised, with greater attention to detail being required to develop the LTL network. Smaller volume flows tend to be more sensitive

to service quality issues, together with price, than are traditional trainload flows which are often fairly captive to rail.

Several issues of an operational nature were also identified. Interviewees recounted experiences of wagons going missing in transit, although this had generally been becoming less common. Given the products carried, this often was not a significant problem as in most cases they were not required urgently. More critical was the lack of information about delayed arrivals and the impacts that such delays have on rolling stock availability, the latter being a particular issue. One customer reported that he achieved three or four loaded trips per week for wagons utilised on trainload services, but an average of only one loaded trip per week for LTL services over similar distances. Even where Enterprise performs as scheduled, infrequent trip workings (i.e. local collection and delivery of wagons feeding into and out of the "hub" yards) can add days on to a wagon's round trip. For example, one interviewee had seen the frequency of trip working to his terminal reduce from five days per week to just twice weekly. This makes it harder to increase traffic volumes due to the inflexibilities associated with lower frequency operation, but a daily service will not be provided by the operator unless the volumes justify it – a "chicken and egg" situation. This also has major impacts on wagon utilisation and can affect rail's viability.

Other problems with trip workings were raised. It was acknowledged that trunk services generally operate reasonably well, but local feeder services prove to be more problematic since resources are not always available to run them. This results in delays or cancellations which can significantly impede consignments that have almost reached their destination on schedule, but which then become delayed in a nearby marshalling yard. In combination with the problems of lack of basic local service provision, this appears to be constraining the development of LTL traffic. Terminals that generate only intermittent flows are a specific problem. For various reasons,

several interviewees had stopped using rail for particular flows for a time, but then had problems in restarting them when the flows were able to return to rail. A spiral of decline in a particular geographical area can occur, as the largely fixed operating costs for local feeder operations are effectively split between fewer flows following the loss of one flow, in many cases leading to the loss of these other flows as they become unviable. This applies particularly if the original lost flow was the one that provided service continuity and contributed most to the overheads. While longer transit times for LTL are expected due to network constraints and intermediate marshalling of wagons, breakdowns in communication (both internally and with customers) were identified as being a problem. For LTL, this is often compounded by a lack of control to manage the movement of individual wagons rather than the more straightforward fixed formations found in trainload operations. Developments in information technology are reducing these problems, but successful operation is also dependent upon staff on the ground who often do not receive the required support. One interviewee, a major LTL customer, stressed the requirement for local people with local knowledge backed up with wider company support, rather than trying to control everything centrally and remote from the customer.

Other respondents noted that trainload services are significantly more punctual than are LTL ones. One example quoted related to a company's trainload service almost always arriving at the destination "on-time" (i.e. +/- 30 minutes of schedule), but Enterprise services along virtually the same corridor achieving only 20 per cent on-time arrival. Given that most of this customer's volume consists of fast moving consumer goods (FMCGs), this has posed real problems. Poor performance of LTL services has resulted in the switching of consignments between services to ensure that time-critical loads go by trainload, despite leading to a longer road haul at one end of the route. Highly variable transit times will not be accepted by customers whose consignments are time-critical, but are acceptable in other cases such as the repositioning of empty

containers. Many trial flows of LTL volumes have not become permanent due either to service quality or cost, both of which constrain the use of LTL services for a wider range of consignments.

Despite these experiences, most respondents saw considerable LTL potential, pointing to recent service developments and the positive influence of new senior personnel at EWS. Many identified that more attention and commitment was being devoted to LTL services. The publication of an Enterprise timetable was welcomed, aimed at simplifying what many potential customers see as a complex, unfathomable network. Respondents felt that service quality on the LTL network had been improving, but scope exists for significant further improvement. There was a general reluctance to send time-critical consignments by Enterprise, as the service could not adequately be relied upon to deliver on schedule. However, the network does provide important functions, notably:

- the ability to move small and/or irregular volume loads that would not travel by rail without the LTL network, if these flows can attach to existing services
- more specifically, the opportunity to trial new flows and build up volume with limited resourcing and planning requirements, by using the available network
- a lower cost option for moving non-time-critical consignments, rather than having to bear the full costs of trainload
- access to a wider rail network than solely with trainload operation
- a greater range of journey opportunities for intermodal consignments, which previously were limited to those routes served by dedicated intermodal trains

LTL operations work best where there are regular flows, albeit often of relatively small volumes. The rail operational requirements to operate to a schedule, both in terms of

network access and the provision of resources, make it more difficult to cater for irregular flows. These can often be carried, however, if they dovetail with other regular flows or where they can bear long transit times and/or variable delivery times. Managerial control and real-time communication, both within EWS and between EWS and its customers, were highlighted as being particular issues for the successful operation of the LTL network.

7. The prospects for non-bulk rail freight

This section builds on the previous analysis, with specific reference to the second of the paper's objectives. In general terms, considerable growth potential for non-bulk rail freight is evident. More than half of the case studies involved FMCG and other premium logistics flows, many of which have increased substantially in recent years, often from a zero base. This has been most notable with domestic intermodal, but also with growth on the port corridors. The majority of new non-bulk flows identified use intermodal rather than LTL services. Service punctuality is good in most of the intermodal examples, with some interviewees commenting that it is better than that for equivalent road operations. Rail is handling some fairly time-sensitive consignments on a regular basis, generally with a high degree of customer satisfaction. However, it must be borne in mind that rail has a negligible share of the FMCG market, with flows tending to be concentrated on longer distance corridors such as southern ports to the Midlands and beyond, or the Midlands to Scotland.

In the intermodal sector, competition between rail freight operators is leading to considerable new-to-rail traffic and a more customer-focused approach to service provision. The prospects for a sustained increase in demand are good. In the port-based sector, the recent gauge enhancement of the WCML and Felixstowe to London corridor has provided greater network capability for containers. On the Channel Tunnel

route, service stability has returned and volumes have rebuilt slightly. European policies relating to international rail freight corridors should assist with further increases in time. In particular, growth should result from the development of the Trans-European Rail Freight Network (European Commission, 2001), which includes the Channel Tunnel and Britain's key freight routes, and the implementation of the various railway packages, particularly the Second Railway Package which was ratified in 2004 and aims to remove obstacles at national borders and introduce competition to international rail freight services (European Commission, 2004). Progress to date has been slow, but the European Commission remains committed. For domestic intermodal operations, the initial success provides a base upon which to develop a more comprehensive network of routes. In all cases, the greatest potential within the intermodal market seems likely to result from the concentration of traffic into trainloads that operate directly from one terminal to another. Where this is not possible, train portions, with limited intermediate marshalling, are preferable to the conveyance of individual intermodal units through a complex network.

This paper has also identified a continuing demand for LTL services, partly to offer intermodal capability away from core routes but mainly to handle non-unitised consignments. Changing conditions in road haulage, such as driver shortages, increasing road congestion and the Working Time Directive, are expected to lead to further interest in rail freight from existing and new customers, many of whom have non-bulk, non-unitised flows that offer potential for rail. However, in order to achieve significant growth in this market, considerable changes in service provision are likely to be required to overcome the current shortcomings. Among those involved in sending smaller volumes by rail, there is interest in new types of service and a desire for rail freight operators to be proactive in establishing innovative products in conjunction with others (such as terminal operators and third party logistics providers). In particular, several interviewees proposed a nationwide next-day delivery network, similar to those

offered by express pallet road hauliers, since this is a growing area and could provide substantial volumes of goods on a regular basis if consolidation and break-bulk occurred at railheads. Rail operators could work in partnership with terminal operators to provide direct overnight links between them, with trainload operation between a relatively small number of regional terminals.

Despite the evidence of considerable non-bulk growth potential, there are a number of factors that may constrain future growth. These essentially relate to network capacity and capability, service provision and quality, and cost, although many issues cut across these factors. The closure of many rail freight terminals in the last 20 years means that terminal availability and capacity are likely to be constraints on future development unless action is soon taken to develop new terminals, which requires public sector support. Most routes suffer from a lack of intermediate terminals at which wagons can be unloaded or intermodal units transferred to road at times of rail network disruption in order to minimise delay. With some exceptions, terminal capacity appears to be a bigger constraint than route capacity, although more productive use of terminal space and equipment may allow greater throughput. For service provision and cost, the potential benefits of an additional pump-priming funding scheme should be investigated. This could be a variation of existing grant schemes, covering the start-up and initial operating costs for flows that are not immediately commercially viable but which are likely to become so within a reasonable period. This would overcome the existing “chicken and egg” situation identified earlier. With a funded trial, viability could be established and further traffic that could use the new service could be identified. This sort of pump-priming funding mechanism may be required for only a relatively short period of time, until such time as gaps in service provision are filled and a larger LTL network can operate commercially with the ability to easily accommodate new flows.

More generally, rail industry stability and consistency of government policy and funding were identified as being crucial. Without these, existing and potential customers are reluctant to make long-term commitments to rail, since they perceive such commitments as being riskier than for road. A concerted effort is therefore required to ensure that all those involved in the industry, including government, work together to satisfy the necessary pre-conditions for growth, so that the potential for new traffic can be realised. The continuing changes within government (identified in Section 2) in its approach to rail freight, and support for the wider rail industry, do not auger well for the much-needed stability that will encourage greater commitment from customers.

8. Summary

This paper has identified and discussed recent trends in the non-bulk rail freight market in Britain. This revealed a mixed picture, but with evidence of an upward trend in volumes being interrupted on occasion by a number of specific issues. Considerable non-bulk growth potential has been identified, with a range of flows potentially being available to rail. Intermodal services are currently better placed to capture premium logistics traffic than is the LTL network. By contrast, LTL services open up opportunities for smaller volume, less time-critical consignments than can travel by bulk trainload, and potential exists for new types of LTL services. Both of these areas are important in achieving an expanded role for rail. To succeed, the industry structure, operating conditions and public sector commitment all need to be conducive to growth. In the minds of the customers, it is not clear that these pre-conditions are yet in place.

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Table 1: Rail freight mode share of inland market (road, rail, inland waterway), by country (2000)

	EU-15	Britain	France	Germany	Italy	Spain
% of tonne km	15	8	21	18	11	8

Source: Eurostat (2003)

Table 2: Distribution of case study operations by non-bulk service type, case study company type and changing nature of rail freight use

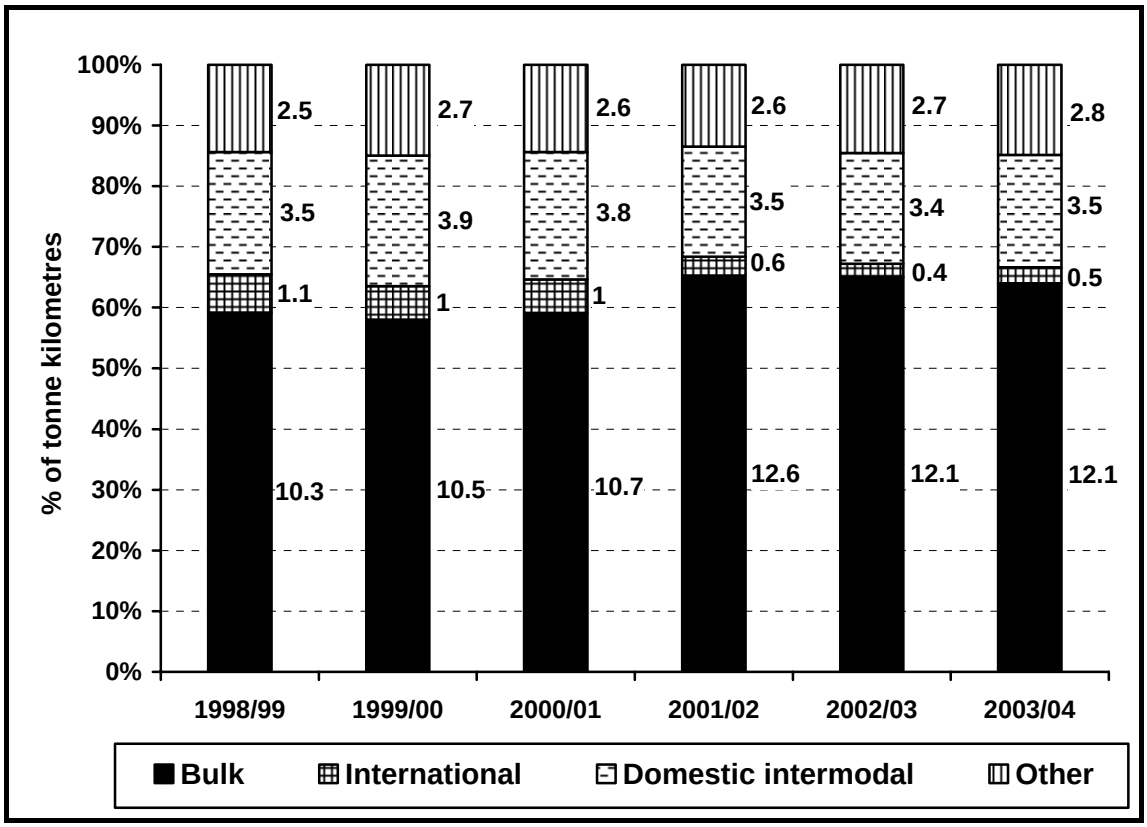
Service type	Company type	No. of case studies who in last five years have: Stable/increased rail volume	Decreased rail volume	Ceased rail use	Total
Intermodal	Manufacturer	0	0	0	**0**
	Logistics/shipping	6	2	1	**9**
	Terminal operator	0	1	0	**1**
	Other	1	0	1	**2**
Less-than-trainload	Manufacturer	2	1	2	**5**
	Logistics/shipping	1	2	0	**3**
	Terminal operator	0	4	3	**7**
	Other	1	2	0	**3**
Total		**11**	**12**	**7**	**30**

Table 3: Rail freight lifted and rail freight moved in Great Britain (1994/95–2003/04)

	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04
Tonne kilo-metres (billion)	13.0	13.3	15.1	16.9	17.3	18.2	18.1	19.4	18.7	18.9
Tonnes lifted (million)	97.3	100.7	101.8	105.4	102.1	91.9	95.4	94.4	87.0	88.9

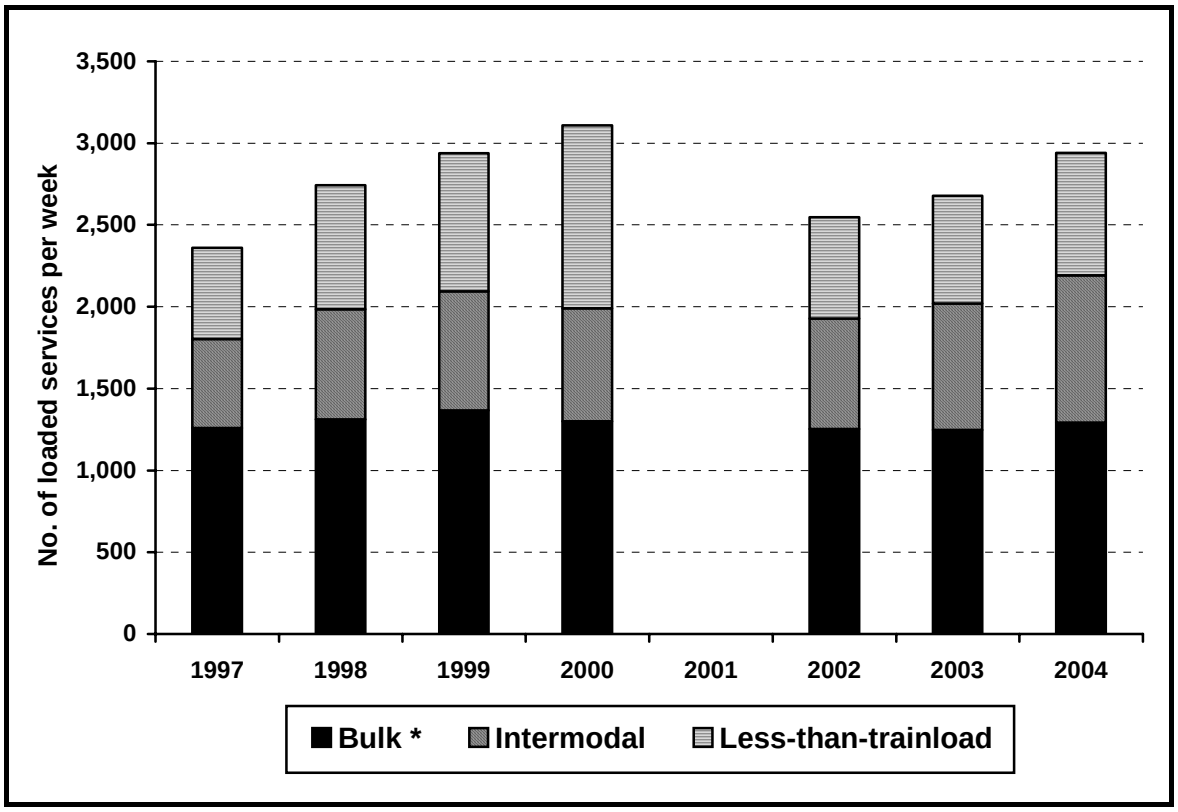
Source: SRA (2004b)

Figure 1: Rail freight moved (billion tonne kilometres) in Great Britain, by category (1998/99–2003/04)



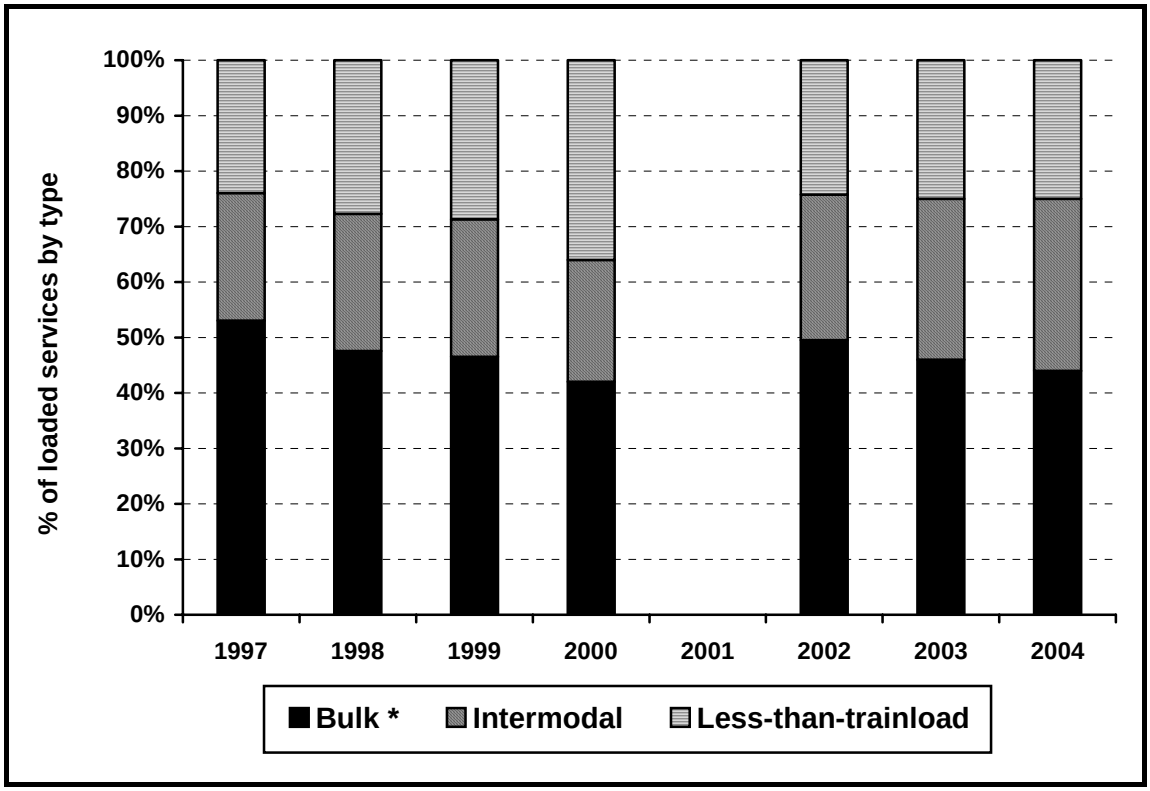
Source: SRA (2004b) *(figures alongside bar segments are no. of billion tonne kilometres)*

Figure 2: Number of regular loaded rail freight services in Great Britain per week by service type, 1997-2004



Source: author's databases (** excludes coal and mail trains; no database was constructed in 2001 due to the post-Hatfield network disruption*)

Figure 3: Percentage of loaded rail freight services by service type, 1997–2004



Source: author's databases *(* excludes coal and mail trains; no database was constructed in 2001 due to the post-Hatfield network disruption*)