# UNDERSTANDING KEY DRIVERS OF PUBLIC TRANSPORT PATRONAGE GROWTH - RECENT SOUTH EAST QUEENSLAND EXPERIENCE

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#### **ABSTRACT**

Historically, the lack of modal integration was a key factor limiting public transport patronage growth in South East Queensland (SEQ). In June 2002, the Queensland Government announced a commitment to the introduction of an integrated public transport system in SEQ. A new entity, TransLink, was created in 2003 to perform this task with a focus on delivering integrated ticketing, new contracting arrangements with public transport operators and integrated public transport network planning.

The creation of TransLink has coincided with significant growth in the demand for public transport services in SEQ. In 2004/05, total public transport trips increased to 135.9 million, consistent with an increase of 12.0 million trips or 9.7%. This growth was sustained in 2005/06, with total public transport trips increasing by a further 15.8 million to 151.7 million, equivalent to growth of 11.6%.

There is little doubt that this two-year period (i.e. 2004/05 and 2005/06) benefited from an extremely positive platform for public transport growth. With a focus on integration, TransLink rolled out a number of initiatives consistent with meeting the objective of 'seamless' public transport travel in SEQ. This included the introduction of full fares and ticketing integration in July 2004, improved service co-ordination and a range of marketing and communications initiatives under the TransLink banner. Within the external environment, the period was characterised by a significant increase in oil prices and increases in official interest rates, which would have been expected to favour public transport at the expense of the private car.

This paper was directed at addressing two key questions. Firstly, the likelihood that this growth will be sustained in the longer term and, secondly, whether an enhanced understanding of the patronage growth achieved over this period enables conclusions to be drawn regarding the value of public transport integration as a driver of public transport demand.

It is important to note that the conclusions reached in this paper do not necessarily reflect the views of TransLink or the Queensland Government

#### INTRODUCTION

The South East Queensland (SEQ) region extends from the Gold Coast to the Sunshine Coast and west beyond Ipswich. The area is in excess of 6,300 km<sup>2</sup> and rail, bus and ferry services are currently provided by 18 operators. Public transport operations are both publicly and privately owned, with services provided under service contract arrangements with the Queensland Government.

The 1997 Integrated Regional Transport Plan (IRTP) provided a 25-year plan to develop and manage the SEQ transport system. Importantly, the IRTP established a target to increase public transport mode share from 7% in the late-1990s to 10.5% by 2011. To put this target in perspective, it is consistent with increasing the number of public transport trips over a 12-year period by around 50% *before* any allowance is made for growth in the size of the SEQ travel market.

Historically, the lack of integration across the different modes was seen as a key factor limiting public transport patronage growth in SEQ. Until July 2004, Queensland Rail (QR) 'CityTrain' services, Brisbane Transport bus and ferry services and private bus services employed a mix of zonal and distance-based fare structures tailored to meet specific operator requirements in their local area. Although some rail-bus service coordination initiatives had progressively been introduced, particularly via the joint venture established by QR CityTrain and Brisbane Transport (i.e. 'CityTrans'), the capacity to deliver 'seamless' multi-operator and multi-modal travel in SEQ was relatively limited.

In 2003, TransLink was established to deliver an integrated public transport network in SEQ, extending north to Noosa, south to Coolangatta and west to Helidon. The stated purpose of TransLink is:

To lead and deliver an integrated urban transit system that is used and valued by the people of South East Queensland

TransLink has a mandate to deliver against four key result areas:

- One ticket by delivering integrated ticketing and standardised fares, zones and concessions
- One network by centrally planning and coordinating all major public transport routes, services, connections and infrastructure
- One system by marketing the system through consistent branding and passenger information
- New contracts by negotiating new contracts with public transport operators.

In July 2004, TransLink delivered full fares and ticketing integration to SEQ with the introduction of a new zonal fare structure and a range of fully integrated fare products delivered by existing fare collection equipment (i.e. Stage 1). Stage 2, which is currently at the pilot stage, will see all existing fare collection equipment replaced by a 'touch on – touch off' contactless smart card system.

In March 2005, TransLink released a Draft Network Plan which provided a blueprint for improvements to public transport services and infrastructure in SEQ. Specifically, over a three-year horizon, the plan addressed the re-structuring of the network to improve services to

growing suburbs, improve service connectivity and make services more frequent and reliable. In addition, the plan incorporated the delivery of additional peak period services to both attract new passengers and address over-crowding, particularly on the South East Busway, together with specific infrastructure initiatives such as extending the Inner Northern Busway. A range of key performance indicators were defined to measure the performance of the plan including:

- Punctuality and reliability of services
- Accessibility of services
- Customer satisfaction
- Number of people using TransLink services.

Transport infrastructure upgrades fall under the umbrella of the SEQ Infrastructure Plan (SEQIP), which specifies the proposed investigation, planning and design of all infrastructure over the next 20 years. Within the transport sector, the most significant investment is being directed at busway development. The South East Busway and Stage 1 of the Inner Northern Busway have already led to significant improvements in bus journey times and journey time reliability. Other planned busways include the Eastern Busway, Northern Busway, Boggo Road Busway and the final stage of the Inner Northern Busway. Rail station and bus stop upgrades will also progressively improve the amenity and accessibility of the SEQ public transport network.

The establishment of TransLink has also enabled significant economies of scale to be realised in terms of the marketing and communications function, thereby increasing the amount of information available to both customers and potential customers. Specific communication initiatives include the 'Easy to Catch' campaign, the establishment of a consolidated website and a single call centre number. The establishment of a single consistent brand (i.e. TransLink) is also considered to have proved highly successful, particularly outside of the Brisbane area where the positioning of some private bus operators was relatively low key.

TransLink has progressively negotiated new contracts with each of its service providers with a view to improving service efficiency and effectiveness. The performance management regimes underpinning these contracts are consistent with improving the quality of services delivered to SEQ residents and hence driving increases in public transport usage.

The creation of TransLink has coincided with significant growth in the demand for public transport services in SEQ. In 2004/05, total public transport trips increased to 135.9 million, consistent with an increase of 12.0 million trips or 9.7%. This growth was sustained in 2005/06, with total public transport trips increasing by a further 15.8 million to 151.7 million, equivalent to growth of 11.6%.

It was therefore considered timely to identify and estimate the contribution made by individual demand drivers to the observed growth in the demand for SEQ public transport services in 2004/05 and 2005/06 (i.e. 'the evaluation period'). While the growth realised in recent years is encouraging in terms of the SEQ patronage growth targets established by the IRTP, an improved understanding of the contribution made by individual demand drivers enables a more informed view to be taken in terms of the sustainability of this growth.

More specifically, the analysis was also directed at providing an understanding of the role of integration on public transport demand (i.e. 'the integration effect'), which goes to the essence of the TransLink mandate from a fares, ticketing, service, marketing and passenger information perspective.

#### **DEMAND DRIVERS**

#### Introduction

Past research suggests that a wide range of endogenous (i.e. 'internal') and exogenous (i.e. 'external') factors contribute to the observed variation in the demand for public transport services. These include:

# Endogenous

- Fare and service levels
- Service quality
- Marketing and communications.

# Exogenous

- Employment
- Income
- Tourism
- Population
- Fuel prices
- Car ownership
- Interest rates
- Road congestion
- Special events (i.e. where public transport use is mandated)
- Parking availability and cost.

Sections 2.2 and 2.3 provide commentary on each of the above demand drivers over the period of interest and (where practicable) quantify their potential impact on the demand for public transport services in SEQ.

# **Endogenous Demand Drivers**

#### Fare Levels

As indicated in Section 1, full fares and ticketing integration was introduced on 1 July 2004, with all SEQ operators migrating to a common fare structure, product range and fare levels.

Prior to the introduction of the new fare system in July 2004, Booz Allen Hamilton developed a 'Fares Model' for the Queensland Government to model the expected patronage and farebox revenue implications associated with migrating from the range of stand alone fare systems in place at the time to the single new fare system.

A number of issues needed to be carefully managed in making such a fundamental shift in fares policy. The overarching constraint identified at the fare system design stage was that the migration to the new fare system should be achieved on a 'revenue neutral' basis. Subject to this constraint the final design was directed at maximising public transport patronage, whilst managing the equity implications of moving to the new single fare system, particularly for those markets where fares needed to increase to move to a common fare scale (i.e. essentially the SEQ rail market).

As part of the process of seeking to minimise the common fare levels required to achieve a revenue neutral outcome, significant attention was directed at the expected impact of fares and ticketing integration over and above the 'fare level' effect. In other words, after modelling the expected impact of fare level changes associated with moving to a common fare system, what 'one off' uplift in patronage and revenue might reasonably be expected as a result of implementing a customer-friendly, fully integrated fare system with a common fare structure, fare products, concession policy and fare levels?

Only limited insights could be drawn from the international literature in addressing this issue at the time. Most studies have typically simply reported patronage and farebox revenue impacts on a 'before and after' basis. On this basis the full 9.7% patronage increase achieved in SEQ in 2004/05 would be attributed to fares and ticketing integration, which would clearly be inappropriate.

As suggested in Section 1, an ex-post evaluation such as this provided an opportunity to test the likely magnitude of the 'integration effect' by estimating the contribution made by the full suite of demand drivers to the observed growth in the demand for public transport services in SEQ. Attention could then be directed at that component of growth that could not be readily tied to a (quantified) demand driver and an estimate made of what proportion should be assigned to the 'integration effect'.

The impact of fare level changes associated with the move to a single integrated fare system on SEQ patronage was re-estimated at an operator level using the model developed by Booz Allen Hamilton. In particular, rather than simply drawing on the patronage outcome estimated prior to the introduction of the new integrated fare system, the Fares Model was recalibrated to reflect the actual behavioural shift that accompanied the move to a single fare system. That is, the model was re-calibrated to reflect the actual customer product migration path between 'old' and 'new' fare systems (i.e. effectively the mapping of fare product choices between the old pre-integration fare system and the new fully integrated fare system). In addition, estimated periodical ticket usage factors were replaced by actual ticket usage factors derived from primary market research conducted for TransLink.

The revised Fares Model estimates suggest that fare level changes had a positive impact on the demand for public transport services in SEQ in both 2004/05 (i.e. 5.0%) and 2005/06 (i.e. 1.0%) based on an estimated aggregate fare elasticity of -0.34. Note that individual ticket type elasticities were employed in the analysis and the -0.34 is a (patronage) weighted average.

The estimated impact of fare level changes is brought together with other factors in Section 3.

### Service Levels

Total service kilometres run were used to provide a 'macro' level proxy of public transport service levels. As suggested in Section 1, TransLink has progressively restructured the network to better align services with customer needs. In addition, a particularly significant initiative has been the development of the 'BUZ' network. The BUZ network is based on the premise of providing high frequency services on strategic corridors such that customers do not need to make reference to a timetable. BUZ services run every 10 minutes during peak periods and every 15 minutes at other times. The 9 BUZ routes contributed to a 140% increase in off-peak use on these routes in 2005/06.

At the aggregate level, while train kilometres were relatively static over the evaluation period, there was a significant increase in total bus service kilometres run over the evaluation period (i.e. 5.8% in 2004/05 and 8.3% in 2005/06). As a means of attempting to reflect the progressive improvement in the alignment of services against customer needs, we applied a somewhat higher service level elasticity in 2005/06 compared to 2004/05 (i.e. 0.7 and 0.5 respectively).

These assumptions are consistent with the change in service levels increasing the demand for public transport services by 2.9% in 2004/05 and 5.8% in 2005/06. These estimates are brought together with other factors in Section 3.

It should be noted that no specific allowance was made for any changes to rail and ferry service levels in the analysis.

## Service Quality

Booz Allen Hamilton has conducted 'willingness to pay' research that confirms that improvements to service quality have a strong tangible impact on the demand for public transport services. For example, in a study undertaken for Sydney Buses, it was estimated that customers would be prepared to pay an additional amount equivalent to around two-thirds of their current fare to move from a 'base' to an 'optimal' level of service. Specific characteristics such as newer, cleaner, environmentally friendly, air conditioned, low floor vehicles offering an improved ride, accompanied by a customer friendly, well presented driver can all have a positive impact on patronage.

For the purpose of this analysis we focussed on three individual bus-specific service quality dimensions that are amongst the most highly valued by customers:

- Air conditioning
- Environmentally friendly vehicles (i.e. gas powered)
- Easy access (i.e. low floor).

Specific willingness to pay estimates were drawn from the Sydney Buses research for each of these parameters. These were expressed as a proportion of average fare to enable an estimate of the demand change to be calculated with reference to our estimated fare elasticity. Respective valuations are around 5% of the average fare (i.e. gas powered and easy access) to around 14% of the average fare (i.e. air conditioning). TransLink provided data with respect to changes in fleet characteristics (i.e. number of buses air conditioned, gas powered and low floor) in 2004/05 and 2005/06.

It should be noted that we were not able to quantify the value of other service quality enhancements associated with new bus fleet such as improvements to seating, provision of additional grab rails, improved destination indicators and so on. Further, no specific allowance was made for any changes to rail and ferry service quality in the analysis or improvements made to transport infrastructure over the evaluation period.

# Marketing and Communications

While there is little doubt that the marketing and communications initiatives implemented by TransLink have had a significant impact on the demand for public transport services in SEQ, there was no means of readily quantifying their patronage impact.

## **Quantified Exogenous Demand Drivers**

Exogenous demand drivers are those that are not under the direct control of TransLink or individual transport operators, such as employment, population, tourism, real income, car ownership and fuel prices.

Unlike the key endogenous variables (i.e. fare and service levels) there was very little empirical evidence available on which to base elasticity estimates for these variables.

Accordingly, reference was made to the trip purpose composition of the TransLink market, which allowed us to prepare a suite of internally consistent elasticity estimates for a number of key explanatory variables. Specifically, it was assumed that TransLink 'base' demand could be defined such that the demand for work trips is driven by employment levels, leisure travel (i.e. social/recreation and shopping) by real income growth and remaining trips (i.e. personal business, visiting friends and relatives and education) by the size of the catchment area population.

### It follows that:

- This is consistent with the intuitively reasonable assumption that, other things being equal, a simultaneous 1% increase in these factors could be expected to increase the demand for TransLink services by 1%
- This implies an aggregate elasticity of unity (i.e. 1.0) for these four explanatory variables (i.e. employment, real income, tourism and population). For example, a 1% increase in the number of employees results in a 1% increase in the number of TransLink trips made by employees and so on
- The elasticity for each explanatory variable is given by its market share of total trips (e.g. a 10% market share equates to an elasticity of 0.1).

Figure 1 illustrates the implied elasticity for each variable based on this approach using weekday trip purpose market shares. It shows the breakdown of the TransLink market where the trip purpose shares are interpreted as elasticity estimates. The estimates for each demand driver are discussed in further detail below.

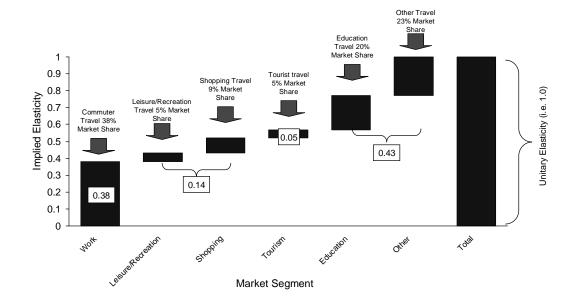


Figure 1: Implied TransLink Elasticity Estimates and Market Shares by Market Segment

# **Employment**

Around two thirds of all journey-to-work public transport trips in the greater Brisbane area are made to the Brisbane CBD. There has been strong growth in employment since 2000 with total CBD employment growing at almost 4% per annum. At the broader SEQ level, growth has also been strong, with employment growth of 5.5% achieved in 2004/05 and growth moderating somewhat to 3.1% to 2005/06. An employment elasticity of 0.38 (see Figure 1) was applied to these growth rates.

## Income

It is estimated that 5% of passengers travel on TransLink services for leisure or recreational purposes and a further 9% travel for shopping, consistent with an estimated income elasticity of 0.14 (see Figure 1). In the absence of real income data for SEQ, it was necessary to apply real income growth data for Queensland to this elasticity estimate. Real income growth of 3.6% (2004/05) and 1.2% (2005/06) was recorded over the evaluation period and these figures were employed in the analysis.

### **Tourism**

Tourism makes a relatively small contribution to TransLink patronage in the Brisbane area; however, it is far more significant on both the Gold Coast and Sunshine Coast. It is estimated that around 5% of TransLink trips are made by non-SEQ residents, consistent with a tourism elasticity of 0.05. In recent years, domestic and international tourism to the SEQ region has experienced mixed fortunes, with significantly stronger growth being realised by the international market. Our analysis was based on aggregate tourism growth of -0.2% (2004/05) and the 2.2% (2005/06) recorded in SEQ.

## **Population**

South East Queensland is one of the fastest growing regions in the world. Over the last five years the TransLink catchment area has grown at an average annual rate of 2.6%. Over the evaluation period, population growth of 2.4% (2004/05) and 2.0% (2005/06) was realised, which was applied to a population elasticity of 0.38 (see Figure 1).

### Car Ownership

The demand for public transport in SEQ and car ownership are inversely related (i.e. increases in car ownership result in a reduction in the demand for public transport other things being equal). Car ownership continues to grow strongly in SEQ with increases of 4.5% (2004/05) and 3.6% (2005/06). This was applied to an estimated car ownership elasticity of -0.5.

## Fuel Prices

Real fuel prices have increased significantly in recent years and significant research has been directed at estimating the impact of these increases on the demand for public transport services. This evidence suggests that there is a statistically significant relationship between fuel prices and public transport demand but the fuel price elasticity is relatively low. Our analysis was based on an elasticity of -0.14. This was applied to real fuel price increases of 15.9% (2004/05) and 15.2% (2005/06).

#### **Interest Rates**

Interest rate rises impact directly on household budgets and increase the attractiveness of mode substitution from the private car to public transport. After a period of exceptionally low official interest rates, we have seen several official rate rises since early 2005. These equate to increases in official rates of 5.4% (2004/05) and 3.9% (2005/06). This was applied to an estimated interest rate elasticity of 0.14.

# **Unquantified Exogenous Demand Drivers**

This section provides an overview of other factors that are likely to have impacted on the demand for public transport services in SEQ that could not be readily quantified. In each case it would be expected that the impact on public transport demand would be favourable over the evaluation period.

# **Road Congestion**

Over the long-term road congestion has steadily increased in Brisbane and there has been a progressive deterioration in travel times. For example, along major commuter routes (i.e. Gympie Road, Logan Road, Old Cleveland Road and the Centenary Highway) inbound travel times in the morning peak have increased by nearly 10 minutes since 1993 (i.e. equivalent to 30%) between 1993 and 2007. Similarly, for these same major routes, outbound travel times in the evening peak have increased by around 8.5 minutes over the same period (i.e. equivalent to a 32% increase).

Clearly, this would have led to an on-going increase in the competitiveness of SEQ rail and ferry services relative to the private car. On the other hand, the competitiveness of bus services that use these same major arterials would not changed markedly relative to the private car. There has of course been a major investment in dedicated right-of-way for bus services (e.g. South East Busway), which has improved the competitiveness of bus services in some circumstances.

# Parking Availability and Cost

Although strictly anecdotal, it would seem that the Brisbane CBD commuter parking market is progressively getting tighter. The number of 'early bird' spaces available to casual users would appear to be declining. Furthermore, available 'early bird' spaces are being occupied earlier in the morning peak. Again, although anecdotal, it would appear that daily parking rates have been increasing in real terms in the Brisbane CBD in recent years.

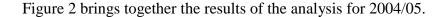
# Special Events

Public transport is an important transport mode for both regular events (e.g. regular season fixtures for teams such as the Brisbane Broncos, Brisbane Lions, Queensland Reds and Queensland Roar) and irregular events held throughout SEQ (e.g. 'Indy', 'Riverfire' and 'Ekka'). Trips made on public transport to some events (e.g. Brisbane Entertainment Centre, 'Riverfire', 'Ekka', New Years Eve and 'Indy') are included in the patronage figures on which this analysis is based.

There has been a steady increase in the number of persons attending major events at venues including Suncorp Stadium, 'The Gabba' and the Brisbane Entertainment Centre in recent years. Aggregate attendance at these three venues increased from 1.0 million in 2002/03 to

1.8 million in 2005/06. While patronage associated with travel to major sporting events at Suncorp Stadium and 'The Gabba' is not included in the official patronage statistics, it is important to acknowledge the role of attendance at these events in stimulating additional demand for 'regular' public transport services. In particular, parking restrictions mean that the majority of patrons use public transport to travel to and from these venues. Inevitably this includes a significant number of irregular public transport users and their use of these services provides an opportunity to increase general familiarisation with public transport and close perception gaps.

### **RESULTS**



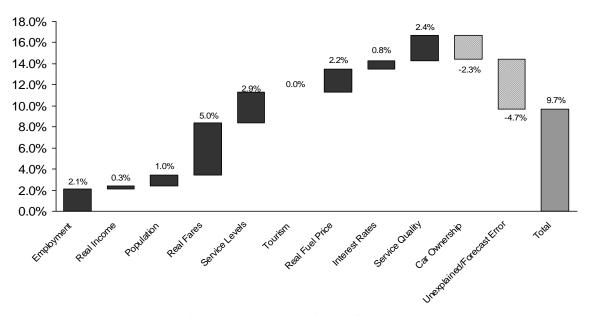


Figure 2: Results of 2004/05 Analysis

Key points are as follows:

- The estimated contribution made by the identified and quantified factors to public transport demand growth was 14.4% compared with actual growth of 9.7% (i.e. a residual of -4.7%)
- The residual (i.e. difference between modelled and actual growth) represents forecast error/unquantified factors
- The analysis suggests that the single most important demand driver in 2004/05 was the impact of fare level changes (i.e. estimated contribution of 5.0%)
- The estimated contribution of the quantified endogenous factors and exogenous factors was approximately 72:28 in 2004/05.

Similarly, Figure 3 illustrates the results of the analysis for 2005/06.

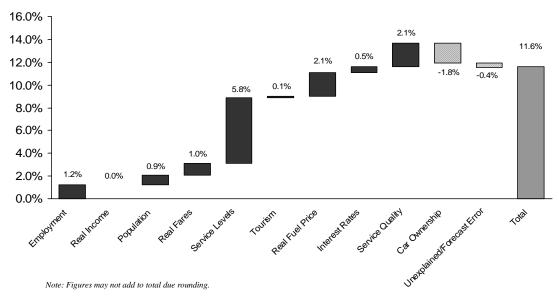


Figure 3: Results of 2005/06 Analysis

The major observations that can be drawn from Figure 3 are as follows:

- The estimated contribution made by the identified and quantified factors to public transport demand growth was 12.0% compared with actual growth of 11.6% (i.e. a residual of -0.4%)
- Again, the residual (i.e. difference between modelled and actual growth) represents forecast error/unquantified factors
- The analysis suggests that the single most important demand driver in 2005/06 was the impact of service level changes (i.e. estimated contribution of 5.8%)
- The estimated contribution of the quantified endogenous factors and exogenous factors was approximately 58:42 in 2005/06.

# **DISCUSSION AND CONCLUSIONS**

The SEQ region has enjoyed a period of particularly strong growth in the demand for public transport services. Over the period of detailed evaluation, year-on-year growth of 9.7% (2004/05) and 11.6% (2005/06) was recorded. Although outside our evaluation period, it is understood that growth moderated somewhat to around 7% in 2006/07.

As suggested in Section 1 the objective of our analysis was twofold. Firstly, by developing an enhanced understanding of the drivers of recent demand growth, an informed view on the sustainability of such increases could be established. Secondly, with reference to the quantum of growth that could not readily be explained by our analysis, it was hoped that some insights could be drawn with respect to the value of the 'integration effect' as a means of stimulating additional public transport demand. Each of these points is addressed in turn.

In terms of the sustainability of the observed growth in demand, our analysis shows that all of the major demand drivers that could readily be quantified, with the sole exception of car ownership, exerted a positive impact on public transport demand over the two-year evaluation period. For the endogenous demand drivers, the strong estimated contribution made by fare level effects in 2004/05 (i.e. 5.0%) was tied to a unique event (i.e. the migration to full fares and ticketing integration). In the longer term, it would be expected that the impact of real fare adjustments would be largely neutral and hence closer to the estimated impact in 2005/06. We would expect that improvements in service levels and service quality will continue to provide a solid platform for growth. Moreover, it is important to reiterate that our analysis did not quantify the impact of transport infrastructure development and significant investment has been committed by Government in this regard.

The impact of the exogenous demand drivers on SEQ public transport demand moving forward is more problematic. For example, the recent spike in world oil prices and increases in official Australian interest rates have both been 'public transport friendly'. This is particularly true of oil prices, with this factor estimated to contribute growth of over 2% in both 2004/05 and 2005/06. In fact, as suggested above, only the on-going long-term increase in levels of car ownership has tended to dampen public transport growth. There is of course no guarantee that collectively these factors will continue to consistently have a positive impact on the demand for public transport in SEQ.

The capacity to identify the magnitude of the 'integration effect' was complicated due to a number of factors.

Firstly, and most significantly, the extent of forecast error implicit in our analysis cannot be readily quantified. In 2004/05, we over-estimated actual growth (i.e. residual of -4.6%), while in 2005/06 we slightly over-estimated actual growth (i.e. residual of -0.4%). There are a number of potential explanations here. In terms of our elasticity estimates, we were not able to draw these estimates from a single source and the transferability of some estimates to the SEQ market is unclear. We have also assumed that all our elasticity estimates can be interpreted as short-term estimates and hence that the market response is immediate. It may well be the case that there are some significant lags in the market response – this may in part explain the shift in the residual from a negative value to a positive value (i.e. unexplained growth) between 2004/05 and 2005/06.

Furthermore, it is likely that there is some correlation between the parameters included in our analysis (e.g. fuel prices, car ownership and possibly interest rates) in terms of their role in influencing public transport demand and therefore it is difficult to confidently conclude that our demand function is correctly specified and calibrated.

Secondly, a number of potentially explanatory variables could not readily be incorporated in the analysis. For example, we have not captured the on-going effect of increasing road congestion on travel times or the impact of changes in the level and quality of transport infrastructure in SEQ.

It is therefore difficult to draw a definitive conclusion on the magnitude of the 'integration effect'. However, assuming that any contribution made by forecast error and unquantified factors to the results was broadly comparable in both 2004/05 and 2005/06, it would appear that the benefits of integration (i.e. fares, ticketing, service and marketing and communications) did make a highly significant contribution to SEQ public transport growth in 2005/06. In particular, if we pro rata the forecast growth rates for both 2004/05 and 2005/06 such that forecast and actual growth rates are aligned in 2004/05 (i.e. 9.7%), it implies forecast growth of 8.1% in 2005/06 and hence unexplained growth of 3.5% (i.e. 11.6% - 8.1%).