

**Effects of Rural Public Transport Rationalisation in Rural New South Wales:  
A Case Study of the Inverell–Tamworth Bus Route**

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Abstract:

The aim of this paper is to examine the impacts of rationalisation decisions which have resulted from the substitution of road coach for rail passenger services in rural NSW. Specifically, the focus is to assess the spatial travel behaviour consequences of service substitution on residents, and related impacts on businesses in case study communities along the former Barraba to Tamworth rail branch line, which now forms a part of the Inverell to Tamworth Countrylink route in northern NSW.

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## **Introduction**

In the last decade Australian transport policy has undergone major changes in direction and content to emulate developments in other western nations. Policies of deregulation, privatisation and, especially rationalisation have increasingly been adopted as mechanisms for a competitive and more market oriented approach to transport supply in urban and rural areas. Nowhere is this more evident than in the state of New South Wales (NSW) where there has occurred deregulation of the long distance bus industry, deregulation of the freight transport industry, rationalisation of rural public transport services, deregulation of the intrastate airline system and, through national efforts, deregulation of the grain storage, handling and transport system.

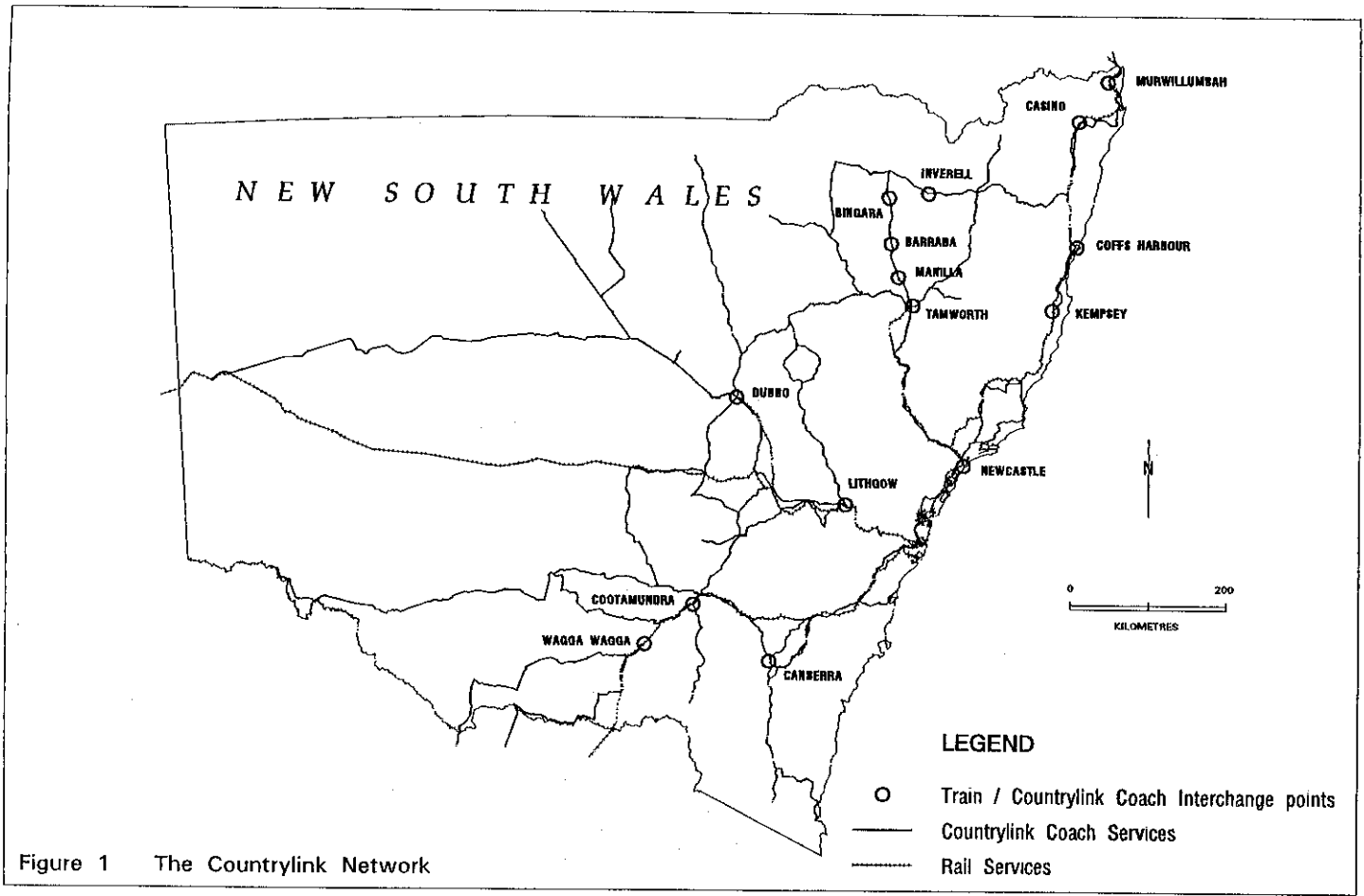
Over the past several years, rationalisation of rural public transport services in NSW has accelerated in response to deregulation of the long distance bus industry in 1988 and attempts by State Rail (SR) to reduce debt and inefficiency problems—the dimensions of which have been highlighted in a major review of SR operations (Booz-Allen and Hamilton, 1989). The process has generally involved rail station closures, withdrawal of rail passenger services, and substitution of road coach services for rail passenger services in rural areas to form the 'Countrylink' network.

Decisions on rationalisation of rural public transport services in NSW have generally been motivated by supply side considerations. The wider ramifications of rationalisation decisions, particularly for rural communities, have not been part of the policy debate. It has largely been left to the rural media to highlight potential employment, business and retail impacts on communities (The Land, 1989).

This paper reports on research which examines one aspect of rural public transport—the substitution of road coach for rail passenger services in rural NSW. Specifically, the focus of our research is on (i) identification of travel behaviour responses and adjustments by residents in case study communities to the substitution of public transport services, (ii) the impacts on and responses of businesses in rural communities to service substitution, and (iii) identification of groups of individuals who may be adversely or positively affected by these changes. The research objectives are addressed through a pilot study of communities along the former Tamworth to Barraba rail branch line which now forms a part of the Inverell to Tamworth Countrylink route in northern NSW (Fig. 1).

## **Background**

Rural public transport in NSW has traditionally been dominated by rail passenger services with the rail network remaining virtually unchanged until the 1970's. Early attempts at rationalisation dated from the 1974 Swan Report which recommended withdrawal of all branch line passenger rail services, with replacement by road coach services on nine of the higher volume branch lines. These recommendations were based on financial criteria such as patronage levels and the cost of service provision. According to Stiles (1979) most of the Swan Report recommendations were not



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Figure 1 The Countrylink Network

implemented, although some train services were cancelled and road coaches introduced in the western region

A more comprehensive rationalisation strategy was pursued in the 1980's with the substitution of SR road coach services for all branch line rail passenger services, replacement of local train services with XPT services, closure of railway stations and railway workshops, and withdrawal of rail freight services on branch lines.

For the case study communities, this strategy meant the loss of a twice daily rail connection with the city of Tamworth in 1982. The service was replaced by a three day a week and then daily SR (now Countrylink) road coach service. Aside from a reduction in service frequency, changes in arrival and departure times effectively eliminated public transport access to Tamworth for travel activities other than connection to the intercity XPT service (The Countrylink coach acts only as a rail feeder service, remaining in Tamworth for only 20 minutes before the return journey).

In 1990 a once a week shopper's bus was introduced on a six month trial basis to address inadequacies in service provision. It was operated for a six month trial period by Symes Bus Lines under license from the Department of Transport. However, at the end of the trial period, the service was withdrawn because of lack of patronage from towns north of Barraba.

Impetus for accelerated rationalisation of rural public transport infrastructure stemmed from events occurring elsewhere within the land transport system. For example, the Department of Motor Transport (now Roads and Traffic Authority) commenced trial liberalisation of long distance intrastate bus services in 1986 which allowed competition with rail passenger services. Intermodal competition affected SR revenue, with a 30% fall in ticket sales along routes where competition was allowed (Australian Transport and Distribution Management, 1989). In addition, it was estimated that SR was losing \$1.5 million per day, with cost recovery rates for rural passenger services at nineteen percent. These factors prompted a detailed examination of problems within the Freight Group, the Country Passenger Group, and the entire corporate structure of SR.

The outcome was a major report (Booz-Allen and Hamilton, 1989) which, among other things, recommended the cessation of all non-electrified rail routes for maximum cost efficiency. The government of the day did not fully accept the recommendations, but did initiate a further round of rail service withdrawals (XPT country rail services were retained) and road coach substitutions (Countrylink formed); though in some cases (eg Tamworth to Armidale) rail is to be reintroduced upon completion of the new 'Explorer' trains. In most cases, private bus companies were contracted by Countrylink to provide these coach services.

Our objective is simply to examine the nature and extent of community adjustment to changing levels of rural public transport service provision.

### **Methodology**

This research centred on the rural communities of Manilla (pop. 2017) and Barraba (pop. 1489) in northern NSW, which are on the Countrylink route from Inverell to

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Tamworth. In order to identify and assess possible impacts of service substitution, surveys of households, businesses and coach passengers was undertaken in the case study communities in 1991. A 'posttest only control group research design' was used (Campbell and Stanley, 1963), though with a multiple posttest in this case. It was chosen because it is arguably the most valid of the posttest designs, controlling for almost all sources of invalidity (A posttest design is a design where data is collected after the event, in this case the event being service substitution. It is a multiple posttest because two samples or towns were used). A sample of residents from the nearby town of Bingara (pop. 1363) was used as the control group. The town of Bingara is on the Inverell to Tamworth Countrylink route but not on the former rail line. It is also of similar size and economic base to the case study communities and was thus judged a suitable control group.

The study task necessitated three separate questionnaires. Households were randomly selected and contacted to identify the travel behaviour of residents before and after service substitution, as well as to determine which residents made a change in their travel behaviour as a direct result of public transport changes. In addition, Countrylink coach passengers were surveyed to obtain a more detailed profile of current users and their responses to service substitution. The business survey was designed to assess the impacts on and responses of businesses in the case study communities to service substitution...

The household survey consisted of sixty interview surveys (24 in Manilla, 26 in Barraba, and 10 in Bingara) which sought information on travel behaviour adjustments and responses for the period prior to and since rail service withdrawal. Approximately ninety percent (n=89) of businesses were interviewed for the business survey (42 in Manilla and 47 in Barraba). Fifty nine Countrylink coach passengers were surveyed over three different trips (two weekday trips and one weekend trip)

Limited funds for our study precluded larger sample sizes which would have enabled multivariate statistical analysis. Our analysis of the survey data is limited to tabular and graphic descriptions aimed at identifying trends for the variables which we studied which may form the basis for more detailed hypothesis testing in a larger case study area.

## **Results**

### **Sample reliability**

Table 1 shows that age and gender distributions of the household sample compare favourably with the actual distribution of values from the 1986 census figures (ABS, 1986) for the study communities. Although not a good indication of sample representativeness, these variables at least indicate our sample is not completely biased.

Table 1 Comparison of sample and census characteristics

|        | CATEGORY | SAMPLE (%)<br>(n=60) | CENSUS (%) |
|--------|----------|----------------------|------------|
| AGE:   | 15-19    | 3.3                  | 9.1        |
|        | 20-29    | 18.3                 | 15.1       |
|        | 30-39    | 16.7                 | 17.3       |
|        | 40-49    | 16.7                 | 13.4       |
|        | 50-54    | 8.3                  | 7.4        |
|        | 55-59    | 5.0                  | 8.5        |
|        | 60-64    | 5.0                  | 6.7        |
|        | 65-69    | 6.7                  | 7.2        |
|        | 70-74    | 10.0                 | 6.4        |
|        | 75+      | 10.0                 | 8.4        |
| GENDER | Male     | 40.0                 | 48.9       |
|        | Female   | 60.0                 | 51.1       |

#### Travel Behaviour Response

The first objective was to examine the travel behaviour response of the household sample to service substitution. Travel behaviour responses can fall into one or all of four broad response categories; changes in destination, travel mode, frequency and purpose of trips

*Destination:* Figure 2 shows the destination of trips reported by the household sample for the period prior to and following rail service withdrawal (measured in annual trips). Respondents appeared to have no difficulty in recalling the frequency of trips and the destinations visited for trip purpose categories—a function of the habitual and routine nature of travel-activity patterns in the study communities.

The most obvious change since service substitution is additional trip making activity for all destinations. Within this overall increase in trip making, it can be seen that the largest increases have been experienced by the study communities, and thus the home towns of the respondents

These findings suggest that more than one factor is at work. The higher levels of trip making may be at least partially explained by widely acknowledged trends toward higher levels of car ownership and thus mobility, especially in rural areas. However, the trend is not consistent with the findings of increased trip activity focused on the home community.

Given that changes to the level of public transport provision effectively reduced the level of access to Tamworth from three days a week to once a week (the shopper's bus being a weekly connection) for activities except connection to XPT services, it is possible that this has been a factor affecting travel behaviour. It follows that reduced levels of access to Tamworth may facilitate greater use of the home community for activity needs.

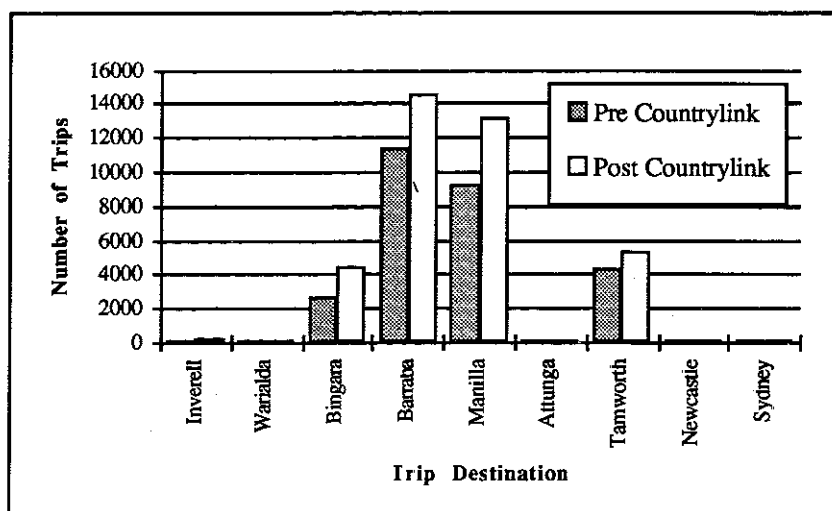


Figure 2 Destination of trips from the study communities annually

Information from the business survey tentatively supports this suggestion, with evidence indicating that some household survey respondents have adapted to service substitution by increasing their home town activities. Of the 21.3% of business proprietors who believed there had been a change in consumer shopping destinations since service substitution, 80% indicated that more people were shopping locally. This evidence is further supported by reported increases in business patronage and profitability following service substitution (detailed later).

However, it is also evident from Figure 2 that the control group, Bingara, has undergone an increase in locally based trips of even greater proportion than the study communities of Manilla and Barraba. This may indicate that the trends of increased town based activities may be more the result of increases in low-middle order functions and services within the towns as their populations grow.

**Mode Use** Figure 3a indicates further travel behaviour changes of Manilla and Barraba survey respondents since service substitution, namely the trends of increased car driver trips and walking, with little change in car passenger trips. Increased car ownership trends can offer a partial explanation for the increase in car driver trips, but are not a total answer. The trend is similar in Figure 3b (the Bingara control group), though the increase in car use is of a lot smaller magnitude. This lends further weight to the view that service substitution in the sample communities has forced residents to make adjustments to transport arrangements, in this case with greater emphasis on the car driver trip.

An important feature of the mode choice response which is difficult to discern from Figures 3a and 3b is a marked increase in public transport use (including private buses). In particular there has been a large increase in the number of trips undertaken by private bus; in this case it is the weekly shopper's bus.

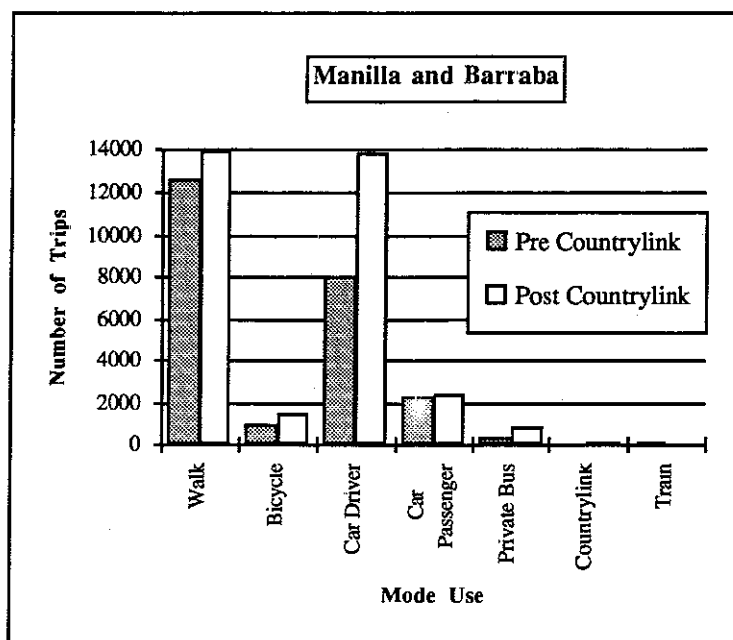


Figure 3a Annual mode use of Manilla and Barraba sample

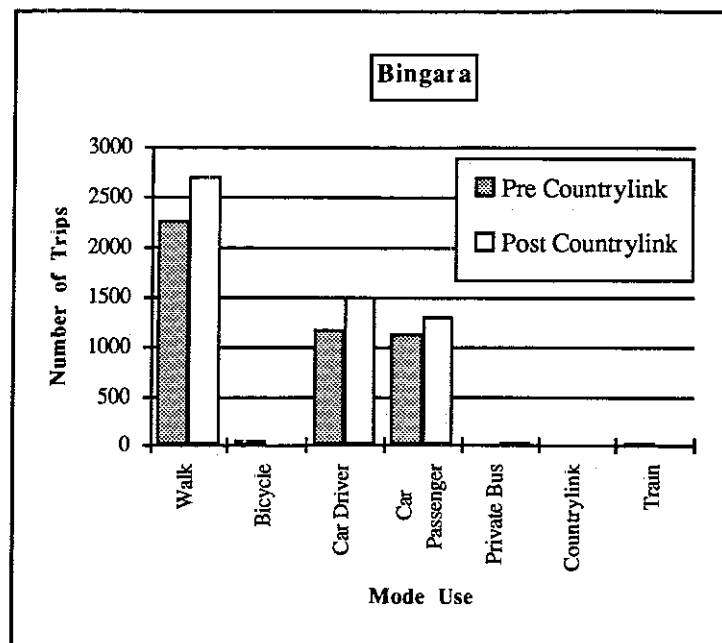


Figure 3b Annual mode use of Bingara control group sample



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While the number of trips undertaken on Countrylink appear to be equivalent to the number of train trips prior to service substitution, the survey of Countrylink passengers reveals that the types of trips being undertaken now are of a much more extensive nature than those trips formerly by train. There are more people using Countrylink, but for longer journeys which are made less frequently. Those regular trips by train which were focused on Tamworth as a final destination are now fulfilled by the shopper's bus service. However, not only has Countrylink attracted most who formerly used the train to travel to and from destinations further afield than Tamworth, 67% of its patronage consists of people who, prior to service substitution, made an equivalent journey by car either as driver or passenger (Figure 4).

Countrylink has undoubtedly been successful in attracting car travellers, especially for connection with XPT services to Sydney and Newcastle. Quality of service, comfort, and travel burden dimensions appear to be important considerations for Countrylink passengers.

Figure 5 shows passenger opinions of Countrylink when compared to the previous rail services. Mean scores suggest that passengers are more satisfied with all aspects of the Countrylink service when compared with the previous rail service. However, it should be noted that satisfaction with the timetable is the least positive of all service features; perhaps reflecting the restriction of access to Tamworth since the introduction of Countrylink.

*Trip frequency and trip purpose* This is one aspect of travel behaviour which may have been expected to change. However, t-tests reveal no significant differences ( $\alpha=0.05$ ) in aggregate patterns of trip frequencies for the period to and since service substitution. Aggregate trip purpose characteristics show a similar profile, though when disaggregated show increases in social/recreational and medical trips. The operational characteristics of the Countrylink service appear to be largely responsible for these increases. Over 20% of social/recreational trips are now made by Countrylink compared to 9% for the previous rail service. The destinations for these trips are predominantly Sydney and Newcastle.

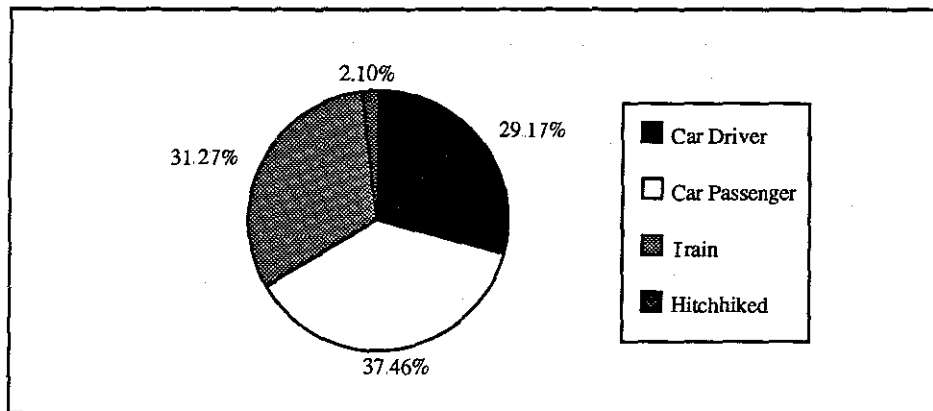


Figure 4 Mode used by Countrylink passengers prior to rail withdrawal

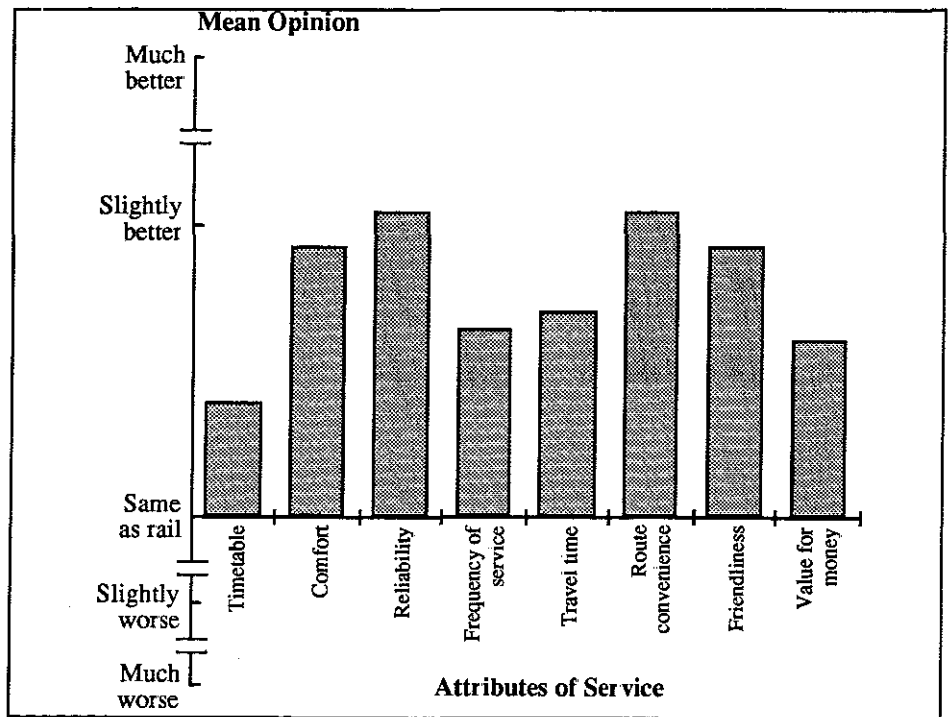


Figure 5 Passenger opinion of Countrylink Coach as compared to rail

In sum, changes in travel behaviour associated with service substitution are apparent, but with many conflicting sources of change service substitution may only be a marginal agent of change. While there have been no significant changes in trip purpose or frequency, there has been a substantial increase in town-based activities, some increase in both car driver use and use of public transport, and increased social/recreational and medical trips outside the region.

#### Public Transport Users

Although aggregate patterns of travel-activity profiles have changed, certain survey respondents may demonstrate differences in ability to adjust to such changes: some may be adversely affected while others may benefit from changes. In order to examine this issue, all household survey respondents who changed their travel behaviour following service substitution (54% of the household sample) were selected for further analysis. This group was subdivided into two groups: those whose change was induced by service substitution (public transport users), and those who changed their travel behaviour for other reasons (non-public transport users). A comparison of these two groups in terms of their socio-demographics, their ability to respond to public transport

changes (measured by the level of licence holding and car ownership), and their actual changes in travel behaviour show some important differences (Figure 7).

It can be seen that householders whose change was public transport induced are predominantly housewives (80%) and retirees (55%)—persons traditionally referred to as 'transport disadvantaged'—who have low levels of license holding (36% with no license) and car ownership (20% with more than one vehicle owned by their household), and are more captive to existing levels of public transport. The Countrylink survey indicated that passengers in the case study communities are predominantly from the same groups. These groups are not as well equipped as the other group (non-public transport users) to adapt to public transport changes given their limited travel mode choice sets. The former group appears to have replaced some car trips with public transport and walking trips, while the latter group has significantly increased car driver trips.

Analysis indicates that while the public transport induced change group is more vulnerable to service substitution and service withdrawal, this has not affected perceptions of public transport. Indeed, this group has registered very high levels of satisfaction with all attributes of Countrylink (90% felt they benefited from the changes). Furthermore, this comparatively less mobile group continues to use the home town and other destinations for all trip types (activities). It is the more mobile group (non public transport users) which has shown an increase in the use of the home town for travel activities. This trend may be associated with the location of additional lower-medium order services and functions in Manilla as a result of population increase because of proximity to Tamworth (Manilla is within the commuting zone of Tamorth).

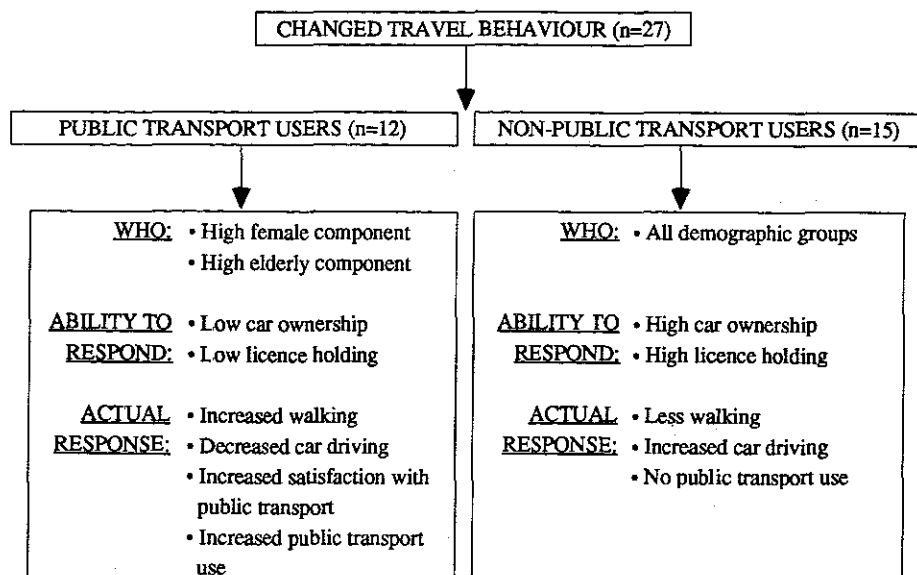


Figure 6 Comparison of public transport and non-public transport induced change groups

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On the other hand, public transport users (Countrylink) utilise the non-home town (destinations) for visiting friends and relatives.

At the time of the surveys, out of town shopping trips were popular and were undertaken using the shopper's bus (since removed) by about 40% of household survey respondents who use public transport. Removal of the shopper's bus service will severely restrict their ability to gain access to Tamworth for shopping purposes, and may force more respondents to shop in the home town (an advantage for local businesses).

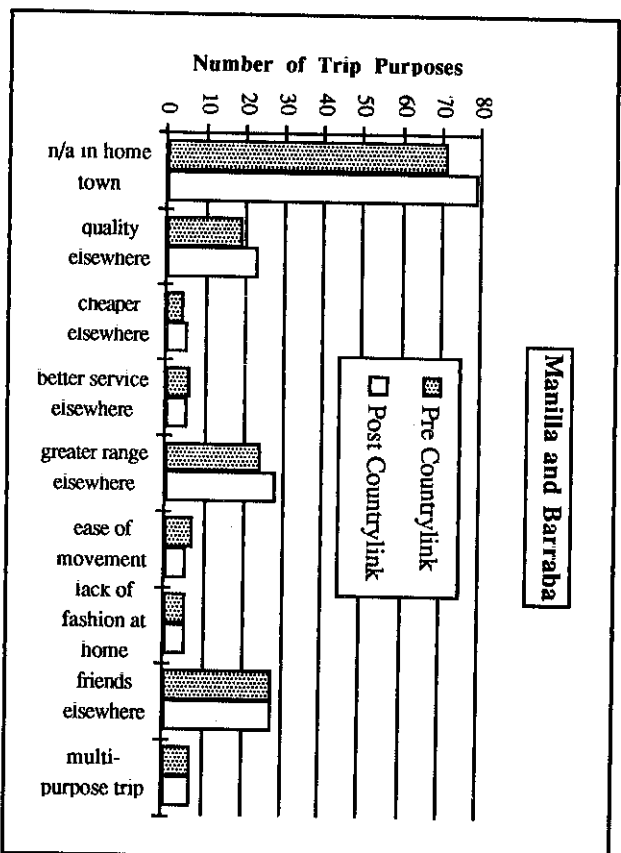
**Impact on Business**

The household survey offers several insights into the nature of impacts of service substitution on local businesses. Firstly, the observed changes in trip destinations indicate that businesses in the study communities may have benefited through higher patronage levels due to more home town travel activities. Secondly, the household survey found that, in aggregate, more respondents were using centres other than their own for certain trip purposes because those functions were no longer available in their home town. Figures 7a and 7b show that this trend is not apparent in the control group, thus indicating that service substitution may have been a force which has already pushed several functions (perhaps higher order) out of these small communities.

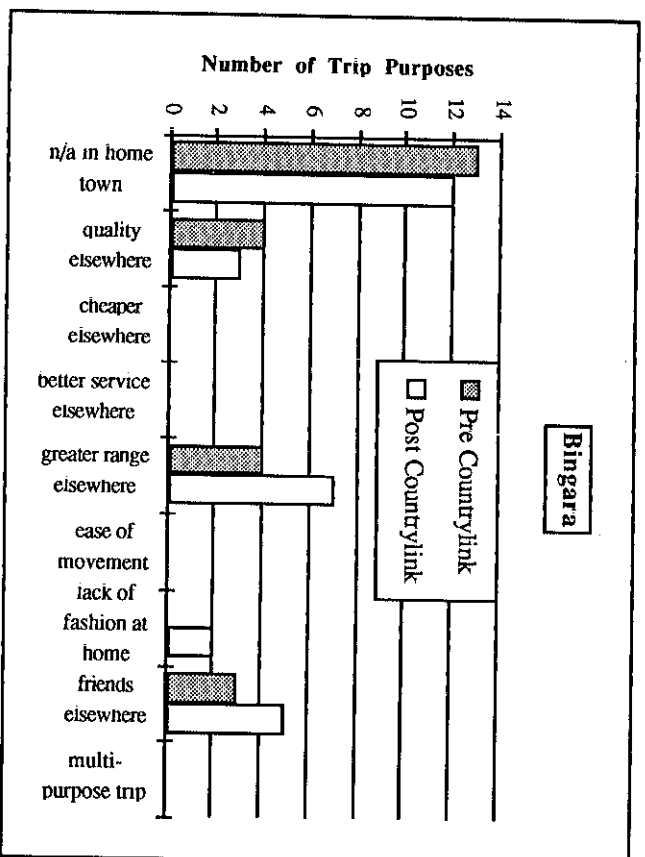
A further change evident in these figures is increased trip activities focused on other centres where there is a perceived greater quality and range of goods and services. A similar response to a larger range of goods and services also occurred in the control group, indicating that this statistic may be a reflection of large shopping centre developments in towns such as Tamworth which offer one-stop air-conditioned shopping.

The business survey indicates that, in general, business proprietors perceive service substitution to have had a positive impact on business profitability (Figure 8). It is logical to assume that this positive impact is largely due to the increase in town based activities noted earlier.

Furthermore, it appears that most businesses have responded to the positive impacts by expanding employment and indicating future plans for expansion (Figures 9 and 10). These trends were more marked in Manilla, suggesting that Manilla's proximity to Tamworth may indeed play a role in enhancing business profitability.



**Figure 7a** Reasons for not using Manila/Bararaba for travel activities



**Figure 7b** Reasons for not using Bingara for certain trip purposes

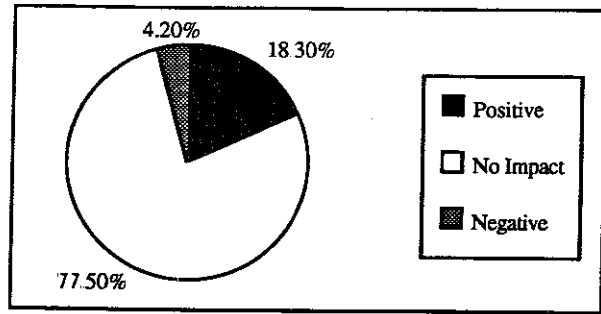


Figure 8 Nature of impacts on business

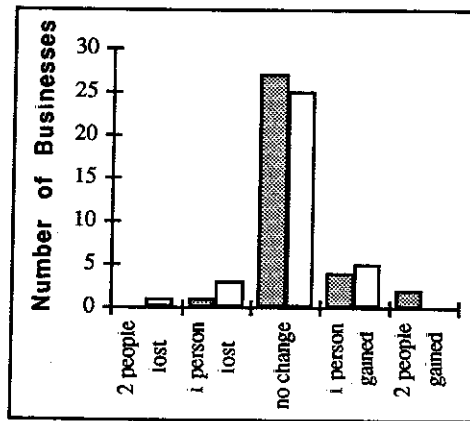


Figure 9 Employment change

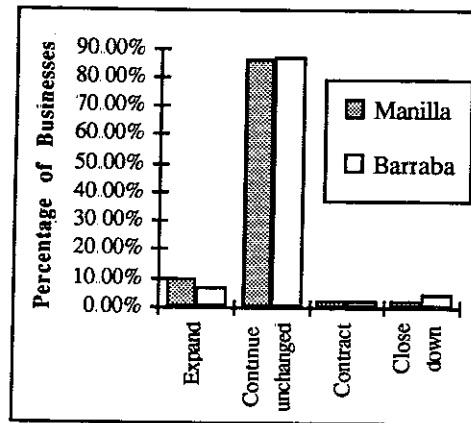


Figure 10 Business prospects

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A breakdown of businesses by the nature the impact of service substitution upon them revealed no distinct functional groupings, but did reveal a statistically significant spatial distribution. As shown in Table 2, a significant level of association exists between the nature of the impact on businesses and business location in relation to the new bus stop. Those businesses in the centre of town, where the bus stop is located, reported positive effects of service substitution. Those on the outskirts of town, near the old rail stations, reported a higher proportion of negative impacts.

**Table 2** Spatial distribution of impacts on business

| IMPACT   | DISTANCE FROM BUS STOP |          |            |
|----------|------------------------|----------|------------|
|          | <500m                  | 500-999m | 1000-2000m |
| Positive | 12                     | 1        | 0          |
| None     | 50                     | 4        | 1          |
| Negative | 1                      | 1        | 1          |
| TOTAL    | 63                     | 6        | 2          |

Chi square = 13.86164      df=4      Significance=0.00775

Thus, while impacts on businesses were positive but generally minimal, the spatial differentiation of impacts highlights the importance of considering both passengers and businesses when choosing a passenger pick-up and set-down point. In this case, the location decisions seem to have been, in aggregate, to the benefit of the business community.

In summary, the business community in the study area has exhibited similar impacts to service reductions and substitution as reported in the overseas literature. There has been minimal overall impact, and close proximity to a larger centre may have cushioned Manilla to a certain degree from adverse impacts. Contrary to the overseas experience however, are the findings that the minimal impact was positive in the long run, not negative as suggested by some literature. Another finding not reported in the literature was that the nature of business impacts can be spatially distributed according to the location of the old and new passenger pick-up and set-down points.

### **Conclusions and policy implications**

Rural public transport change has been described in the literature as a weak agent of rural change. Our pilot study of several small communities in one rural area of NSW largely confirms this description—public transport service substitution has had very minimal adverse impacts and, indeed, appears to have positively affected survey respondents in many cases.

It is clear that the nature of substitution in the study communities has played some role in increasing the travel activity focus on home towns, to the obvious benefit of local businesses. Despite this, Countrylink levels of service are perceived as being far superior to services provided by rail, and it is clear that Countrylink will remain well

patronised by residents along the Inverell-Tamworth route, even though it provides limited opportunities for travel activities other than medical and recreational trips to larger centres.

The tradeoff between small town business prosperity and the level of access to larger centres alluded to above was not obvious in the results of this study, however it is envisaged that withdrawal of the shopper's bus subsequent to the fieldwork component of this project may further increase the focus of travel activities on the home community.

There are thus opportunities for Countrylink to expand market share by rescheduling services in a manner such as to provide shopping access to Tamworth for the small communities on its route, though this must be achieved without significantly affecting its role as a feeder to XPT services.

The results of this study are by no means transferable to other rural communities in NSW. Communities experiencing population decline and those not in the commuter zone of a larger centre may have been differently affected by changing levels of rural public transport provision over the last decade.



### **Acknowledgments**

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### **References**

The Editor (1989) Rail *Australian Transport and Distribution Management* September, 11-18

Australian Bureau of Statistics (1986) Small area data *Census of Population and Housing*

Booz-Allen and Hamilton (1989) *Diagnostic Review and Strategic Priorities for Freight and Country Passenger* Sydney: Booz-Allen and Hamilton Inc

Campbell, D T and Stanley, J (1963) *Experimental and Quasi-Experimental Designs for Research* Chicago: Rand McNally