Roads Policy and Australian Federalism

Occasional Paper

While a great deal has been written on the theory and application of optimal road price and investment policy, relatively little attention has been given to the subject of roads policy in practice. This monographís main concern is the latter line of inquiry, focusing attention on the complex of political, legal, economic and institutional factors which have shaped Commonwealth and State government roads policy in Australia since the 1920s through to the 1980s.

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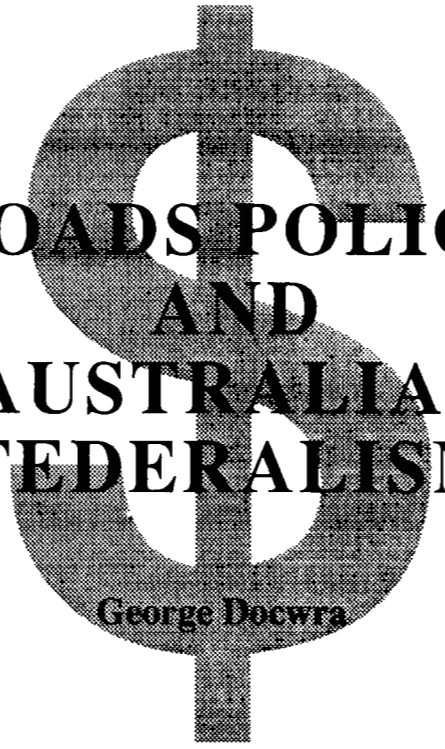

ROADS POLICY AND AUSTRALIAN FEDERALISM

George Docwra

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FOREWORD

The research on which this book draws was in part undertaken while Dr George Docwra was at the Bureau of Transport and Communications Economics as a Research Fellow. Dr Docwra has had a lifelong interest in roads policy in Australia, and his work was of obvious interest to the Bureau.

The work takes a wider view of roads policy than those confined entirely to matters concerning economic efficiency. It examines the complex framework within which decisions are made in a federation of the Australian type. The resulting insights extend to problems in the relationship between different levels of government, and to rigidities in allocation procedures within the same level of government.

It is customary to make the usual disclaimer. Dr Docwra's conclusions do not necessarily reflect the position or views of the Bureau.

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Finally, it needs to be said that those who have provided advice and comments on various aspects of this study are not responsible for any errors of fact, interpretation, or of argument. Responsibility rests with the author.

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ABSTRACT

While a great deal has been written on the theory and application of optimal road price and investment policy, relatively little attention has been given to the subject of roads policy in practice. This monograph's main concern is the latter line of inquiry, focusing attention on the complex of political, legal, economic and institutional factors which have shaped Commonwealth and State government roads policy in Australia since the 1920s through to the 1980s.

The major economic reason for the creation of the Australian federal system was to establish an integrated national economy. The study traces out the history of Commonwealth involvement in the roads sector and examines the extent to which the Commonwealth has used its Constitutional powers to implement a roads policy consistent with the national economic interest. It is argued that for most of the period Commonwealth road supply policy was determined by political considerations and the interests of the States.

Some insight into State government road expenditure priorities is provided by a detailed examination of road fund allocation in Queensland over the period 1950–51 to 1980–81. The analysis suggests that road authorities have multiple objectives and that economic efficiency is not the dominant determinant of State road expenditure policy. Institutional and political factors result in a considerable degree of rigidity in the regional allocation of road funds. The ability of the Commonwealth to affect State road expenditure priorities is also considered.

A discussion of the High Court's interpretation of section 92 of the Constitution is also an important part of this study. Attention is drawn to the effects of previous interpretations on road user charging policy and the regulation of interstate road transport, and possible implications of the most recent view expressed in *Cole v. Whitfield*. An important conclusion is that the purely legal approach is not well suited to dealing with complex economic issues concerning road cost recovery and regulation of interstate transport.

The study concludes by bringing together the main themes and issues examined and developed throughout the study. A major point made is that unless there is greater understanding of the mix of political, institutional and Constitutional factors as determinants of past and present policies, it is unlikely that much progress will be made in narrowing the wide gap between the theoretical requirements for economic efficiency and the practice of roads policy in Australia.

CHAPTER 1 INTRODUCTION AND OUTLINE

While a great deal has been written on the theory of efficient pricing and investment policy for government owned enterprises, and its application to the pricing and provision of road services, it is only in recent years that economists have shown a more sophisticated interest in the study of roads policy in practice. In Australia's case this interest was fostered by the establishment of the Commonwealth Bureau of Roads in 1964 and continued after its demise in 1975 by the Bureau of Transport Economics, later to become the Bureau of Transport and Communications Economics.

Despite the significant contributions of these organisations there is still a great deal of work to be done by economists and researchers in other disciplines, such as constitutional law, engineering and political science, in order to gain a great understanding of the formulation of public policy in the Australian roads sector, the various political, institutional, and constitutional constraints which help to shape roads policy, and the consequences of alternative road pricing, financing, and investment decisions for economic welfare.

This study attempts to contribute to the understanding of roads policy and Australian federalism by providing a detailed examination of policy measures taken at both Commonwealth and State level over the period from 1922 to the 1980s. Because of the size of the empirical task and the overall scope of the study, detailed discussion of State government road expenditure policy is confined to one State, namely, the State of Queensland.

The research draws attention, *inter alia*, to the enormous gap which exists between the theoretical principles of efficient road price and investment policy and the practice of roads policy in Australia. This is hardly an exciting result. However, unless the reasons for the size of the gap are understood the rate of progress of economic reform in the roads sector will be fairly limited.

Apart from the problem of the availability of relatively cheap technology required for implementation of economically efficient methods of charging for roads, a problem which is likely to decrease in importance in the near future, the major barriers to the achievement of significant efficiency gains in the roads sector are political, institutional and constitutional factors. Such obstacles are likely to be more difficult to overcome in the Australian context than in countries with a unitary system of government, and perhaps as well, in some other federations.

An important feature of the institutional and constitutional environment for roads policy in the Australian federal system is that the Commonwealth government has the fiscal capacity and legal right, given by section 96 of the constitution, to provide grants to the States for road works and to determine how those funds shall be spent. The States, however, have the constitutional responsibility for most of the nation's road construction and maintenance works, and are not, as a general rule, supportive of attempts by the Commonwealth to influence State road expenditure priorities.

The Commonwealth also has the constitutional power to levy a fuels excise. Although most of the States now impose a charge on fuel in the form of a business fuel franchise fee, part of which is used for road funding, there is some doubt as to whether such a charge would withstand a challenge in the High Court. However, the main point to be made is that reform of road funding and pricing arrangements has implications for charges on petrol and diesel fuels, and the levying of State (and now federally determined) vehicle registration fees. The reform process requires the establishment of a more direct link between road supply costs and methods of charging, and road expenditure priorities. In practical terms such changes will involve important matters of cooperation and agreement between Commonwealth and State governments.

Along with difficulties created by the constitutional division of financial and expenditure responsibilities there are various politically and institutionally determined constraints which affect the allocation of road funds between regions within a State. Such constraints have implications for efficiency in resource use and the strategies that might be adopted by the Commonwealth should it wish to affect the regional pattern of road fund allocation within a State.

In addition there have been, and still may be, problems created by the High Court's interpretation of section 92 of the constitution. The Court's interpretation of this section is crucial to the effective implementation of an efficient and equitable road user cost recovery scheme. For many years the High Court's view of section 92 limited significantly the possibilities for improved methods of road cost recovery. The latest interpretation as expressed in *Cole v. Whitfield* (1988) ALJR 303 appears, at first blush, to have made the way clear for significant efficiency improvements in adoption of road user charges for vehicles engaged in interstate transport. However, as will be argued, there are some important matters of interpretation of economic concepts such as 'discrimination in a protectionist sense' which require clarification before one can be reasonably sure that only charging systems based on economic efficiency criteria will be accepted by the Court.

A broad outline of the concept of economic efficiency and its application to the pricing and supply of road space is provided in chapter 2. The approach adopted is to use the theory of the multi-product firm, in the context of highly competitive conditions, as the basis for determining an efficient set of charges for road use, and to establish the link between efficient prices and benefit maximising investment decisions.

The study turns from the realm of theory to the practice of roads policy in Australia in chapters 3, 4 and 5. The purpose of chapter 3 is to outline the constitutional framework within which roads policy in Australia takes place. Apart from highlighting the specific powers which the Commonwealth has with regard to road funding and the significance of its fiscal capacity vis-a-vis the States an important theme developed is that the federal constitution was intended, in part, to provide a framework for the achievement of an integrated national economy. Such an objective requires the provision of an efficient interstate transport system in which the roads sector plays a vital part. The chapter draws attention to the implications of such an objective for Commonwealth and State road expenditure policies.

In chapters 4 and 5 attention is directed, respectively, to the history of Commonwealth involvement in the road supply sector during the periods 1922 to 1969 and 1969 to 1989. The two periods are distinguished largely by the extent to which the Commonwealth has used its powers under section 96 of the constitution to participate in the programming of road works, and to influence State road expenditure priorities by such devices as matching grant requirements and the earmarking of Commonwealth grants by road category.

In essence, the discussion draws attention to the shifts in Commonwealth roads policy which have occurred throughout the two periods, a consequence of differences in objectives of Commonwealth roads policy and of differences in views concerning the constitutional responsibility for setting of road project priorities. The issue of the extent to which the Commonwealth government should intervene in the determination of road priorities was subject to considerable debate during the period of the Whitlam government. Chapter 5 details the conflict of policy issues between the States and the Commonwealth during the Whitlam period and the response of subsequent Commonwealth governments to that conflict. The chapter also highlights the role of Commonwealth government advisory bodies, especially the former Commonwealth Bureau of Roads, in the development of roads policy and the extent to which policy advice was accepted or modified by government.

As indicated, a case study approach is used to examine road expenditure policy at the State level. The discussion in chapter 6 examines in some detail the distribution of road fund allocation within Queensland commencing in 1922 through to the late 1930s, but mainly for the period 1949–50 to the early 1980s. The chapter briefly describes the decision making structure of the former Main Roads Department (now part of the Transport Department) and examines the relationship between regional expenditure shares and available indicators of demand. Alternative models of road fund allocation are proposed and subject to econometric examination. The analysis suggests that economic efficiency has not been a dominant objective of State road expenditure policy. Like other state government enterprises road authorities are required to achieve a number of objectives often described as: 'equity', decentralisation, and development. The chapter also provides a brief discussion of the impact of Commonwealth policy on State government road expenditure preferences over the period 1969 to the

mid 1970s and draws attention to some of the constraints which limit the extent to which road fund allocations can be varied among the State's planning regions.

The discussion in chapter 7 focuses on the High Court's role in determining the limits to government regulation of interstate transport by detailing the various interpretations which the High Court has given to section 92. Particular attention is give to the *Transport Cases* of the 1930s and 1940s through to the 1960s, and to the most recent fundamental change in interpretation of section 92 expressed in *Cole v. Whitfield*. The Court's various interpretations of section 92 have had significant impacts on resource use in the land transport sector, without the Court being aware of such consequences. The latest interpretation is predicated on the common market concept, and as such has the potential, subject to some important qualifications, to facilitate the development of an interstate land transport policy consistent with efficiency in resource use.

In chapter 8 the various themes and issues raised throughout the study are brought together and important conclusions are identified. In brief, attention is given to the complex of political, constitutional and institutional factors which have shaped Commonwealth and State government roads policy over the past sixty years. It is argued that the Commonwealth has an important part to play in ensuring that roads policy is consistent with the national economic interest. This requires, *inter alia*, that economic efficiency should be a dominant objective of Commonwealth road expenditure policy and that cost recovery arrangements need to be developed in such a way as to provide an economic link with investment policy.

Chapter 8 also gives further consideration to the High Court's interpretations of section 92 and to the difficulties which legal methodologies have in dealing with complex economic issues concerning interstate transport and commerce. Consideration is also given to the role which the Inter-State Commission might have played in helping to overcome such difficulties.

There are other ways in which the subject of roads policy and Australian federalism might be examined. A number of relevant issues have not been dealt with, and some others have only received brief mention. However, it is hoped that the approach adopted provides some insights into the workings of the Australian federal system, and accordingly, a better appreciation of the various political, legal, and institutional requirements for improving economic efficiency within the road supply sector.

CHAPTER 2 THE ROAD PROBLEM: PRICING AND INVESTMENT ISSUES

While the main thrust of this study concerns the practice of roads policy in Australia, it is nonetheless essential to preface that discussion with a brief review of some of the main economic issues and principles concerning price and investment criteria for road supply. The economic principles can be used as a basis for evaluating alternative price and investment policies including those currently in operation.

An examination of the literature highlights a variety of approaches to the road pricing and investment issue. Some discussions have concentrated exclusively on the problem of congestion without reference to the long-run problem of how much road capacity should be provided, and associated issues concerning the trade-off between investment and maintenance decisions. In other contributions such as that by Walters (1968) and more recently the work of Small, Winston and Evans (1989) and Newbery (1989) the link between efficient pricing and investment decisions is of paramount importance. In addition, there is an extensive body of literature which focuses attention solely on the recovery of road track costs without reference to congestion costs, or the investment problem. A review of this literature shows the existence of many approaches (based on a mixture of economic, technical and equity criteria) to the track cost apportionment problem, and accordingly a variety of outcomes (see, for example, ISC 1986).

No attempt is made in this chapter to review all of the issues raised by the above theoretical literature and road cost recovery studies. Instead, attention is directed to sketching the broad outlines of an economic framework for road price and supply policy based on the theory of the multi-product firm operating in highly competitive conditions.

The next section provides a short outline of the theory of 'the right price' in the context of competitive markets. Attention is given to the problem of establishing efficient price–cost ratios given the presence of cost complexities, and to the link between efficient pricing and investment decisions. These matters are then considered in the context of road supply. There then follows a discussion of the relationship between efficient road price, investment policy, and cost recovery given the presence of supply side characteristics such as indivisibilities, and

economies and diseconomies of scale and scope. The final section provides a short conclusion.

THE THEORY OF THE RIGHT PRICE: A SHORT REVIEW

A central element of conventional economic wisdom is the proposition that community economic welfare is maximised, subject to various qualifications, including income distribution and externalities, when consumption and production decisions made by consumers and firms are based on prices that accurately reflect resource opportunity costs. If this occurs, resource allocation is said to be economically efficient. In such a situation it would not be possible by reallocating resources to improve community economic welfare.

The concept of economic efficiency is derived from the relationship between prices and resource costs determined in highly competitive markets in long-run equilibrium (see, for example, Kahn 1989). The specifics of the price–cost relationships which emerge under these conditions can be clarified by distinguishing between single product and multi-product firms.

Single product firms

For a single product enterprise operating in a highly competitive market, price is always equal to marginal resource cost. While in the short run this might mean that suppliers are able to more than recover average costs of supply, in the long run (when capacity can be adjusted) new entry will occur until excess profits are competed away. In long-run equilibrium price will equal both long-run and short-run marginal costs of supply with each supplier earning a normal (or competitive) return on capital. In this model prices are unambiguously related to resource costs, and efficient cost recovery is achieved in the long run. The model also highlights the link between price–cost relationships in the short-run and long-run decision of firms to expand or contract capacity.

Multi-product firms

The above model can be extended to apply to a world dominated by multi-product firms. In this context the outputs or services produced by firms are supplied using common plant and facilities. The existence of multi-product firms gives rise to the presence of cost complexities in the form of joint and common costs.

If cost functions exhibit joint cost characteristics this means that outputs are produced in fixed proportions. In contrast to the single product case the relationship between efficient prices and costs of supply is less obvious in the multi-product joint cost case. For joint costs the sum of the costs which can be unambiguously attributed to the production of each output is less than the total costs of producing the bundle of outputs. The 'right' price marginal cost ratio (see below) thus refers to the relationship between the sum of the prices obtained for the various outputs and the long-run marginal cost of producing the marginal bundle.

In other cases of multi-product production the cost function is characterised by common costs. The distinction between common and joint costs is important. Common costs occur when the supplier of multiple outputs or services is able to vary the proportion of outputs using common plant and facilities. The output proportions are determined by economic choice, not by technical necessity. This means that it is possible to determine the marginal opportunity costs of supply of a commodity when output proportions are varied. Thus, when the same plant and equipment is used to produce commodities X and Y, and when producing more of X means either producing less of Y or expanding capacity, a causal relationship between the increase in the output of X and the opportunity costs of supply of X can be established.

Under competitive conditions the long-run equilibrium combination of X and Y is attained when the firm is unable to increase net revenue by varying output proportions and when the relationship between output prices and opportunity costs results in a normal return on capital (see, for example, Kolsen 1968). The use of a congested road by different vehicle types (cars and trucks), or a congested rail track by passenger and freight trains, provide examples of common cost situations. The problem facing the supplier is to determine the optimal combination of output (or services provided) and the optimal level of capacity.

Early discussion of the efficient apportionment of the costs of supply of jointly produced outputs dates to Mill's *Principles of Political Economy* published in 1848 (see Mill 1865) and developed and refined by Marshall in 1890 his *Principles of Economics* (Marshall 1920). As explained by Marshall an efficient allocation of the costs of supply of jointly produced outputs is achieved if the markets for all outputs are highly competitive. Under such conditions the various outputs are supplied in the short run as long as consumers are willing to meet the marginal resource costs which can be attributed unambiguously to their supply. Thus the short-run attributable costs for each output represent the lower limits to output prices. The amount of revenue contributed by each output to the non-attributable, or joint costs of supply, are determined by the strength of demand in each market. If above normal returns on capital are earned this would result in a long-run adjustment to capacity and ratics of price to attributable costs until such time as a normal return on capital is earned. One possibility is that in long-run equilibrium the prices of some outputs will exceed their attributable costs of supply, thus making a contribution to joint costs, while the prices of other outputs are equal to attributable costs.

It is important to emphasise that only highly competitive markets produce these results. In monopoly or oligopolistic markets different outcomes are possible. For privately owned enterprises the market will still determine the revenue contributions to the joint costs (non-attributable costs) of supplying different products or different product categories. In the absence of predatory pricing no product will be sold at less than attributable costs. However, total revenue may exceed total costs (including a normal profit) and this is achieved by restricting the supply of some outputs to less than competitive levels.

Further, a public enterprise monopoly has even greater scope for not relating prices to cost. Specifically, government business enterprises can and do provide outputs and services at below attributable costs, and may raise prices for some outputs above those which a profit maximising monopolist would charge. Such entities are not subject to the market discipline of highly competitive conditions, and are not even constrained by the revenue considerations of a profit maximising monopolist.

Some qualifications

The discussion so far has provided a rough outline of the basis of the marginal cost pricing rule and its link to the concept of an efficient allocation of resources. However, some additional points need to be made. First, the concept of efficiency is predicated on the assumption that consumer preferences matter. Second, acceptance of a competitively determined pattern of resource use implies that the existing distribution of income is socially acceptable. Third, the assumption is made that private costs of supply are equal to social costs. In other words, the components of marginal costs include not only the private costs to the firm but also any additional costs which are imposed on third parties as a result of production or consumption. The familiar examples of such negative externalities include pollution of the environment, urban traffic noise and the destruction of wilderness areas.

In addition to these assumptions there is the important matter of the problem of second best. The argument that the marginal cost pricing rule produces an efficient allocation of resources for the economy as a whole follows if all markets are perfectly (or highly) competitive. If prices are not equal to marginal costs in all sectors of the economy partial application of the rule does not necessarily guarantee an improvement in resource use (Lipsey & Lancaster 1956). In practice prices deviate from marginal costs for a variety of reasons. These include the existence of government taxes and subsidies, and the presence of monopoly and other market imperfections.

However, the theory of second best indicates that a simple rule of thumb can be used in the context of resource use within sectors of the economy made up of firms producing related or similar outputs. For example, if road transport services are subject to taxation, causing prices to deviate from marginal costs, the problem of 'second best' is to determine the appropriate price marginal cost ratio for substitute (non-taxed) outputs. The simple rule of thumb for substitute outputs is that price marginal cost ratios should be similar, and in principle not too different from elsewhere in the economy (see Mishan 1981).

ROAD USER CHARGES AND INVESTMENT CRITERIA

The principles of pricing and investment criteria under competitive conditions form the basis of the economist's analysis of optimal price and investment policy for government monopoly enterprises such as road supply.

Like most other real world enterprises the road supply sector is a multi-product enterprise. However, unlike the outputs of privately owned firms and of some publicly owned enterprises, most of the outputs or services from road supply are not sold in the market place. Instead road users are subject to a variety of taxes and charges most of which have little connection with the costs of road supply. As such, existing user charges fail to provide road planners with high quality economic information required for evaluating alternative investment and maintenance options.

If the road supply industry is to mirror price–cost relationships under competitive conditions it is necessary to devise a pricing scheme which allows road authorities to maximise user benefits from the existing network and thereby provide a link (as in the models discussed earlier) between optimal prices and optimal investment decisions.

Making the most economical use of available road capacity requires that road users are confronted with the social costs of using the road network. In the short run this means that charges for each vehicle type should reflect related road damage costs, and during peak demand periods the costs of traffic congestion. Other social costs such as noise and air pollution might also be important but are ignored in this discussion.

Road damage costs

As explained in more detail elsewhere (see Small et al. 1989) the amount of road damage caused by a vehicle using a particular road depends, *inter alia*, on the technical characteristics of the road, the axle configuration of the vehicle, and weight per axle. In practice road suppliers design roads to withstand a specified number of passages of axles of a standard weight and configuration before major maintenance expenditure is necessary. This is usually referred to as the periodic overlay.

The standard adopted for measuring the damaging impact of a vehicle on road pavement is the equivalent standard axle (esa). The greater a vehicle's esa rating the greater its damaging power. The practice is to define the standard axle as a dual tyred single axle of 8.2 tonnes. Thus, the damaging power of an axle with some other load or configuration is then expressed in terms of the number of equivalent standard axle loads (esal) causing the same amount of road damage. Best available evidence indicates that the damaging power of an axle increases dramatically with increases in load. For many years it was held that the equivalence factor for a standard axle increased approximately as the fourth power of its load. Thus a doubling of the load on a standard axle was held to cause about sixteen times the damage of a standard load. However, some recent research findings suggest that the damaging effects of increases in axle loads might be described more accurately as rising with the third power of the load (Small et al. 1989, p. 11). Be that as it may, the consensus is clearly that the adoption of the marginal cost pricing rule requires that road damage charges be systematically related to axle load.

There are also other aspects of road damage that need brief mention here. In practice roads also deteriorate as a consequence of the passage of time and thus because of the impact of weather and climatic conditions, in conjunction with volume and load characteristics of vehicles. It might therefore be argued that some part of the costs incurred in maintaining a road are joint costs and as such cannot be directly attributed to particular vehicle classes. Where such costs are important the theory indicates that, in principle, these should be apportioned on the basis of demand elasticities.

Recent analyses of road damage costs also draw attention to the concept of a road damage externality. As noted by Newbery (1988, p. 162) this is the increased vehicle operating costs experienced by subsequent vehicles as a result of driving on a more damaged, or rougher road surface. Adding such additional costs to the marginal road damage costs gives the marginal cost of road wear. However, in practical terms a charge based on axle loads can be viewed as a reasonable approximation of the social costs of road damage. Further, since the marginal damage costs will vary throughout the road system the optimal damage charge should, in theory, also vary for different roads in different locations. In practice, the efficient charge is more likely to reflect average maintenance costs. Where weather conditions are an important cause of road deterioration the efficient traffic related charge will be less than average maintenance costs (Newbery 1988, p. 162).

Congestion costs

Congestion costs also represent an important component of the marginal costs of road use. As the volume of traffic on a road of given width and other technical dimensions, such as road curvature, increases from a free-speed flow the additions to traffic volume cause an increase in the costs of travel to all road users. These costs, which are manifest as increases in travel time, fuel costs, and vehicle wear and tear, are an externality associated with road use. While we might suppose that individual road users who join the traffic flow on a particular road during a peak demand period are aware of the private cost of travel at that time, private decisions are not based on the social costs of travel. Failure to confront the road user with the marginal social costs of congestion results in an inefficient use of existing capacity.

It is easy to show that congestion costs form part of an optimal pricing policy for roads, by making use of the discussion in the previous section. For example, suppose that a single supplier of road track also owns the vehicles which use the road and that these are operated for commercial purposes. Clearly, congestion will not be a matter of indifference to the road supplier. As traffic volumes increase beyond the free-speed level the operating costs of the road supplier's vehicles will increase. What matters to the road authority is the relationship between increased operating costs brought about by the addition of another vehicle and the effect of the latter on revenues.

Intuitively, it would seem that the lower limit to price is given by the price which maximises throughput (that is, the number of vehicle-kilometres per period of time). The supplier would not supply services at lower prices, and therefore higher levels of congestion, which resulted in lower levels of throughput. Given the lower limit to price, the supplier would consider the impact of increases in price on speed of travel, throughput and profitability. A reduction in throughput (from the maximum attainable) will be justified as long as the value of increased speed of travel (a consequence of a rise in price) is greater than the loss in value brought about by the decrease in throughput. Thus, short-run profit maximisation (assuming this to be the relevant objective) is achieved when the increment to net profit from the output of the marginal unit is equal to the decline in net profit from slower speeds. In the long run the supplier considers the need to make adjustments to capacity. This issue is examined below.

Since roads are used by a variety of vehicle types it is usual to express a vehicle's contribution to congestion in terms of passenger car units (pcu) per period of time. A vehicle's pcu rating is determined by the amount of space it takes up including estimates of space required for safety purposes, compared with the requirements of the standard passenger car. Thus large buses and trucks may have a pcu rating between 2 and 5 pcu depending on the size and power of the vehicle, road characteristics, terrain and traffic conditions.

Congestion costs also vary by location, and thus from road to road, and also by time of day. Ideally, congestion charges should reflect these differences. However, practical considerations suggest that it is not likely that the finely tuned requirements of theory will be achieved in the near future. But some significant efficiency gains are possible by setting congestion charges in various locations during the peak demand periods. Such an approach is clearly preferable to existing arrangements and to suggestions that charges be based on an average of congestion costs for different parts of the road system and at different times of day.

Optimal adjustments to capacity

While the discussion so far has focused on the short-run problem of making best use of available capacity, a road supplier, like any other firm, is also faced with the problem of determining what adjustments, if any, should be made to capacity. Since a typical road supplier is a multi-product enterprise the long-run problem is to determine the optimal quantity and quality of roads in the various parts of the network.

Roads can be constructed to a variety of widths and quality standards: they may range in quality and capacity from a single lane bush track to multi-lane urban expressways and intercity highways and can be constructed from a variety of materials including dirt, gravel, bitumen and concrete. Further, it is evident that there are economies of scope in road provision since it is usually cheaper to build a road suitable for all vehicles than to construct separate roads for each vehicle type.

Put differently, the investment problem is to determine the optimal amount of durability and capacity for roads in various locations. As we have seen, the amount of capacity available at a given point in time may affect vehicle flow per time period as manifest by variations in levels and duration of congestion. Thus additions to capacity are required to facilitate vehicle flow during peak demand periods by reducing excessive levels of congestion. The adjustments to capacity may be achieved in a variety of ways. These include: increasing the number of lanes, making improvements at intersections, widening existing lanes, improving shoulders, and the construction of overpasses and passing lanes. The other element of road investment — durability, or road strength — refers to the ability of a road to withstand the cumulative damage effects of the flow of heavy vehicles. There are many ways in which road durability can be improved, including upgrading the quality of materials used and improving drainage, but its major determinant is road thickness (Small et al. 1989, p. 14).

Given the existing stock and quality of road space the question of what adjustments, on efficiency grounds, need to be made to road durability and road width can be answered by referring to the model of a highly competitive road supply industry, or the analogy of a firm which owns the road track as well as the vehicles, and is required to mimic the competitive model.

In the context of the theory of a competitive road supply industry (Walters 1968), adjustments to capacity are determined by the relationship between revenues (prices) and costs of supply. If road users are confronted with road damage and congestion costs, and revenues thus generated result in some roads earning above normal returns, this would be a signal for an expansion in capacity to occur. Similarly, for other parts of the system the relationship between revenues (prices) and costs might require that some roads be downgraded in quantity–quality terms while others are maintained at original standards, and possibly, in the extreme case, some are closed down. In long-run equilibrium price–cost ratios would be the same for each part of the network. Further, given the assumption of constant returns to scale in construction and the absence of significant indivisibilities (Walters 1968), the optimal set of charges for the optimally designed road system will result in cost recovery.

As suggested, the same results can be obtained (given the right assumptions) for a road supplier who also happens to own the vehicles (passenger and freight) which use the road track and whose price and investment policies mirror those found in a highly competitive industry. Such a supplier will not only take account of the effects of congestion on profitability, but will also be concerned to determine the optimal level of road durability and accordingly, the optimal axle load characteristics for heavy vehicles. Increasing the durability of a road adds to capital expenditure but also saves on road maintenance and vehicle operating costs. Thus, the right combination of durability and vehicle axle load characteristics will be that which minimises the long-run costs of providing freight and passenger services and results in a competitive return on capital. Given differences in demand conditions and cost of supply in various locations it follows

that in long-run equilibrium, the extent of road durability and width, and thus levels of congestion, will vary throughout the road network.

ECONOMIC EFFICIENCY AND ROAD COST RECOVERY

In the simple models described above, pricing on the basis of marginal social costs and evaluating investment according to revenue cost considerations leads to efficient cost recovery from users of the road system.

One important issue concerns the implications of indivisibilities, and other road supply-side characteristics such as economies and diseconomies of scale and scope, for investment policy and cost recovery. In the study by Walters the investment rule of the competitive model is rejected on the grounds that '... roads are not putty. Road capital is not a malleable quantity which can be kneaded at will into just the right shape' (Walters 1968, p. 34). In brief, Walters argues that pricing at short-run marginal cost, given the presence of indivisibilities, lumpiness, joint products, economies of scale and irreversibilities, requires that investment decisions be determined by application of social benefit – social cost analysis rather than by revenue–cost considerations. Further, Walters also notes that there are no *a priori* grounds to suppose that adoption of optimal price and investment criteria will lead to financial self sufficiency. Setting cost recovery as an objective of policy is viewed essentially as an equity–political goal, not a requirement for economic efficiency.

Obviously, the significance and likelihood of a financial loss as a consequence of adopting the short-run marginal cost pricing and social benefit – social cost investment rules depends on the importance of the various supply-side characteristics. Recent work by Small et al. (1989) gives some attention to these matters. Since roads have multi-product characteristics in terms of capacity (width) and durability, an important empirical issue concerns the degree of product scale economies and the nature of economies of joint production, commonly described as economies of scope. The Small et al. study provides evidence for the existence of strong increasing returns to scale associated with durability. In other words, Small et al. find that the ability of a pavement to resist traffic loads increases more than proportionally to increases in thickness.

They also review the theoretical arguments and evidence regarding the type of economies associated with changes in road width. At the theoretical level a case can be made for the existence of economies and diseconomies of scale in the supply of highway capacity. For example, for a single road there are likely to be economies of scale for two reasons: first, road capacity increases faster than the number of lanes increase; second, costs increase at a slower rate than the number of lanes increase because expenditure on road structures such as shoulders and median strips need not increase as the number of lanes is increased. In contrast, it is suggested that a system of roads may be characterised by decreasing returns to scale. This could occur because of the need to provide intersections whose costs are likely to rise more than proportionally to increases in road width. Also, in densely populated urban areas

increasing the capacity of urban roads will force up the price of land, causing costs to rise more than proportionally.

Since roads are usually constructed to provide more than one product (durability and width), the financial consequence of optimal charges for optimally designed roads is determined not only by the scale characteristics of each product, but also by the nature of the economies of scope. The concept of economics of scope measures the extent to which producing multi-products using common plant costs less (economies of scope) or more (diseconomies of scope) than producing each product or service separately (see, for example, Bailey & Friedlaender 1982). In the Small et. al study (1989) it is found that for highways there is evidence for the existence of diseconomies of scope in the production of durability and width. The reason given is that as a road is widened to accommodate more passenger cars the cost of additional thickness required for additional heavy vehicles increases because all lanes are usually constructed to the same thickness.

The upshot of the analysis is that the diseconomies of scope almost offset the product-specific scale economies, thereby giving rise to approximately constant returns to scale (see also Winston 1991, p. 120). This outcome suggests, for urban roads especially, that efficient charges combined with optimal investment could result in financial self sufficiency. However, for uncongested rural roads additional charges such as vehicle registration fees would be necessary to achieve a balanced budget. The analysis and conclusions of this work are generally consistent with the recent theoretical and empirical work by Newbery who, with respect to the deficit issue, concludes:

> ... the enormous economies of scale in strengthening roads... [do] not imply that efficient pricing will fail to recover the construction costs, at least, if there are roughly constant returns to scale in constructing roads of a given strength but different capacities, consistent with the (rather indirect) evidence presented here. If it is desirable to strengthen roads, then the cost of so doing will be recovered from the (optimal) congestion charge. Given that it is more expensive to build stronger roads, higher congestion charges will be required, which in turn means that roads will have to become more congested before they are expanded, the stronger they are. (Newbery 1989, pp. 182–3)

Even if it were the case that adoption of the above price and investment rules would lead to a financial loss, economic theory is clear on the requirements for efficient cost recovery. In essence, additional charges imposed on road users to meet the revenue shortfall should be inversely related to demand elasticities and thus set in such a way as to ensure that economic efficiency losses are minimised. As we have seen, this is the principle by which joint costs of multi-product supply are apportioned under competitive market conditions. Pricing according to demand elasticities is, of course, also adopted by profit maximising multi-product monopolists and multi-product firms in oligopolistic markets. However, since profit maximisation in such contexts usually means earning an above competitive return on capital, the ratio of prices to attributable costs will differ from those established under competitive conditions.

Finally, it is important to note that an assumption made is that all expenditures incurred in providing road space are expenditures incurred on behalf of road users, and that for equity reasons alone road users should be required to pay for the costs of the roads. However, there are exceptions to this argument which require mention. First, some road expenditures are incurred for the purpose of creating non-user benefits such as defence access. Second, it is often the practice of road authorities to build some roads to a standard higher than warranted by economic considerations for the purpose of achieving community service obligations. In either case it is reasonable to argue, on both efficiency and equity grounds, that funding for the additional expenditure be sourced from general revenue. Further, if some expenditure decisions are not effectively directed to the generation of user or non-user benefits, that is, if mistakes in investment planning occur, then users should not be required by monopoly road suppliers to pay for such mistakes. The principles outlined in previous sections clearly indicate that in circumstance where too much quality–capacity is provided adjustments to lower quality–capacity standards should be allowed to occur.

CONCLUDING REMARKS

This chapter provides a broad review of the economic principles which form the basis of a roads policy aimed at maximising economic efficiency benefits. In this regard the review has highlighted the link between efficient pricing and investment policy as derived from a model of a 'competitive' road supplier, and explained in economic terms the meaning of efficient cost recovery. The model requires, subject to some qualifications concerning non-user benefits, that road users meet the road damage costs occasioned by use and by climatic conditions, and that congestion charges be applied during peak demand periods. Adoption of such principles would provide an economic basis for assessing the value of existing road quality–capacity to road users and for determining optimal road investment and heavy vehicle technical dimensions.

CHAPTER 3 ROAD SUPPLY IN AUSTRALIA: THE FEDERAL FRAMEWORK

The previous chapter reviewed some economic theory and outlined the main features of an efficient road price and investment policy. The discussion in this chapter sets the stage for an examination of the practice of roads policy in Australia, with emphasis on the role of the Commonwealth government and the States, by providing a brief account of the constitutional, political, and institutional environment within which roads policy decisions are formulated.

Though the constitutional responsibility for road construction and maintenance decisions rests with the States there are various provisions of the Constitution which, in theory, enable the Commonwealth government to have a significant impact on resource allocation in the roads sector. A fundamental issue concerns the appropriate balance of responsibility for roads policy between the Commonwealth government and the States.

A major economic reason for the creation of the Australian federal system was the establishment of an integrated national economy. Such a concept has obvious implications for Commonwealth government road expenditure and cost recovery policy, in particular, the acceptance of efficiency in resource use as a major objective. The extent to which such an objective can be achieved depends, *inter alia,* on the objectives pursued by the States and their road authorities and on the willingness and ability of the Commonwealth government to impose efficiency criteria on the States when conflicts of objectives arise. In addition the High Court's interpretation of section 92 of the Constitution has an important bearing on the degree to which it is possible to implement an efficient road pricing policy. A number of the issues raised in this chapter are discussed in more detail in subsequent chapters.

THE CONSTITUTIONAL BACKGROUND

Although the primary constitutional responsibility for road construction and maintenance is vested in the States, who in turn share this responsibility with their respective local government authorities, there are sections of the Constitution which enable the Commonwealth government to assume an important role in the funding of road programs, the setting of program priorities, the regulation of

interstate road transport, and in the development of road cost recovery arrangements.

Apart from section 122 of the Constitution which gives the Commonwealth government responsibility for roads in the Territories and on Commonwealth government property, those sections of the Constitution which provide the Commonwealth government with the legislative powers to participate in a significant way in the formulation and implementation of roads policy are section 51(i), section 51(v) and section 96. Of these section 51(i) and section 96 are the most important.

Section 51(i) states: 'The Parliament shall, subject to this Constitution, have power to make laws for the peace, order, and good government of the Commonwealth with respect to: ...'. The two items under this section referred to are: ' (i) Trade and commerce with other countries, and among the States;' and ' (vi) The naval and military defence of the Commonwealth and of the several States ....' Section 96 states: '... the Parliament may grant financial assistance to any State on such terms and conditions as the Parliament thinks fit'. Although section 96 '... was inserted in the Constitution to provide some flexibility in Commonwealth–State financial relations, ... and to assist the smaller States which stood to lose most by the last minute compromise at the Premiers conference in 1899 ...' (Lumb & Ryan 1981, p. 346), subsequent judicial interpretations have allowed the Commonwealth government to adopt as wide a use of this power as it sees fit. The initial test case occurred in 1926 in *Victoria v. Commonwealth* (1926) 38 CLR 399, in which the question at issue was whether the Commonwealth government was entitled to attach conditions to a grant to the States for roads. The legislation under challenge, the *Federal Aid Roads Act 1926*, authorised the adoption of a road aid agreement between the Commonwealth government and the States under which financial assistance was made available to the States for road construction and reconstruction. The agreement specified, *inter alia,* the types of roads which could be constructed, and made future payments dependent on the requirement that the States maintained such roads at a standard acceptable to the Commonwealth government. Without providing exposition the High Court ruled in favour of the legislation. The import of this decision was explained by Dixon CJ in *Victoria and New South Wales* (Uniform Tax Case)(1957) 99 CLR 575, as follows:

> This means that the power conferred by [section 96] is well exercised although (1) the State is bound to apply the money specifically to an object that has been defined, (2) the object is outside the powers of the Commonwealth, (3) the payments are left to the discretion of the Commonwealth Minister, (4) the money is provided as the Commonwealth's contribution to an object form which the State is also to contribute funds... ((1957) 99 CLR 399 at 606)

The extent to which the Commonwealth government has utilised its powers under section 96 to influence road expenditure priorities has varied considerably throughout the period under review. The differences in policy approach, described in chapters 4 and 5, reflect, among other things, differences of views about the kind of federal system Australia should have, the response of the

Commonwealth government to State and local government political pressure, Commonwealth government attitudes to the need for a national roads policy, and the means by which such a policy might best be achieved. For most of the period from 1926 to 1969 the Commonwealth government refrained from using its powers under section 96 to develop a national roads policy. Since then, however, successive Commonwealth governments have made greater, but not similar efforts, to influence road expenditure priorities.

In highlighting the Commonwealth government's powers to regulate trade and commerce among the States, and to make payments to the States, it is important to mention section 99. This section states that: 'The Commonwealth shall not, by any law or regulation of trade, commerce, or revenue, give preference to one State or any part thereof over another State or any part thereof'. It might seem that this section places a constraint on the Commonwealth government's distribution of section 96 road grants. However, this is not the case. Section 99 applies to '... any law or regulation of trade, commerce, or revenue ...' and refers to an area much wider than that relevant to section 96. In essence preference cannot be given to a State or parts of a State by laws which regulate trade and commerce, or which refer to tax or other revenues. This requirement of nondiscrimination does not apply to grants made under section 96.

Section 86 focuses on the '... collection and control of duties of customs and of excise ...' and section 90 gives exclusive power to the Commonwealth government to impose such duties. The interpretation of this section is of special relevance to road funding and charging issues, since it applies to the taxation of fuels and transport equipment. At present the High Court's interpretation of this section allows the States to levy fuels taxes in some circumstances, provided they are suitably disguised. Since 1979, following the abolition of State road maintenance taxes, all of the States except Queensland have introduced legislation for the purpose of generating revenue from the sale of petrol and distillate. Consistency with the current interpretation of section 90 is achieved by levying charges in the form of 'business franchise licence fees'. These fees are imposed primarily at the wholesale level and comprise a nominal fixed component and a variable charge, in most States based on the capital city wholesale price.

Another provision of the Constitution which has special significance for this study is section 92. The currently relevant part states that '... trade, commerce, and intercourse among the States, whether by means of internal carriage or ocean navigation shall be absolutely free'. The original intention of this section was to prevent the creation of tariff barriers between the States, and as a consequence, to facilitate the development of an internal common market. However, the link between section 92 and the concept of an integrated economy has not, until recently, figured as a central element in the High Court's interpretation of this section. As discussed in chapter 7 the application of this section has given rise to much dispute and to significant differences of view among members of the High Court. Until recently, the dominant interpretation has been based on what is known as the 'individual rights' theory. Essentially this theory places paramount importance on the 'right' of individuals to engage in interstate trade irrespective

of whether laws or regulations pertaining to interstate trade are protectionist or not. While regulation per se is not prohibited (indeed, if this were the case there would be a contradiction between section 92 and section 51(i)), laws which 'regulate' interstate trade must not directly or immediately restrict such trade. For regulation to be acceptable its effect on interstate trade, if any, must be indirect and of little significance.

It is this view of section 92 which, for almost forty years, determined the limits to government regulation of interstate trade and commerce, including interstate road transport, and the imposition of cost recovery charges on vehicles engaged in interstate trade. With regard to the latter the present position was established in *Hughes and Vale Pty. Ltd. v. New South Wales (No. 2)* (1955) 93 CLR 127. The High Court declared that the States could impose a road maintenance tax on heavy vehicles engaged in interstate transport, and that no charges could be imposed for capital. Such a constraint restricted the possibilities for adoption of efficient road cost recovery policies. However, there is some prospect that the decision taken by the High Court in *Cole v. Whitfield* (1988) ALJR 303 will allow capital charges to be imposed and in a manner consistent with economic criteria. Be that as it may, the above constraint is fairly meaningless because the Commonwealth government imposes levies on transport fuels, and is therefore able to designate any proportion of such levies as taxes rather than treat them as road user cost recovery charges.

Application of the 'individual rights' theory also presents other difficulties for the achievement of efficiency of resource use in the land transport sector. In particular, while taxes levied on interstate transport per se, by either the Commonwealth government or State government, are usually considered to be invalid, this does not appear to be the case for subsidies. Although State government railways have rarely achieved financial viability and have subsidised interstate services the latter has not been regarded as unconstitutional. Thus when a removal of protectionist taxes on interstate road transport operations occurred, as required by the judgment in *Hughes and Vale* (1955), State rail authorities were able to adjust to the change by subsidising substitute (interstate) services. Such an action demonstrates that the efficiency objective intended by the application of section 92 can, at least in some cases, be easily thwarted.

The significance of the common market concept to the founders of the Australian federation is reinforced when section 92 is considered in tandem with other provisions of the Constitution. They include sections 90 and 99 (already referred to), section 51 subsections (ii) and (iii), and sections 102 and 104.

Section 51(ii) confers on the Commonwealth Parliament the power to legislate with respect to taxation 'but so as not to discriminate between States or parts of States.' In addition, subsection (iii) of section 51 specifies that the Commonwealth Parliament may legislate with respect to 'Bounties on the production or export of goods, but so that such bounties shall be uniform throughout the Commonwealth.' The concern of the founders of the Constitution to prevent discrimination between the States by both the Commonwealth government and State governments is

concerning the overall level of expenditure on roads and the appropriate contribution from State and Commonwealth derived sources of revenue, and to the issue of the level of cost recovery achieved by various categories of road users.

Differences between State road user charging policies are also evident with respect to the setting of vehicle registration fees. As shown by the ISC (1986) there are considerable differences in the complexity of formulae and principles adopted by the States (and the Territories) in arriving at the level of charges to be met by the various categories of vehicles. Such variations in approach have resulted in wide differences in State and Territory registration fees for the same vehicle class and between classes. For example, in 1985 the registration charges per annum ranged from $2753 for a representative six-axle articulated vehicle registered in New South Wales to $1280 in Tasmania and an estimated $376 in the Northern Territory (ISC 1986). The rationale for the choice of formula and for the money values assigned to the various components of the charge is hard to pin down. As suggested by the ISC (1986) the explanation involves a complex of factors including political considerations, concepts of equity, the level of funding received by the States from the Commonwealth government, and in some cases administrative simplicity.

Once again the significance of such differences depends on the issue at hand. For instance, if governments wish to achieve an efficient and equitable road cost recovery scheme, especially with respect to interstate transport, and registration charges are to form part of such a scheme, then there is a need for the adoption of a uniform approach by the States and Territories, and for charges to be based on economic criteria. Until fairly recently there has been little interest shown by the States, or indeed the Commonwealth government, in the need for a national approach to the issue of road user charges.

While a great deal of the public debate concerning roads policy focuses on the amount of funding available for road expenditure, with both the States and road user interest groups arguing for increased Commonwealth contributions to State road budgets, the subject of how road funds are spent receives relatively little public attention. Yet, the investment and maintenance decisions taken by road authorities are of fundamental importance to an economic assessment of the need for increased funding. From the perspective of efficiency in resource use, the level of funding, the way in which road user charges are set, and how road investment and maintenance decisions are made need to be examined as interrelated issues.

There are many factors involved in an explanation of the road expenditure decisions taken by State road authorities. Only some of these factors are mentioned here. The first, and most obvious point to make is that road authorities do not operate in a political vacuum: they are creatures of government and are required, on various occasions, to pursue policy objectives dictated by government. For example, the division of road funds between urban and rural areas is sometimes determined by State governments either by making provision

in the Statutes for rural and urban road funds, or by specifying criteria for determining which roads warrant declared roads status and thus eligibility for road authority expenditure. In other cases policy goals are conveyed by the Minister for road works to the road authority's chief executive, an example of which would be a decision by government to meet an election promise to upgrade parts of the road network within a specified time period.

There are also important historical factors and institutional arrangements which affect the regional distribution of road funds within the States and the setting of program priorities. Historically, much of State government road expenditure has been directed to the establishment of a rural roads network justified largely on 'development' grounds by providing links between rural and mining communities and major centres of population. In establishing such networks decisions concerning choice of route and road standards were determined (given the available funds) by engineering criteria, concepts of equity, and in at least one case, namely that of Queensland, by the availability of substitute services such as rail transport.

In general it is fair to say that while State government road expenditure policy has been influenced by a number of objectives these objectives have been dominated by State interests and parochial concerns. Indeed it is only in recent times that the States have been required to give greater attention to the effect of their road expenditure decisions on the national economic interest.

As the States extended and developed their road systems they put into effect a regional planning framework for the purpose of identifying each region's road 'needs' and to assist with the determination of project priorities. In essence, road authority budgets are allocated among the various regions for each planning period, usually three to five years, matching the period of Commonwealth road grants legislation. The allocation of funds to the various regions is influenced by previous decisions, by the ability of regional planners to show that road 'needs' exceed current expenditures, and by political pressure exerted by local government for increased road funding. In addition, these factors are reinforced by, or also reflect, changing community expectations concerning road standards. As pointed out by the BTE (1984), expectations concerning minimal acceptable standards have gradually risen over the years. As a consequence of such factors road fund allocation by regions exhibits a fairly rigid pattern. Moreover, given community expectations regarding road quality and government responses to such expectations, an increasing proportion of State government road budgets is directed to maintaining the existing road system, leaving a declining proportion of total funds available for new investment (BTE 1984).

In short, road expenditure decisions taken by State road authorities are a consequence of a number of objectives and constraints which have emerged over time. Available evidence from studies undertaken by the Commonwealth Bureau of Roads during the late 'sixties' and early 'seventies' (see chapter 5), by the Bureau of Transport Economics (BTE 1984), and by Docwra (1982) suggest that many decisions taken by road authorities are motivated by non-economic

considerations. Further, the extent to which the objective of economic efficiency can be pursued is affected by the ability of the States to bring about significant changes in the allocation of funds to the various planning regions. In part this is a reflection of the desire of the States to achieve multiple objectives, as well as the degree of rigidity brought about by political pressures from local authorities, and the application of rules of thumb in the determination of regional shares.

COMMONWEALTH INVOLVEMENT: THE ATTAINMENT OF NATIONAL OBJECTIVES

There are a number of issues which concern the Commonwealth government's role in the road sector. By virtue of the extent of its fiscal capacity, which is based in part on its effective monopoly over income taxes, sales taxes and customs and excise, the Commonwealth government is in a position to exercise considerable influence over the level of road funding, mainly through section 96 specific purpose grants made to the States for road expenditure.

An important, but difficult, issue to resolve is the appropriate level of Commonwealth road expenditure, given the fiscal capacity of the States and the economic returns from expenditure on road infrastructure compared with other areas of public expenditure. An attempt to address this issue in a constrained context by examining the economic net benefits from increased levels of road expenditure was made by the Commonwealth Bureau of Roads during its short existence through the 1960s and 1970s. As is shown in chapter 5 the Bureau's recommendations regarding Commonwealth contributions were, with the exception of one period, significantly in excess of subsequent Commonwealth grants. Following the demise of the Commonwealth Bureau of Roads other government advisory bodies such as the Bureau of Transport Economics have refrained from making explicit recommendations to the Commonwealth government as to appropriate levels of Commonwealth aid for road purposes. This may in part be a consequence of doubts concerning the robustness of modelling procedures of the type used by the Commonwealth Bureau of Roads as well as a response to Commonwealth government political sensitivities.

While economic analysis has had relatively little impact on the determination of Commonwealth financial assistance to the funding of road works, Commonwealth contributions have for many years represented about one third of the total of road expenditure by all levels of government. However, at times macro-economic policy and other government objectives have resulted in substantial real reductions in the Commonwealth contribution to roads. For example, an examination of Commonwealth road expenditure (constant 1984–85 prices) from the early 1950s to 1984–85 shows Commonwealth contributions steadily increasing, reaching a peak of about $13 500 million in 1972–73, and declining thereafter to a low of $950 million in 1983–84 (BTE 1987, p. 56). Expenditure then increased following the introduction of the *Australian Bicentennial Road Development Trust Fund Act 1982* (the ABRD Act). By 1989–90 Commonwealth government road expenditure was about $1367 million, representing 26.8 per cent of total road expenditure (BTCE 1992).

In arguing for increased Commonwealth contributions to road expenditure, both the States and the various road user interest groups point to the amount of revenue collected by the Commonwealth government from taxes on motor spirit and diesel fuel, and Commonwealth contributions to road works as a percentage of such collections. The ratio of total road grants to fuel excise reached a peak of 70 per cent during the period 1959–60 to 1963–64 and declined to 53 per cent during the years 1969–70 to 1973–74. Thereafter the ratio increased, reaching a new peak of 67 per cent during the period 1980–81 to 1984–85. Since then the ratio has shown a significant fall attaining an all-time low of about 24 per cent in 1986–87 (BTE 1987, p. 53), highlighting to a large extent the impact of Commonwealth government macroeconomic policy on the roads sector.

As mentioned previously there is no economic basis for the view that all revenues derived from users of the road system should be allocated to road expenditure. From a microeconomic perspective a fundamental issue concerns the costs and benefits to the community from changes in the level of road expenditure, such costs and benefits reflecting not only the level of expenditure but also choice of programs and projects. But related to this is the issue of road user charges and cost recovery policy. As is shown in later chapters Commonwealth government road policy has, until fairly recently, been dominated by supply side considerations. Significant interest by the Commonwealth government in demand side issues concerning road user taxes and charges and road cost recovery occurred for the first time in the early 1980s following the report of the National Road Freight Industry Inquiry (1984). Subsequent investigations in 1985 and 1987 by the now defunct Inter-State Commission have seen the Commonwealth government turn this interest into action by the introduction of registration fees for vehicles engaged solely in interstate transport. Such vehicles had enjoyed exemption from registration charges following a High Court decision in *Hughes and Vale* (1955).

However, the task of achieving significant progress in the development of an economically efficient road cost recovery policy is likely to prove difficult. There may be problems in achieving sufficient cooperation between the Commonwealth government and the States, and winning sufficient support from road user groups. In addition there is the important matter of the High Court's interpretation of section 92. As noted, a previous interpretation restricted the imposition of road user charges on vehicles engaged solely in interstate transport, to the recovery of road maintenance costs. Should such difficulties be overcome the achievement of a structure and level of road user charges based on efficiency criteria would provide valuable information regarding expenditure requirements and have implications for financial contributions from the Commonwealth government and State governments. Obviously, an important policy issue would concern the role of the Commonwealth fuel excise in the development of a more efficient road user charging scheme, and the level of Commonwealth taxation imposed on road users. At present the Commonwealth government hypothecates about 7 cents per litre of fuel excise for road expenditure purposes. This represents about 27 per cent of the fuel excise per litre for 1991 (*Petroleum Gazette* 1991). While this sum appears to have little connection with economic

criteria concerning appropriate levels of road expenditure, the Commonwealth government views such an amount as a charge for road use and the remaining part of the impost as a tax. But more of that later. Further, the point needs to be made that, while significant improvements in the efficiency of road user charging arrangements are possible, the economic significance of such changes is lessened if economic efficiency is not a major objective of road expenditure policy.

In addition to the above matters the Commonwealth government is able, by virtue of its powers under section 96, to influence the distribution of road grants by States, and to some extent, affect program priorities. The extent and nature of Commonwealth involvement is a matter which has both political and economic dimensions. As a general rule the States will attempt to resist efforts by the Commonwealth government to regulate road expenditure priorities where such efforts are seen as a threat to the achievement of State objectives, and/or an infringement of what are perceived by the States to be their 'rights' as members of a federal system. Such resistance may be manifest in a direct political manner, and if possible, indirectly by the switching of funds. As already observed, State road expenditure decisions are unlikely to be guided by economic efficiency considerations alone. Like many State government public enterprises State road authorities are required to achieve equity and other objectives of policy which reflect State interests and parochial concerns.

Thus, a major issue for Commonwealth governments focuses on the extent to which Commonwealth government roads policy should attempt to directly influence road investment and maintenance priorities. Since it is a prime function of the Commonwealth government to represent the national interest it follows that Commonwealth government roads policy should be motivated by goals of national importance. Given that a major economic reason for the creation of the Australian federation was the desire to form an integrated national economy this suggests that economic efficiency considerations should dominate the objectives of Commonwealth roads policy. While many would argue that such an objective should also be the principal goal of State government road expenditure policy, there are, as suggested above, many reasons why this might be difficult to achieve in the short term. The point to be made is that it is far from obvious that leaving all road expenditure decisions to the discretion of the States will adequately meet the efficiency goals required for the achievement of an integrated national economy. In view of this a strong case can be made for the Commonwealth government to use its powers under section 96 of the Constitution to exercise some control over road expenditure priorities in order to ensure that roads of national importance receive adequate funding. An outline of the history of Commonwealth involvement in the roads sector and the major factors which have influenced the approach of successive Commonwealth governments to the use of section 96 to affect road investment priorities is provided in the next two chapters.

CHAPTER 4 THE ROLE OF THE COMMONWEALTH 1922 TO 1969

This chapter provides a short review of the history of Commonwealth government involvement in the road sector during the period from 1922 to 1969. Attention is drawn, *inter alia*, to the major objectives of Commonwealth policy, the principles adopted for determining grant allocations among the States and the attitude of the principal political parties to the nature and extent of Commonwealth government involvement.

COMMONWEALTH AID ROADS GRANTS 1922 TO 1930

Commonwealth involvement in the road supply sector commenced in 1922 when a grant of $500 000 was made available to the States under the provisions of the *Loan Act 1922* (No. 7) (Cwlth). The Commonwealth's objective was to assist the States in alleviating unemployment. The grant was allocated among the States on a per capita basis and was conditional on the States providing a dollar for dollar matching contribution and directing expenditure to the maintenance of existing roads in rural areas. The Act also provided for Commonwealth approval of the expenditure of such funds.

In the following year the Commonwealth introduced its first specific purpose grant for road construction by providing $1 million under the terms of the *Main Roads Development Act 1923* (Cwlth). The principal objective of the Act was to assist the States in developing their rural areas. In the words of the then Prime Minister, Mr Bruce, the Act was designed:

> not to relieve the State Government from their ordinary obligations with regard to roads. It is intended to extend and promote the development of the country by the provision of new roads and the improvement of main roads as arteries of communication. (Australia, House of Representatives 1923, *Debates*, vol. HR103, p. 311)

The Act provided for a new approach to the apportionment of the road grant among the States. Tasmania was allocated five per cent of the grant and the remainder was distributed among the other States on the basis of three-fifths according to population and two-fifths according to area. It was the government's view that the formula produced an equitable distribution of Commonwealth road grants. The grant was also conditional on the States matching the

Commonwealth's contribution on a dollar for dollar basis. In addition, provision was made for the States to submit an outline of proposed programs of expenditure for the approval of the Commonwealth Minister for Works and Railways. The criteria adopted by the Commonwealth concerning the kind of road programs it was prepared to provide assistance for had been outlined at the 1923 Premiers' Conference and agreed to by the States. These were:

> (a) Main roads which open up and develop new country for agricultural, pastoral, or mining purposes, and which are necessary to convey the products of such to the nearest railway; or alternatively, to give access from the railway to such country for supply of plant, merchandise, food, fodder, goods ...
>
> (b) Main roads between important towns, either within a State or between States, where no railway communication exists to assist in the interchange of products and increased range of markets.
>
> (c) Existing arterial roads where, by the nature of the country and lack of suitable local materials for road making, cost of construction is beyond the ordinary resources of the districts through which they pass and which are required for transport of products to railways, river or port. (Australia, House of Representatives 1923, *Debates*, vol. HR103, p. 1108)

Amendments to the Act resulted in grants of $1 million and $1.5 million respectively in 1924–25 and 1925–26. The former was provided on the same conditions as set down in the 1923 Act, while in the case of the latter, $500 000 of the grant was allocated for the reconditioning of existing main roads.

While there had been general support for previous Commonwealth legislation the debate, in 1925, on the *Main Roads Development Bill* brought forward the criticism that the Commonwealth had yet to establish a clearly defined roads policy. For example, it was argued that:

> The system of Commonwealth assistance in the construction of main roads must be permanent if it is to do lasting good. At the present time there is no assurance of continuity and the very fact that the two previous grants, and the one now proposed, (ie. the amendments to the Main Roads Development Act) are chargeable to surpluses already realised instead of being made from ordinary revenue, in accordance with the settled policy of the Government emphasised that necessity. Although the Minister has told the State Governments that they may continue expenditure upon main roads in anticipation of Commonwealth assistance on the basis of last year's expenditure, it is difficult for any authority to undertake large works involving the expenditure of many thousands of pounds and extending over months, and perhaps years, unless it is assumed that the help which is available when the work is commenced will be forthcoming for its continuance and completion. (Australia, House of Representatives 1925, *Debates*, vol. HR111, p. 2343)

It was partly in response to such criticism that a new approach to Commonwealth road funding was initiated in the form of the *Federal Aid Roads Act 1926* (Cwlth). The Act also gave formal recognition to other views expressed by members of the Bruce–Page government, in particular, that the Commonwealth should substantially increase its involvement in the road sector both in terms of financial assistance and in the administration of that assistance. Drawing on the experience since 1916 of federal government assistance for road works in the USA, the government contended that unless Australia adopted a similar program, although obviously on a much smaller scale, the States would experience

increasing difficulty in meeting the demand for roads, and that without such aid economic development would be seriously impeded.

The purpose of the Act was to establish a basis for the development of a national roads program. It was the government's intention to engage with the States in a cooperative program of road construction involving a total expenditure over a ten-year period of $70 million, of which $40 million would be provided by the Commonwealth and the remainder by the States. The bulk of the Commonwealth's contribution was to be financed by the imposition of a special customs duty of 1.66 cents per gallon on petrol and shale oil as well as an increase of 5.0 cents per pound in duties on the heavier varieties of pneumatic tyres, an increase of 15 per cent on all other tyres and tubes and an increase in duties of 2.5 per cent on unassembled and assembled motor vehicle chassis. Of the total grant of $40 million, the government estimated that $30 million would be collected from the above duties while the remaining $10 million would come from existing sources of revenue. The grant was to be allocated among the States according to the area and population formula and matching conditions were also applicable — in this case, $1.50 of State contribution for every $2.00 provided by the Commonwealth government.

The decision to finance the larger part of the Commonwealth's contribution by means of the above tax instruments was in accord with road funding policies in many other countries and based on the view that road users as beneficiaries should make a major contribution to the funding of the road network. Further, in line with previous legislation the government intended that Commonwealth road funds should continue, during the period, to be directed to road construction and reconstruction in sparsely populated areas. The continuation of this policy was justified in the following terms (Australia, House of Representatives 1926, *Debates*, vol. HR114, p. 4595):

- that increased expenditure on roads in rural areas would benefit not only country residents but also city dwellers for whom the benefits from rural road development would be reflected in lower prices for agricultural produce and raw materials;
- since urban dwellers were the main beneficiaries of Commonwealth tariff policy it was only fair that the cities should contribute to the welfare of the residents of sparsely populated areas; and
- because of Australia's area and population size and distribution it was impracticable and unreasonable to expect that each area or section of the community should be solely responsible for its needs.

The Act provided for the classification of Federal Aid roads and required that all funds granted by the Commonwealth to the States under the terms of the agreement be directed to the construction and reconstruction of such roads, subject to the requirement that at least 25 per cent of the Commonwealth's contribution and 25 per cent of State contributions be allocated to construction. Further, power was granted to the Commonwealth Minister for Works and Railways to determine how the balance of Commonwealth and State

contributions (that is, matching grants) should be apportioned between construction and reconstruction.

Provision was also made for the establishment of a Federal Aid Roads Board consisting of the Commonwealth and State Ministers concerned with road works. It was the function of the Board to discuss any matters in connection with the carrying out of works as specified by the Commonwealth. Moreover, it was necessary for the States to provide the Commonwealth with full details of all proposed road works involving the use of Commonwealth funds and State matching grants, and to obtain Commonwealth approval for expenditure on such works. The Act also required that after approval of each scheme was obtained details of yearly programs should also be submitted for Commonwealth approval. Another requirement was that Commonwealth funds could not be used for expenditure in towns with a population in excess of 5000 people and funds could only be used for road construction and/or reconstruction in towns with less than 5000 people if the expenditure related to through-town roads. Further, the Commonwealth's control over the use of road funds also extended to road maintenance policy and decisions relating to the use of contract and day labour.

While previous Commonwealth roads legislation had enjoyed almost unanimous support both within and outside the Parliament, the 1926 Act was strongly opposed by the Australian Labor Party (ALP), by some members of the government parties, three of the States — New South Wales, Victoria, and South Australia, the National Roads and Motoring Association (NRMA), and the oil importing companies who, in turn, were largely responsible for the financing of an extensive press and political campaign against the proposals (Sawer 1956). The oil importing companies were opposed to the scheme largely because the tax on fuel did not apply to fuel supplied by the Commonwealth Oil Refineries, while the then President of the NRMA, Mr Watson, argued that:

> ... there cannot be the least justice in throwing on to the motor owners of Australia an additional burden of £1 500 000 [$3 000 000] a year through customs duties while they are already paying £3 500 000 [$7 000 000] annually through the same channels. Federal road money should be paid out of the funds already derived from the motor import duties, and we also contend that money intended for roads — purely developmental roads — for which motorists as such will have no general use should be paid out of consolidated revenue, particularly in view of the large Federal surpluses yearly ... in any case the motorist should not be singled out for taxation for road making, when he is only one of the several parties directly benefiting from road betterment ... all who reap an advantage by the creation of better roads such as the owners of contiguous land should be brought into the scheme. (*Sydney Morning Herald*, 5 August 1929, p. 9)

The opposition to the scheme by the above mentioned States and the ALP was based on arguments regarding constitutional responsibility and States' rights issues; the ALP's concern regarding the equity consequences of customs duties and indirect taxation, and also, as far as New South Wales and Victoria were concerned, on the ground that the Commonwealth's proposals treated them unfairly vis-a-vis the less populous States.

The ALP argued that while it was willing to support a policy of cooperation with the States for the purpose of road development, Commonwealth government aid for roads should be limited to what the Commonwealth could afford from surplus revenue and that if special taxation was considered necessary to finance road development then it should be imposed by the States. In addition, it was Labor's view that the Commonwealth did not possess the power to legislate for the regulation and control of the use of road funds.

As stated by one eminent ALP member, Mr Scullin:

> I have not the slightest objection to this Parliament making a grant to assist the State Governments in any direction it considers necessary; but there is a marked distinction between a gift to the States of £250 000 [$500 000] or £500 000 [$1 000 000], from an over-flowing Treasury, to assist them in developmental work, whether it be for road-making or railway construction, and introducing a permanent and continuous policy over a period of ten years. Honourable members can draw a distinction between the gift of a sum of money for constructing a few main roads or building a railway, which is a State function, and introducing a policy under which new taxation is to be imposed in order to enter the field of road construction in State territories. We are exceeding our constitutional rights when we invade in this way territory under the control of State authorities. The Commonwealth should co-operate with the States as it has done in the past when there has been a surplus to distribute, but it should not interfere with the functions that rightly belong to the States by competing with them in a way in which they do not approve. (Australia, House of Representatives 1926, *Debates*, vol. HR114, p. 4667)

The legality of the Commonwealth government's stand was tested in the High Court towards the end of 1926 in the following litigation: *Commonwealth and Commonwealth Oil Refineries Ltd. v. South Australia* (1926) 38 CLR 408, and *Victoria v. Commonwealth* (1926) 38 CLR 399).

In the first mentioned case the Commonwealth government and Commonwealth Oil Refineries issued writs against the government of South Australia and the South Australian commissioner for taxation, challenging the validity of the *Taxation (Motor Spirit Vendors) Act 1925* (No. 1681) (SA) and the *Taxation (Motor Spirit Vendors) Suspension Act 1925* (No. 1712) (SA). The former Act provided, *inter alia,* for the Commissioner of Taxation to collect from vendors of motor spirit a tax of 2.5 cents per gallon on motor spirit sold within the State, and on petrol (in excess of ten gallons) purchased or obtained outside the boundaries of the State. The revenues received by this means were designated for payment to the State's Main Roads Fund which was established by the *Highways Act 1925.* The tax was levied by the South Australian government for the purpose of meeting the matching grant requirements imposed by Commonwealth government roads legislation.

The second mentioned Act was designed to provide for the suspension or reduction of the tax imposed by the first mentioned Act, if in the opinion of the Governor in Council, satisfactory arrangements were made between the South Australian government and the Commonwealth with regard to the payment to the former of moneys raised by the latter, by duties of customs and excise on motor

spirit, where such moneys were to be used by the State for the construction and maintenance of roads.

While the South Australian government conceded that the Constitution did not enable the States to impose import or excise duties on petrol, this being the exclusive right of the Commonwealth, it contended that the revenues collected under the *Taxation Act 1925* (No. 1681) were from a tax on the users of roads and not on petrol sales per se. In disputing the claim the Commonwealth argued that the Acts were contrary to both section 90 and section 92 of the Constitution. This view was upheld by the High Court which held by a majority of 6 to 1 that the *Taxation (Motor Spirits Vendors) Act 1925* (SA) was contrary to section 90 of the Constitution, and that the Act was contrary to section 92.

In the other case mentioned, *Victoria v. Commonwealth* (1926) 38 CLR 399, the governments of Victoria and South Australia sought a declaration from the High Court that the *Federal Aid Roads Act 1926* was unconstitutional. The plaintiffs' case rested on the following: that the 1926 Act was invalid because it represented a law relating to road making rather than a law for granting financial assistance to the States; that in providing for the construction and reconstruction of roads the legislation required the States to act as '... contributors to the costs of construction and reconstruction and as agents of the Commonwealth for the purpose of carrying out the works' (1926, 38 CLR at 405); that the legislation could not be justified under the umbrella of the defence powers since the latter would allow only for the construction of roads for military purposes; that the legislation did not fall within the ambit of section 51 (xxxviii) of the Constitution since the Imperial Parliament is not the only Parliament which has the power to legislate for road making; that, if it is agreed that the intended legislation is to provide financial assistance to the States, it is not consistent with the terms of section 96 of the Constitution. Elaborating, it was argued that '[under] that section the Parliament cannot attach as conditions to its grant any conditions which amount in substance to the exercise of any legislative power which is not within sec. 51 of the Constitution' or, '[alternatively], the terms and conditions referred to in sec. 96 are financial terms and conditions unless they are terms and conditions falling within one of the legislative powers in sec. 51' (1926, 38 CLR at 405).

In addition to these arguments the New South Wales government (intervening) contended that if, for example, only one State accepted the Commonwealth's conditions, then the Act would be contrary to section 99 of the Constitution which prohibits the Commonwealth from discriminating between States.

As already noted in chapter 3 the High Court adjudicated in favour of the Commonwealth, declaring that the Act was:

> ... plainly warranted by the provisions of section 96 of the Constitution, and not affected by those of section 99 or any other provisions of the Constitution, so that exposition is unnecessary. (1926, 38 CLR at 406)

As a consequence New South Wales, Victoria and South Australia had no politically acceptable alternative than to join the other States in agreeing to the terms of the *Commonwealth Roads Act 1926.*

COMMONWEALTH AID ROADS POLICY 1931 TO 1969

The 1926 Act remained in force until July 1931 when a recently elected Labor government, after consultation with the States, introduced a number of amendments to the legislation. The most significant were the abolition of the Federal Aid Roads Board, the removal of the matching grant provisions, and the recision of all requirements relating to classes of roads on which Commonwealth funds could be spent and the method of construction to be employed. While the removal of matching conditions was dictated by the economic circumstances of the time, the other changes reflected the Labor government's view that the States were better placed to determine their road needs and that the conditions imposed by the 1926 Act were an infringement of States' rights. So far as funding arrangements were concerned the amendments provided that the Commonwealth make available to the States, for the remainder of the period of the Act, an amount equal to two-and-one-half pence (approximately 2.08 cents) per gallon on all imported petrol and one-and-one-half pence (1.25 cents) per gallon on all petrol refined in Australia.

While the Opposition supported Labor's decision to reduce the size of the Commonwealth's commitment to road expenditure and to remove matching grant conditions, that was, not surprisingly, as far as their support went. In particular, the Opposition feared that Commonwealth road funds would be used on road work in relief of unemployment, and that the objective of the 1926 Act of allocating funds to particular classes of country roads would be under serious threat. In debating this issue the former Attorney General pointed out that the purpose of the 1926 Act:

> ... was to provide certain permanent assets of a capital nature in the form of roads, those roads being designed upon a system which has the approval of the Commonwealth and the particular States concerned. In that way it was hoped to get rid of one of the difficulties which is almost inevitably associated with the making of roads by the Government of a State, namely the insistence upon local demands which is so readily and urgently pressed by a local parliamentary representative. It appears to me that there is a great deal to be said for introducing the Commonwealth as a relatively disinterested party, into any scheme of layout of general main roads. (Australia, House of Representatives 1931, *Debates*, vol. HR131, p. 4993)

Interestingly, the return to power of the non-Labor parties in 1932 did not result in a change of Commonwealth policy when, in 1937, a new agreement entitled the *Federal Aid Roads and Works Act 1937* (Cwlth) was introduced. The 1937 Act retained the principles embodied in the previous legislation with the addition of some minor alterations. The Act established that the Commonwealth would grant the States, over a ten-year period, an amount determined by the same rate of tax on petrol as applied under the previous Act, and that an additional grant determined on the basis of one-half penny per gallon on petrol (approximately 0.42 cents) in relation to customs duty, and one-half penny per gallon in relation

to excise duty, be provided and used at the discretion of the States either on roads or related transport projects.

The 1937 Act operated, without amendment, until the introduction by the Chifley Labor government of the *Commonwealth Aid Roads and Works Act 1947* (Cwlth). Provision was made for increased allocations to the States, determined at the rate of three pence (2.5 cents) per gallon on imported petrol and two pence (1.66 cents) per gallon on locally refined petrol. Of the amount granted, the States were allowed to spend up to one-sixth on works connected with transport. Grants of $1 million and $2 million were also made, respectively, for the maintenance of certain strategic roads and for expenditure on minor rural roads, and for the purchase by local government authorities of road building equipment.

By this time Labor's attitude to the role the Commonwealth should adopt in the formulation and implementation of roads policy had begun to change. This was reflected in a small way by a requirement of the Act that the States present each year, to the Commonwealth Minister for Transport, a general statement indicating proposed plans for the use of Commonwealth road funds. Such proposals were subject to agreement by the Commonwealth after consultation with the recently established Australian Transport Advisory Council, a body whose membership included each State's Minister for Transport. The purpose of this condition was, as expressed by the then Commonwealth Minister for Transport, Mr Ward:

> ... to secure the co-ordination of road construction policies throughout the Commonwealth on a national basis and to integrate road construction with the developments of other forms of transport. (Australia, House of Representatives 1947, *Debates*, vol. HR190, p. 847)

This aspect of the legislation was unacceptable to the Opposition on the ground that the States and local authorities were in a better position to administer the roads program by virtue of their knowledge of local conditions. Another contentious issue was the relationship between the size of road grants and petrol tax collections. During the period 1937–38 to 1946–47 road grants represented about 31 per cent of fuel tax revenues (BTE 1987, p. 53). It was the Opposition's view that the size of road grants should bear a closer relationship to petrol tax revenues than was the case during the war years, and under the terms of the 1947 legislation. In addition, the Country Party argued for a substantial increase in grants for expenditure on local government roads. As stated by one of its members:

> This [legislation] is intimately linked with country life and perhaps, apart from the provision of educational and recreational facilities, the Government could not improve living conditions in the country more greatly other than by improvements to the roads. For many years shire councils have struggled greatly and have had to contend with numerous financial problems, in order to give service to their rate payers. Under existing conditions there is no prospect of relief being provided in the form of country roads, unless finance can be provided by such means as a better allocation of the proceeds of the petrol tax. (Australia, House of Representatives 1947, *Debates*, HR192, p. 2693)

The government responded by amending the Act in 1948 and 1949 to provide for increased grants, $4 million and $6 million respectively, for expenditure on minor rural roads and for the purchase by local government authorities of road building equipment. In percentage terms the minor rural roads grant rose from approximately 16 per cent of the total grant in 1947 to 29 per cent in 1948 and 34 per cent in 1949 (CBR 1969a, p. 20).

The 1947 Act expired on 30 June 1950 and new legislation was introduced in November by the recently elected Menzies–Fadden Liberal – Country Party government. The legislation allowed for a substantial increase in the size of the grant by increasing the petrol tax to six pence (5 cents) a gallon of customs duty on imported petrol, and three-and-one-half pence (approximately 2.9 cents) a gallon excise on locally produced petrol. The previous requirement concerning road grant expenditure approval arrangements was discontinued, and the earmarking of grants for minor rural roads was increased to 35 per cent of the total grant.

The 1950 Act operated for four years, after which it was replaced by the *Commonwealth Aid Roads Act 1954* (Cwlth). The Act increased the size of the road grant component of the petrol tax to seven pence a gallon (approximately 5.83 cents) on all petrol. This decision was partly a consequence of the change, since 1950, in the relative importance of the two sources of fuel for the Australian market, and partly a response to the ALP's pledge during the 1951 federal election campaign to return all of the petrol tax to the States for road purposes. The legislation also increased the minimum proportion earmarked for expenditure on minor rural roads to 40 per cent of the total grant.

The 1954 Act was amended in 1956 to provide for an increase in the basic road grant by raising the earmarked roads component of the petrol tax to eight pence (approximately 6.6 cents) per gallon. A year later, following a decision by the Commonwealth to impose a diesel fuel tax, the Commonwealth brought down an interim measure entitled the *Commonwealth Aid Roads (Special Assistance) Act 1957* for the purpose of making available to the States further financial assistance for road works and for other purposes such as the purchase of road making plant. It was anticipated that this measure would enable the Commonwealth to provide an additional $6 million for each of the remaining years of the 1954 Roads Act.

In 1959 the Menzies government introduced a new roads legislation, the *Commonwealth Aid Roads Act 1959* (Cwlth), which, in addition to providing for a substantial increase in Commonwealth road grants, altered in three important respects the existing basis of Commonwealth financial assistance for roads. First, the Act discontinued the practice adopted since 1931 of relating the size of the Commonwealth road grants to petrol tax revenues. Second, the formula used for the determination of the distribution of Commonwealth road grants among the States was amended to include motor vehicle registrations as a third and equally weighted element. After allocating Tasmania 5 per cent of the grant, the remainder was to be apportioned on the basis of one-third according to area, one-third according to population and one-third according to motor vehicles

registered. Third, provision was made for the reintroduction of a matching grant requirement. The Act provided that the Commonwealth make available to the States over the five-year period 1959–60 to 1963–64 a basic grant of $440 million and an additional grant of $60 million to be made available on a dollar for dollar basis to match any increase in State expenditure above 1958–59 levels.

No change was made to the 40 per cent rural roads provision of the previous Act, while provision was made, in separate legislation, for expenditure on roads serving Commonwealth properties and for expenditure on road safety.

The reintroduction of a matching grant provision reflected the Commonwealth's view that the States were capable of making a greater contribution to the total road budget from their own sources of revenue. Moreover, it was in line with the principle expressed previously by the Menzies government that the major responsibility for the funding of roads rested with the States and local authorities and that the Commonwealth's role was one of cooperating with the States by providing supplementary finance.

The change in the formula for determining the distribution of Commonwealth road grants among the States came as no surprise. For a number of years the Victorian and New South Wales governments, especially the former, and Commonwealth Parliament representatives from those States, contended that the reasons advanced in favour of the population–area formula were by no means as cogent as they might have been in earlier days: in particular, that post-war developments in manufacturing industry and consequent growth in private and commercial road transport had imposed exceptionally heavy demands on their respective road systems. It was for this reason that the Commonwealth conceded that some indicator of motor vehicle usage, such as motor vehicle registrations, should be incorporated in the formula. No reasons were given for the weighting system adopted; one can only suppose that its appeal to the Commonwealth was based on what it thought was 'reasonable' and 'just' and acceptable to the majority of the States.

The 1959 Act was replaced in 1964 by a similar Act which operated from July of that year to July 1969. Total payments to the States were increased by 50 per cent to $750 million of which $660 million was designated as the basic grant and $90 million as the additional grant subject to matching conditions. The States were required to make a dollar for dollar contribution over and above the sums which, in 1963–64, they were required to raise from their own resources, in order to qualify for the total additional grants available in that year. The not-less-than 40 per cent rural road provision was also retained.

Other Commonwealth assistance for roads

The Commonwealth had also provided grants to the States for special road purposes. For example, part of the financial assistance provided under the *State Grants Encouragement of Meat Production Act 1949 to 1954* (Cwlth) was used for road purposes to facilitate the movement of cattle. Further, between 1961

and 1977 the Commonwealth provided, under the terms of the *Beef Cattle Grants Acts*, substantial funding for the construction of beef cattle roads, mainly in Queensland and Western Australia. During the period of the first *Beef Roads Act 1961 to 1967* Queensland and Western Australia received $29 million. The grant was increased to $50 million for the period 1967 to 1974.

COMMONWEALTH ROADS POLICY: LABOR'S ATTITUDE 1947 TO 1969

As already mentioned, Labor's attitude to the role the Commonwealth should play in the financing and planning of road works first showed signs of change when, in 1947, the Chifley government decided that State road programs involving use of Commonwealth funds should be submitted to the Commonwealth for approval after consultation with the Australian Transport Advisory Council. By 1957 Labor had adopted a strong stand in favour of increasing Commonwealth responsibility with regard to the determination of the use of Commonwealth road funds. It also argued for the need for the Commonwealth to put into effect a national roads plan, and stressed the importance of establishing a national transport authority which would have responsibility for coordinating transport planning in general. In addition, Labor had advocated that all petrol tax receipts should be directed to the roads budget.

The case for earmarking the entire proceeds of the petrol tax for road purposes was presented by Labor on two main grounds. First, that as a method of funding road budgets the petrol tax represented '... the best means available of apportioning charges of road use to the actual benefits received by each road user' (Australia, House of Representatives 1959, *Debates*, HR23, p. 1645).

Second, as a consequence of the High Court's judgment in *Hughes and Vale* (no. 2), the ability of the States to impose road user charges had been considerably reduced. On this point, Mr E. G. Whitlam, the then deputy leader of the Labor Party suggested that:

> The rate at which fuel taxes are levied represent an economic charge on road users for their use of the permanent way. Providing no additional levy is imposed for general revenue purposes, taxation on this basis will serve to correct distortions in the current structure of road charges arising from a relative immunity from permanent way charges. (*The Australian Quarterly*, September 1968, p. 49)

As to the view that the Commonwealth should have a greater influence in the formulation and implementation of roads policy, the ALP argued that governments responsible for raising taxes should be responsible for the manner in which those taxes are spent and that it was the Commonwealth's responsibility to overcome the problem of coordinating the road construction and maintenance decisions of the separate and entirely independent road authorities. Again, in the words of Mr Whitlam:

> No State Government has the power to make a recalcitrant neighbour link up its highways in an acceptable manner or maintain that link ... once it had been established. Similarly, local government authorities cannot compel each other to harmonise their road making activity. In some instances roads are terminated by

> shire boundaries; in others the shire boundary can be identified by a complete change in road surface.
>
> The Commonwealth must insist on co-ordination between the road systems which it finances. The Commonwealth is the only authority in Australia which is equipped to impose patterns of rational conduct and co-ordination upon the nation's disparate and desperate road makers. (*The Australian Quarterly*, September 1968, p. 49)

What the ALP had in mind was that the Commonwealth should at least assume responsibility, using its powers under section 96 and section 51(i) of the Constitution, for the funding and planning of a major inter-urban and interstate road system in much the same way that its counterpart in other federal systems, such as the USA and Canada, had done.

Finally, as to the issue of Commonwealth intervention in the planning and regulation of transport as a whole it was Labor's view that the Commonwealth should use its power under section 101 of the Constitution and resurrect the Inter-State Commission, a body which had been established in 1913 but allowed to expire in 1920. With this power (and those mentioned above), together with those granted to the Commonwealth under section 98 of the Constitution, which extends the Commonwealth's trade and commerce powers to include the making of laws with respect to navigation and shipping and railways, and section 104, which specifies the criteria to be adopted by the Inter-State Commission with regard to railway rate regulation, Labor contended that the Commonwealth was clearly in a position '... to bring about the effective co-ordination of Australian transport services along lines dictated by economic efficiency and social advantage' (*The Australian Quarterly*, September 1968, p. 49).

CHAPTER 5 THE ROLE OF THE COMMONWEALTH 1969 TO 1989

During the period just considered the government had little economic information which could be used to assess the extent of the nation's need for roads and the contribution it should make towards meeting that need. The desire for better quality information assumed greater importance as the Commonwealth's financial commitment increased substantially during the late 1950s. As a consequence the Liberal – Country Party government enacted legislation in 1964 for the establishment of the Commonwealth Bureau of Roads, a statutory authority which, *inter alia*, was given the task:

> To investigate, and from time to time report to the minister on matters relating to roads or road transport for the purpose of assisting the Government of the Commonwealth in consideration by the Government of the grant of financial assistance by the Parliament to the States in connection with roads or road transport *(Commonwealth Bureau of Roads Act 1964)*.

The Bureau was constituted in February 1966 and presented its first report to the Commonwealth government prior to the expiration of the *Commonwealth Aid Roads Act 1964*. Other reports were presented in 1973 and 1975. Following the demise of the Commonwealth Bureau of Roads in 1977 the responsibility for continuing work in this area was placed with the Bureau of Transport Economics. It is the purpose of this chapter to examine Commonwealth roads policy during the period 1969 to 1989 and the impact of these two advisory bodies on the formulation of that policy.

THE 1969 COMMONWEALTH BUREAU OF ROADS REPORT

The Commonwealth Bureau of Roads 1969 report was the outcome of the first attempt in Australia to apply economic criteria to an analysis of Australia's road needs, and to road funding by the Commonwealth (CBR 1969b).

The starting point of the Bureau's assessment was a survey of Australian road conditions, conducted with the cooperation of the National Association of Australian State Road Authorities (NAASRA). The survey had three objectives. The first was to provide an inventory (as at June 1969) of bridges, roads and road systems throughout Australia. The second was to assess the physical characteristics of roads, bridges and road systems and to compare them with

selected technical standards (referred to as tolerability standards) based on operational, safety and structural criteria. The purpose of the exercise was to determine the physical changes required to provide a uniform level of service (at the predetermined standards) for road traffic, at June 1969, during 1969–74 and during 1974–79. The third objective was to record and estimate the cost of road construction and maintenance projects which would be needed in order to meet designated levels of service for the above mentioned years.

The Bureau estimated that something like 80 000 road projects at a cost of $7852 million (1967 prices) would be required if the Australian road system was to be raised to the specified standards during the period 1969–74. Since there was no guarantee that the projects selected by this approach would satisfy economic criteria, or that such a program of expenditure would be acceptable in political terms, it was necessary to formulate an economically warranted and feasible program of road expenditure. This involved an assessment of the economic worth of each of the identified road projects and the simulation of various financial, technical and institutional constraints.

Because of the large number of projects and the need for flexibility, the evaluation process involved the use of a computer based program referred to as the Scheduling Program. This program enabled the Bureau to generate an optimum level and distribution of expenditure by States and Territories, by geographical areas within a State, and by different classes of roads (see, for example, Fisher et al. 1970 and Thompson et al. 1970).

On the basis of information supplied by each of the State main roads authorities the Bureau concluded that an upper limit to road expenditure during the period considered would be of the order of $3300 million to $3800 million (1967 prices). Projects were ranked according to benefit–cost ratios using discount rates within the range of 7 to 11 per cent. Allowance was also made for expenditure on maintenance and administration (estimated at $1100 million at 1967 prices), and for existing and likely Commonwealth commitments, such as grants for beef cattle roads, Commonwealth access roads and for subdivisional roads on Crown lands in Commonwealth Territories (estimated at $83 million in 1967 prices). The results of the economic evaluations showed that the cost of acceptable road projects, based on a discount rate of 10 per cent, approximated the lower limit of the previously determined feasible level of road expenditure.

To determine the extent of Commonwealth aid required, estimates were made of the amount of revenue which the States and local government authorities would be able to contribute from their own sources for the five-year period 1969–74. The Commonwealth's contribution to the feasible program was estimated at $1300 million.

After making allowances for future cost rises (assumed to be 2.5 per cent per annum) and taking into account the above mentioned Commonwealth commitments for roads, the Bureau recommended that the Commonwealth provide $1280 million under the Commonwealth Aid Roads (CAR) legislation.

This represented an increase of 71 per cent above the level of grant ($750 million) provided during the period 1964 to 1969.

Given a feasible level of total road expenditure of $3390 million (1967 prices), the Scheduling Program generated a schedule of road projects, which according to the Bureau:

> ... represented, from the information available the best economic patterns of investment in roads, taking into account the constraints imposed by the limitations of construction and on physical and financial resources in each State and in areas within States during the five year period (CBR 1969b, para. 4.14).

The results of the Scheduling Program were classified according to four main classes of road expenditure: principal rural roads (Category A); other rural roads (Category B); capital and major provincial city roads (Category C); and a category of road expenditure which included all expenditure on roads not included under the other three groups (Category D). The Bureau considered that these proportions should only be used as a guide. Two reasons were advanced for this approach: first, that it would seem to be in the national interest for the Commonwealth government to assume a major role with regard to capital road projects '... because these works will largely determine the nature and quality of the future Australian road systems', and second, that expenditure decisions regarding maintenance and minor road projects '... which require day to day local attention and local knowledge' should be left to State and local governments. The Bureau proposed that 80 per cent of the CAR grant should be allocated to expenditure on construction and reconstruction (rather than 63.3 per cent as indicated by the Scheduling Program) and further, that the States should be allowed some freedom as to how the balance of 20 per cent should be used in order to '... cover contingencies and requirements unforeseen in the Australian Roads Survey'. Of the 20 per cent it was suggested that 1.2 per cent should be made available for research and planning and the remaining 18.8 per cent used, at the discretion of the States, either on reconstruction, maintenance, or administration of new works. Accordingly, the Bureau recommended that the grant be apportioned, by road category as follows (CBR 1969b, paras 4.25 & 4.26):

- 20 per cent expenditure on the construction and reconstruction of principal rural roads (Category A);
- 20 per cent expenditure on the construction and reconstruction of other rural roads (Category B);
- 40 per cent expenditure on the construction and reconstruction of roads in capital cities and major provincial cities (Category C);
- 18.8 per cent expenditure on new construction, reconstruction and maintenance, administration and works and services related to roads (Category D); and
- 1.2 per cent on planning and research related to roads and road transport including public transport (Category E).

TABLE 5.1 ALTERNATIVE DISTRIBUTIONS OF PRINCIPAL GRANTS
(per cent)

State	*Actual*	*Scheduling Program*	*Majority proposal*	*Minority proposal*	*1964 Act*
New South Wales	31.66	35.6	31.7	31.7	27.8
Victoria	21.20	22.9	21.3	21.2	19.5
Queensland	19.30	20.2	18.3	19.3	18.3
South Australia	10.00	8.6	10.7	10.0	11.4
Western Australia	13.07	8.5	13.7	13.3	19.0
Tasmania	4.50	4.1	4.3	4.5	5.0

Sources CBR (1969b) and *Commonwealth Aid Roads Act* 1969, section 3, First Schedule.

The Bureau's recommendations for the distribution of the CAR grant among the States also departed from the proportions indicated by the Scheduling Program. The reason for this was that the program's results were unlikely to be politically acceptable since South Australia and Western Australia would suffer a substantial decline in funding over a short period of time.

Two alternative distributions were proposed. The first alternative (the so-called majority proposal) recommended that formulae be derived which would provide for some averaging of the results produced by the Scheduling Program. Statistical analysis of the correlation between the level of road expenditure in each State, for each category of roads as indicated by the Scheduling Program, and various factors which could influence the distribution of road needs, produced a number of formulae for determining an alternative distribution of the CAR grant by road category. The formulae included such factors as State area, population, and road length, which were weighted differently for each road category.

The second alternative proposed by the Bureau (the so-called minority proposal) was to apportion the CAR grant among the States on the basis of the mean between the 1968–69 CAR percentage distributions (thus in affect taking cognisance of existing constraints) and the percentage distribution indicated by the Scheduling Program. The difference between the two proposals is shown in table 5.1.

The Bureau also examined the issue of whether conditions, other than grant categorisation, should be imposed on the use of the CAR grant to ensure that Commonwealth funds would be directed to projects indicated by the Scheduling Program. In particular, reference was made to the following:

- whether or not the Commonwealth should insist that the States submit programs of expenditure for Commonwealth approval;
- the earmarking of a part of the grant for the financing of specific (major) projects; and
- matching grant provisions.

Consideration of program approval arrangements led the Bureau to contend that such a requirement '... would provide only partial control over the development of the desired total road system ...' and was open to the criticism that it might encourage the States to submit '... programmes of worth with high capital investment' (CBR 1969b, para. 5.4). The Bureau suggested that better results were likely to be achieved if a voluntary and cooperative approach were pursued by all levels of government:

> This alternative approach would minimise the duplication of work at the Commonwealth, State and Local Government levels and also, should result in more consideration being given to improvements of low capital cost such as traffic management, stage construction and road network improvements. Low cost improvements, for example, minor works to improve road safety, in most cases yield high economic returns. (CBR 1969b, para. 5.4)

This line of argument was not adopted by the Bureau in its 1973 Report to the Whitlam Labor government.

Regarding the second mentioned issue the Bureau noted the advantages and disadvantages, stating that:

> [such earmarking] would encourage better planning and evaluation of major projects, but has the disadvantage that these projects might be considered in isolation and apart from the total road system. (CBR 1969b, para. 5.5)

But the Bureau preferred not to make an assessment until further study had been undertaken. Another reason for the Bureau's reticence on this matter may have been that it thought it desirable for the Commonwealth to adopt a wait-and-see strategy. This would be consistent with the Bureau's emphasis on the need for the Commonwealth and the States to develop a cooperative approach.

Finally, the Bureau recommended that matching grants should be retained, and related directly to State motor vehicle registrations, and thus taxable capacity. A base figure was determined by dividing the total amount of road finance from State sources for the year 1965–67 for each State by the number of vehicles registered in each State. The results varied from $36 to $40 per vehicle. Since data for later years were not available at the time the analysis was undertaken, and further, since it was known that a number of States had not varied motor vehicle registration charges since 1966–67, the amount of $36 per registered vehicle was judged to be an acceptable amount to apply for the first year of the period of the new legislation. Assuming a rate of increase of 2.5 per cent per annum in road construction costs over the five-year period the Bureau recommended that the matching grant be increased by $1 per annum per registered vehicle, giving an amount of $40 per registered vehicle in the year 1973–74.

COMMONWEALTH AID ROADS ACT 1969

The 1969 Act provided the States with a total grant of $1252 million for the period 1969–70 to 1973–74. This amount approximated the Commonwealth Bureau of Roads recommendation. However, most of the other recommendations made

TABLE 5.2 ALTERNATIVE DISTRIBUTIONS OF TOTAL (PRINCIPAL PLUS SUPPLEMENTARY) GRANTS

State	*1964 Act ($M)*	*1969 Act ($M)*	*Increase ($M)*	*Distribution (per cent)*
New South Wales	209.1	380.4	171.3	30.38
Victoria	146.9	254.4	107.5	20.32
Queensland	137.0	231.6	94.6	18.50
South Australia	86.0	129.0	43.0	10.30
Western Australia	133.6	200.4	66.8	16.01
Tasmania	37.5	56.25	18.75	4.49
Total	750.1	1252.05	501.95	

Source *Prime Minister's Statement on New Roads Agreement* (PM No. 28/1969 (H)), p.1.

by the Bureau were subject to alteration. In the words of one commentator the 1969 Act represents '... a rich mixture of Gorton centralism, enlightened generosity, political sleight of hand with a bit of economic realism' (Walsh 1969, pp. 1 & 10).

The grant of $1252 million was divided into two parts: a principal grant of $1200 million which was distributed among the six States; and a supplementary grant of $52.05 million which was shared by Western Australia, South Australia and Tasmania. As shown in table 5.1 the allocation of the principal grant followed almost exactly the distribution recommended by the Bureau's minority proposal.

By providing for supplementary grants the Commonwealth government took the view that acceptance of the Bureau's recommendations would result in too abrupt a change in the flow of assistance to Western Australia, South Australia and Tasmania. The Commonwealth decided that the level of assistance granted to each State during the period 1969–74 should not be less than 50 per cent of the level of assistance provided during the previous five years. Accordingly, the supplementary grants were divided as follows: South Australia, $9.0 million (17.29 per cent); Western Australia, $40.8 million (78.39 per cent) and Tasmania, $2.25 million (4.32 per cent).

Of the total grants New South Wales received 30.38 per cent, Victoria 20.32 per cent, Queensland 18.50 per cent, South Australia 10.30 per cent, Western Australia 16.01 per cent and Tasmania 4.49 per cent. Table 5.2 compares the distribution of Commonwealth aid for roads (including the supplementary grants) among the States under the 1969 Act with that under the 1964 Act.

Had the total grant of $1252.05 million been distributed according the Bureau's majority proposal New South Wales would have received $396.89 million (an increase of $16.49 million), Victoria $266.68 million (an increase of $12.28 million), Queensland $229.12 million ($2.48 million less), South Australia $133.96 million (an increase of $4.96 million), Western Australia $171.53 million ($28.87 million less) and Tasmania $53.83 million ($2.42 million less).

TABLE 5.3 DISTRIBUTION OF THE PRINCIPAL GRANT BETWEEN THE MAJOR ROAD GROUPS

States	*Urban roads*		*Main trunk and arterial roads*		*Other rural roads*	
	Amount ($M)	*Distribution (per cent)*	*Amount ($M)*	*Distribution (per cent)*	*Amount ($M)*	*Distribution (per cent)*
New South Wales	201.01	53	63.87	17	109.82	29
Victoria	156.10	61	17.72	7	76.85	30
Queensland	99.24	43	56.72	24	72.17	31
South Australia	59.43	50	13.67	11	45.10	38
Western Australia	62.41	37	23.91	15	70.88	44
Tasmania	22.59	42	10.87	20	19.73	37
Total	600.78		186.76		394.55	

Source *Commonwealth Aid Roads Act 1969* (No. 41), Schedules 2, 3 and 4.

The Act also deviated from the Bureau's recommended distribution of the CAR grant by road categories. The notion that Commonwealth road funds should be channelled into particular areas of expenditure designated by the Commonwealth was accepted by the Cabinet. What was at issue, however, were the proportions proposed by the Bureau. It appears that the Prime Minister, Mr Gorton, was opposed to giving the States discretionary power regarding use of the 18.8 per cent of the total grant which the Bureau had recommended for Category D (see Walsh 1969), while Country Party members of the Coalition were not prepared to accept the Bureau's recommendation that 20 per cent of the grant be allocated to minor rural roads, that is, Category B roads, which more or less correspond to those parts of the road system which under previous legislation received 40 per cent of the CAR grant. A compromise solution resulted in the elimination of Category D. The urban road grant was increased from 40 per cent as recommended by the Bureau, to 50.05 per cent of the principal grant; the proportion allocated to main trunk and arterial roads, Category A, was reduced from 20 per cent to 15.56 per cent, while the proportion allocated to Category B was increased from 20 per cent to 32.08 per cent. The rest of the principal grant was set aside for expenditure by the States on road planning and research. The distribution of the principal grant between the three major road groups is shown for each State in table 5.3.

Provision was also made for the retention of matching grant conditions. Each State was required to increase its expenditure on roads from its own source of revenue at a rate no less than the rate of increase in the number of vehicles on register in the State. This differed from the Bureau's recommendation which was designed to relate State contribution more closely to taxable capacity.

While it is clear that the 1969 legislation provided for a greater measure of control over the use of Commonwealth road funds than had been the case in the past, with the exception of the 1926 Commonwealth Roads Act, the States continued to retain the major role in determining the use of total road funds. Policy decisions

with respect to something like two-thirds of the total road budget remained the prerogative of the States and local government authorities. Because of this, there could be no guarantee that the pattern of road fund allocation within the States would turn out to be significantly different from what it had been hitherto. This matter is discussed further in chapter 6.

THE 1973 COMMONWEALTH BUREAU OF ROADS REPORT

During the life of the 1969 CAR Act the Commonwealth Bureau of Roads in cooperation with NAASRA conducted a second nationwide survey of Australian roads. The objective of the survey was to provide an inventory of road conditions for the purpose of determining 'deficiencies' as at June 1972, and to enable the generation of road and road structure projects (for example, bridges) to remove such deficiencies. The projects were subject to economic evaluation. However, the scope of the analysis was widened to give explicit evaluation of indirect costs and benefits. The results of the Bureau's findings together with policy recommendations were presented in November 1973 to the Whitlam Labor government which had achieved office in December of the previous year.

The Bureau's estimate of an economically warranted road program for the six States and the two Territories for the period 1974–75 to 1978–79 amounted to $5828 million (1971–72 prices), using a discount rate of 10 per cent. Total benefits from the program were estimated at $14 000 million (1971–72 prices), giving an average rate of return of 15 per cent. Compared with the program estimated as economically warranted in the 1969 Report, the warranted program for the 1974–75 to 1978–79 period represented a 34 per cent increase in expenditure or, in absolute terms, an increase of $1500 million (1971–72 prices).

The economic and feasible program (excluding the Territories) was estimated to cost $4580 million (1971–72 prices) and $6401 million in current prices. The Bureau recommended that the Commonwealth provide a grant of $2607 million (current prices) to be distributed among the States in a manner not too different from the previous grant allocations. The recommended grant included a supplementary provision of $20 million for Western Australia and an equalisation grant of $4 million for Tasmania.

With regard to grant categorisation the Bureau's 1973 Report proposed a number of changes. In particular, it recommended that provision be made for: national highways; urban local roads; expenditure on maintenance, administration and property acquisition; expenditure on minor traffic engineering and road safety improvements (MITERS); and that developmental roads, which previously had been treated under separate legislation in the form of the *Beef Cattle Grants Act*, be included in the rural arterial category, and as such, be subject to economic evaluation.

While the concept of a national highways system had been discussed by State road authorities as early as 1956 and adopted by the ALP as part of its transport policy, it was not until the submission of a Report by the Bureau to the Minister

for Shipping and Transport, in February 1972, that the Commonwealth government deemed that the matter was worthy of action. In the August 1972 Budget the McMahon Liberal – Country Party government allocated $250 000 for the investigation of national highways, and in November of that year a National Highways Study Team made up of representatives of the Commonwealth Bureau of Roads and of the State road authorities was formed to undertake such an investigation — the results of which were reported in September 1973 (Department of Transport 1973) and were to influence, to some extent, the recommendations made by the Commonwealth Bureau of Roads (CBR 1973).

In stating its case for the establishment of a national highways system, the Bureau argued that there were parts of the major arterial road network which could clearly be identified as being of national importance. However, because of the nature of State road expenditure policies these roads did not receive the share of resources which their importance warranted. Roads which fell into this category were identified by the Bureau as satisfying the following criteria:

(a) encourage and contribute to a major extent, to trade and commerce, overseas and among the States;

(b) assist industry located in major centres of population to be complementary to industry located in neighbouring major centres;

(c) reduce significantly, transport costs of the products of rural and/or secondary industry between points of production and points of export or consumption;

(d) provide for long distance movement associated with recreation and tourism; and which

(e) improve movements between defence production centres, defence supply and storage locations, and defence establishments generally. (CBR 1973, p. 154)

The Bureau proposed that a limited number of intercity corridors representing about 9800 miles of highway should be designated as forming the nucleus of a national highway system; that these roads should be upgraded to design standards which, in general, were higher than those adopted in the Australian Road Survey; and that the Commonwealth should assume responsibility for 80 per cent of the funding of the development of the system. It was also estimated by the Bureau that the designated system could be upgraded to the specified standards over a period of nine years '... without distorting the general pattern of road development' (CBR 1973, p. 153).

The Bureau's economic analysis suggested a warranted and feasible program of $518 million (1971–72 prices) over the period 1974–75 to 1978–79, of which $416 million related to expenditure on national highways in the States and the remainder to national highway expenditure in the Territories. In addition, estimates were also made for expenditure on maintenance. A total of $55.6 million (1971–82 prices) was recommended for the period.

Recommended matching grant requirements and other conditions

As mentioned earlier, the Bureau's 1969 Report suggested that Commonwealth control over the use of road grants should be confined to the earmarking of funds

by road categories, and to general matching grant conditions. This philosophy was not adhered to in the 1973 Report. Instead, the Bureau argued for an extension of controls over the use of Commonwealth funds and for a tougher approach to matching grant requirements.

With regard to the former the Bureau contended that in addition to roads designated as national highways it was possible to identify other parts of the road system as having national significance, and as such, provide a legitimate economic reason for the Commonwealth to adopt a major role in the planning of expenditure decisions relating to these roads. Further, investigations by the Bureau since the implementation of the 1969 CAR Act had indicated that while the States had allocated Commonwealth aid according to the conditions of the Act, they had not always directed funds to projects within the various categories in a manner consistent with the objective of economic efficiency (CBR 1973, p. 150). Accordingly, the Bureau recommended that the Commonwealth should extend its involvement to the planning and approval of expenditure programs relating to the following categories: urban arterial and sub-arterial roads, rural arterial, minor traffic engineering and road safety improvements, and planning and research. For example, in the case of the urban arterial and sub-arterial category it was recommended that:

> (i) the Australian government be involved in the planning of the urban road systems;
>
> (ii) the States submit annual programmes of proposed urban road improvements through the Bureau of Roads for the approval of the Australian government;
>
> (iii) the Australian government select, from the plan of the urban road system or from the programme of urban road improvements, specific major projects which shall be submitted with an environmental impact statement, through the Bureau of Roads for individual approval by the Australian government;
>
> (iv) grants be expended in accordance with such proposals; and that
>
> (v) financial assistance for urban local roads be expended in areas and/or on the projects approved by the Australian government upon application by the States through the Bureau of Roads. (CBR 1973, p. 152)

Similar conditions relating to Commonwealth approval of proposed projects were also recommended for the other mentioned categories of expenditure.

As far as the matching grant provisions are concerned the Bureau proposed that these should also be subject to change in order to facilitate the achievement of the warranted and feasible program. The Bureau contended that, while existing matching grant provisions had implicit efficiency and equity objectives, neither had been adequately satisfied (CBR 1973, pp. 344–6). This was explained as follows. First, while matching grant quota arrangements had resulted in an increase in State contributions to road finance, they had failed to ensure that, in real terms, the contribution was sufficient to enable the achievement of the warranted and feasible program. Second, there were differences in tax effort between the States which could not be justified on per capita income grounds, and the existing arrangements perpetuated such differences. Third, by limiting matching grant arrangements to total State road funds, the States, as noted

earlier, were left with discretionary power as to how those funds should be used. Although the Bureau's report did not give specific examples it claimed that:

> In several cases the application of State funds differed significantly from expectations. Grants became the maximum expenditure rather than the minimum anticipated thus preventing the achievements of the program which was envisaged and intended by the CAR Act. (CBR 1973, p. 346)

In view of the above the Bureau proposed that matching grant conditions should be changed in two ways: first, with respect to the determination of the total contribution to be made by each State during the five-year period, and second, by requiring matching grants by road categories. As far as the former is concerned it was proposed that 1971–72 road expenditure by States from their own resources should be chosen as a base period; that an implicit amount of $82 per vehicle registered should be set as the 1978–79 level of tax effort for State road funds, and that distribution of quotas during the period 1974–75 to 1978–79 should be so determined as to more or less equalise the yearly growth in quotas after taking cognisance of the motor vehicle forecast for each State. Finally, the recommended matching conditions by road categories involved the States making a 20 per cent contribution to the cost of the national highways program, as well as a contribution from the specified total matching grant, to the construction of urban arterials and to expenditure on MITERS.

THE 1974 COMMONWEALTH LEGISLATION FOR ROADS

The roads legislation introduced by the Whitlam Labor government in 1974 did not amount to a complete endorsement of the Bureau's recommendations. However, it was consistent with Labor's previously announced view that the Commonwealth should significantly increase its involvement in the planning and monitoring of road expenditure decisions.

The government's roads policy was enshrined in three Acts: the *National Roads Act 1974* (Cwlth); the *Roads Grant Act 1974* (Cwlth), which provided for financial assistance to the States for roads other than those declared as national roads, and the *Transport Planning and Research Act 1974* (Cwlth).

To a large extent the legislation reflected the Bureau's recommendation regarding the detailed categorisation of Commonwealth road aid, differing in this regard only with respect to the matter of beef cattle road grants and road maintenance. Whereas the Bureau had proposed that beef roads should be considered for evaluation in the rural arterial category, the government saw fit to reject this advice, and in addition, not to include a road maintenance category.

There were, also, other differences between the legislation and the Bureau's recommendations. The government decided to assume full responsibility for the funding of national roads rather than provide 80 per cent of the finance as recommended by the Bureau, and the legislation was for a three-year rather than five-year period.

Of greater importance are the differences with respect to the size of the Commonwealth grant and the distribution of that grant among the States by road categories. The legislation provided for an amount of $1126 million (current prices) over the three-year period, of which $700 million was allocated under the *Roads Act*, including $24 million for beef roads in Queensland, and $400 million under the terms of the *National Roads Act*, which included a category of roads defined as export roads and major commercial roads — a category which was not identified in the report. These roads were allocated $40 million. Also, an amount of $26 million was allocated for planning and research.

Examination of the Bureau's recommended distribution of Commonwealth aid for all categories of expenditure over the first three years of its five-year proposal show this to amount to $1327 million (current prices) or $201 million greater than the amount provided for under the Labor government's legislation. Comparisons of the distribution of the Commonwealth grant by States and by road categories, respectively, with the Bureau's recommendations (for both the three-year period and recommended five-year period) are shown in tables 5.4 and 5.5.

Table 5.4 shows that the distribution of Commonwealth aid among the States followed fairly closely the percentage distribution recommended by the Bureau. The greatest difference is the share of the grant apportioned to Western Australia, whose share was increased from 10.63 per cent to 13.41 per cent.

Table 5.5 indicates a marked difference between the Labor government's priorities by road category and the Bureau's recommendations. Under the Labor government's program, national highways were allocated $400 million thereby exceeding by $126.1 million the recommended amount allocated to this category for the first three years of the Bureau's five-year program. For the other categories the differences are: a reduction of $132.1 million for rural arterials; a

TABLE 5.4 DISTRIBUTION OF COMMONWEALTH AID FOR ROADS BY STATES ACCORDING TO THE 1974 ACTS AND COMMONWEALTH BUREAU OF ROADS RECOMMENDATIONS

	1974 Acts		*CBR report*			
	1974–75 to 1976–77		*1974–75 to 1976–77*		*1974–75 to 1978–79*	
State	*Amount ($M)*	*Distribution (per cent)*	*Amount ($M)*	*Distribution (per cent)*	*Amount ($M)*	*Distribution (per cent)*
New South Wales	354.25	31.46	433	32.63	846	32.45
Victoria	234.83	20.86	293	22.08	590	22.63
Queensland	231.66	20.57	282	21.25	570	20.86
South Australia	100.81	8.95	116	8.74	205	7.86
Western Australia	151.03	13.41	141	10.63	267	10.24
Tasmania	53.29	4.73	62	4.67	129	4.49
Total	1126.87		1327		2607	

Sources CBR (1973) and *Commonwealth Roads Acts 1974.*

TABLE 5.5 DISTRIBUTION OF COMMONWEALTH AID BY ROAD CATEGORIES ACCORDING TO THE 1974 ACTS AND COMMONWEALTH BUREAU OF ROADS RECOMMENDATIONS

			CBR report			
	The 1974 Acts		*1974–75 to 1976–77*		*1974–75 to 1978–79*	
Road category	*Amount ($M)*	*Distribution (per cent)*	*Amount ($M)*	*Distribution (per cent)*	*Amount ($M)*	*Distribution (per cent)*
National highways	400	35.52	273.9	20.64	513	19.68
Urban arterial	355	31.53	460.7	34.72	912	34.98
Rural arterial, development roads	105	9.33	237.1	17.87	479	18.37
Urban local roads	30	2.66	19.0	1.43	36.5	1.40
Rural local roads	156	13.85	199.7	15.05	385.0	14.77
MITERS	30	2.66	34.7	2.62	72.0	2.76
Road maintenance	a	a	80.9	6.10	145.5	5.58
Planning and research	26	2.31	21.0	1.58	40.0	1.53
Beef roads	24	2.13	–	–	–	–
Supplementary			b	b	20	0.77
Equalisation			b	b	4	0.15
Total	1126		1327		2607	

a No category
b Included in above figures
– No provision for beef roads

Sources CBR (1973) and *1974 Commonwealth Roads Acts.*

reduction of $105.7 million for urban arterials; an increase of $11 million for urban locals; a reduction of $43.7 million for rural locals; a reduction of $4.7 million for MITERS, and an increase of $5 million for planning and research. As observed earlier no provision was made under the 1974 Act for road maintenance, which, according to the Bureau's calculations, warranted a grant of $80.9 million, while the retention of a beef cattle road grant, for which $24 million were allocated, was also at variance with the Bureau's proposals.

The government also rejected the Bureau's advice regarding matching grants by road categories, and further, because of the difference between the recommended grant and the actual grant, reduced the size of the general matching grant requirement.

The Labor government's decision to reduce the period of the roads legislation to three years instead of accepting the Bureau's advice for a continuation of what had been the practice for many years, namely, a five-year period, was adopted for the reason that the government was in the process of rationalising the separate road and urban transport assistance measures into a coordinated set of

arrangements, and that legislation designed to give effect to such arrangements would be introduced by the government within the period of the 1974 roads legislation (Australia, House of Representatives 1974, *Debates*, vol. HR89, p. 379).

As to the difference in the level of Commonwealth funding (compared with the Bureau's recommendations), the government explained this in terms of its commitment to other areas of expenditure, in particular: to its initiatives in the health, education, welfare, and urban and regional development sectors; to the state of the economy; to new commitments in other parts of the transport sector, namely, the provision of financial assistance to the States for urban public transport projects; and to its agreement with the South Australian government to construct new links joining Adelaide to the standard gauge railway and Tarcoola to Alice Springs.

Further, there is also the question of why the Commonwealth decided not to accept the pattern of road grant priorities recommended by the Bureau. Given the difference between the size of the Commonwealth's road program and the program recommended by the Bureau, it is possible, on efficiency grounds, that the priority pattern would also have differed. But by how much and in which direction one cannot tell, since no economic calculations were made.

The most plausible explanation is that political considerations were of paramount importance. For instance, the decision to make explicit provision for beef cattle roads would seem to have been motivated largely by a desire to strengthen the government's hold on the Queensland electorate of Dawson (which was held by the then Minister for Northern Development, Dr R. Patterson), while the decision to give greater emphasis to national highways was partly an outcome of the political pressures exerted by the anti-freeway movement which had gathered momentum during 1973 and 1974, and especially, of the government's assessment of the political benefits to be gained from promotion of projects which would clearly be identified with the Commonwealth government. Thus, it was the government's intention to force the States to assume greater responsibility for roads other than national highways. As expressed by the then Commonwealth Minister for Transport, Mr Jones:

> The Government has decided that the task *[that is, of developing the National Highways system]* is of such importance to justify the Australian government taking full responsibility for the cost, thus freeing the States to use their own sources of finance for the construction of other roads covered by the Roads Grants Bill. (Australia, House of Representatives 1974, *Debates*, vol. HR89, pp. 380–9)

and again,

> ... I want to make the particular point that previously local government authorities relied on Commonwealth Aid Roads Grants. Whilst local government is still eligible for assistance under this legislation these authorities will now have to turn more to State governments for assistance ... with the Australian government meeting the full cost of national roads, State governments will be able to meet this increased demand for financial assistance from their local authorities. (Australia, House of Representatives 1974, *Debates*, vol. HR89, p. 385)

As events transpired a significant part of Labor's road program proved unacceptable to the Liberal – Country Party Opposition and a majority of the States. Indeed it gave rise to political conflict reminiscent of the controversy which surrounded the Bruce–Page government's *Federal Aid Roads Act 1926*.

While objections were voiced against a number of aspects of the quantitative side of the program, the major political conflict centred on other issues. Taking the *Roads Grants Bill* first, the most contentious sections were clause 4 subsection 1, especially, and clause 11 subsections 1 and 2. The former states:

> (1) A Minister may notify a State the date before which a program of projects in respect of a specified kind, is to be submitted to him for approval, and may, in the notice, inform the State that the program should include all the projects of that kind that are to be carried out by the State and by municipal shire and other local authorities in that period.

while clause 11 states:

> (1) This section applies to and in relation to a program of projects of a particular kind if a Minister informed the State, in the notice given under sub section 4(1) in relation to the program, that the program should include all the projects carried out by the State and by municipal shire and other local authorities in the period to which the program relates;
>
> (2) Where this section applies to and in relation to a program of projects of a particular kind approved in respect of a State, payment of an amount to the State under this Act is subject to the condition that the State will repay that amount, or such lesser amount as the Minister, with the concurrence of the Treasurer determines, to Australia if the Minister notifies the State that he is satisfied that the State or a municipal shire or other local authority has in the year to which the program applies, expended any moneys on the carrying out of projects of that kind that were not included in the program of projects of that kind approved in respect of the State.

Some other sections of the *Roads Bill* which were also subject to attack were: clause 4 subsections 3, 4 and 7 which provided for the granting of road approval powers to the Minister of State and Regional Development; clause 4 subsection 5 which granted road approval powers to the Minister of State for Northern Development; and clause 12 subsections b and c which laid down conditions concerning Australian government representation on State organisations responsible for road planning and/or furnishing advice on road matters. In addition objections were also levelled at clause 4 subsections 3 and 4 of the *National Roads Bill*.

Essentially, the *Roads Bill* was attacked on the grounds that it was an attempt to '... subvert the Constitution', that it '... cut right across the democratic process of taxation with representation and responsibility ...', and that it would prove to be administratively highly inefficient (Australia, House of Representatives 1974, *Debates*, vol. HR89, pp. 989 & 1072).

In considering the first claim it is doubtful whether it can be given credence. As already noted the High Court's decision of 1957 in reaffirming the constitutional validity of the uniform tax scheme '... settled beyond doubt that there are virtually

no limits to the conditions which the Commonwealth may specify' (Sawer 1976, p. 320) in providing grants to the States under section 96 of the Constitution.

Apart from the administrative efficiency argument which was concerned with the legislation's '... potential for delay, procrastination and argument before any road project can be put under way' (Australia, House of Representatives 1974, *Debates*, vol. HR89, p. 989) the major source of dispute was a philosophical one concerning centralism versus States' rights.

There can be little doubt that the 1974 *Roads Bill* was by far the most centralist roads legislation introduced by an Australian government since the *Federal Aid Roads Act 1926*. As can be seen from clause 4 subsection 1 and clause 11 subsections 1 and 2, what the Labor government required was not simply approval powers regarding the use of Commonwealth road grants, but in addition, powers of approval over the use of road funds derived from State and local government sources of revenue. This proposed extension of power was justified by the government in terms of its desire to achieve a more efficient use of resources in the road sector. In the words of the then Minister for Transport, Mr Jones:

> The underlying philosophy for our approach to transport is to recognise the inter connection of the various modes and to promote the development of a more rational approach to transport overall. It is therefore illogical to provide large sums of money in a number of important areas ... without recognising that roads built by States and municipal authorities form just as much a part of the transport system as do roads and other means of transport financed by means of Australian government grants ... All in all the Australian government has a responsibility to associate itself more closely with the States in making decisions involving the significant disbursement of Australian funds. Only in this way can we achieve the development of our major transport goals. (Australia, House of Representatives 1974, *Debates*, vol. HR89, p. 385)

To the non-Labor States, however, and the Coalition parties, who at the time were involved in formulating what was to become known as The New Federalism Policy, such an extension of power was viewed as an infringement of States' rights — in this case the right of the States to determine their own road expenditure priorities from revenues derived from State taxes and charges. As expressed by the then shadow Minister for Transport, Mr Nixon:

> We object most strongly to the Australian government having the right to oversee and control programs financed with money raised by the local governments through rates paid by rate payers and expended locally by the local government. A similar situation applies in relation to State taxes. There is no justification whatsoever for this government to intrude so heavily into State administration unless the States agreed to the oversight of monies raised by State taxes for State programs. Indeed this principal strikes at a very important point. This Bill will prevent an elected State government which wants to go to the people with a policy of taxing motorists to raise money for roads from laying down its program. (Australia, House of Representatives 1974, *Debates*, vol. HR89, p. 1071)

In contrast to the *Roads Bill*, the *National Roads Bill* was generally acceptable to the Opposition parties and the States. Criticism was, as observed earlier,

confined largely to clause 4 subsection 3 and clause 4 subsection 4. These respectively state:

> (3) The Minister may declare a road in a State that facilitates, or a proposed road in a State that would, if constructed, facilitate trade and commerce, or the development of trade and commerce, with other countries to be an export road for the purposes of this Act and may revoke or vary such a declaration.
>
> (4) The Minister may declare a road in a State that facilitates, or a proposed road in a State that would, if constructed, facilitate, trade and commerce or the development of trade and commerce, among the States to be a major commercial road for the purposes of this Act, and may revoke or vary such a declaration.

Once again the main thrust of the Opposition's criticism was directed at the extent of the power sought by the Labor government. In brief, it was contended that by virtue of the '... open cheque' nature of the above provisions the Commonwealth Minister would be in a position to '... frustrate the planning of any of the States or local authorities ...'. Such a possibility was presented as a '... complete contradiction of the Constitution ... and ... wrong in principle'. Accordingly, it was proposed, in the form of two amendments, that instead of the Commonwealth having unilateral powers of declaration and revocation concerning export and commercial roads, this power should be replaced by the requirement that the Minister may enter into an agreement with a State regarding such matters (Australia, House of Representatives 1974, *Debates*, vol. HR89, p. 1085).

Overall the Coalition's criticism of the *Roads Bills* resulted, at the House of Representatives stage of the debates, in 13 proposed amendments to the Roads Bill and five proposed amendments to the *National Roads Bill*. None of these were acceptable to the government and both Bills were passed by the House of Representatives on 2 August 1974.

The outcome of the Senate's deliberations, however, was significantly different. The ALP did not command a majority in the Senate. In an endeavour to force acceptance of its policy the government threatened to cease interim financing if the Bills were not passed in the current session. Notwithstanding this threat the Senate passed both Bills in amended form on 16 August 1974. Confronted by this move the Labor government altered its stance by agreeing to accept most of the amendments.

With respect to the *Roads Bill* the government was not prepared to accept either the entire removal of subclause 1 of clause 4 or the entire removal of clause 11, while with regard to the *National Roads Bill* it was unwilling to accept the amendments, as noted above, concerning clause 4, subsections 3 and 4.

As a salvage operation the government proposed that alternative amendments to the *Roads Bill* be agreed to, namely, that for clause 4(1) powers of approval relate only to a program of projects by way of the construction of urban arterial roads, and for clause 11 the requirement regarding repayments to the Commonwealth in cases where State funds were not spent on projects included in the approved program, be amended to apply only to approved urban arterial

roads. Finally, in rejecting the amendments to clause 4 subsections 3 and 4 of the *National Roads Bill* the government advanced the following reasons:

1. The declaration of a road as an 'export' road or a 'major commercial' road is no different to declarations of National Highways, of the various categories of roads under the Roads Grants Bill 1974 and of the various categories or roads under the previous 1969 Commonwealth Aid Roads Act where the Minister had or is proposed to have the sole right of declaration.
2. 'Export' and 'major commercial' roads being roads which would facilitate or would, if built, facilitate trade and commerce, or the development of trade and commerce, with other countries and among the States come within the constitutional power of Australia. (Australia, Senate 1974, *Debates*, vol. S61, p. 1128)

In each case the Labor government's proposed amendments to the Senate proposals were accepted by the Senate and both Bills were passed by the Senate on 17 September 1974.

Amendments to the 1974 Commonwealth roads legislation

About a year later legislation to amend the 1974 roads program was introduced to the Parliament by the Labor Minister of Transport. The purpose of the legislation was to provide additional financial assistance to the amount of $64 million to assist the States in offsetting the effects of inflation, and to amend the Act to allow the States a '... slight but necessary additional measure of flexibility in transferring funds between road categories specified in the legislation' (Australia, House of Representatives 1975, *Debates*, vol. HR97 p. 2658). However, the Bill was not ratified by the Parliament. The government was dismissed by the Governor-General, Sir John Kerr, on 11 November 1975 and defeated at the general election held a month later.

In April 1976 the Coalition government introduced a modified version of the previous government's *Roads Amendment Bill*. The *Road Acts Amendment Act 1976* (Cwlth) differed from Labor's Bill in the following respects. It removed the provision requiring Commonwealth approval for urban arterial and urban freeway projects where these were financed entirely by State derived sources of revenue. It rescinded the requirement for Commonwealth approval on urban local and rural local roads projects funded by Commonwealth grants. In place of this requirement, the legislation provided for Commonwealth approval of a State's proposed distribution of such aid among its various local government authorities. While the *Amendment Act* provided for the same amount of aid as Labor's Bill, and the same distribution of that aid among the States, it provided for a different distribution of that aid among the road categories.

Specifically, the government gave much higher priority to rural arterial and development roads and rural local roads than that intended by Labor's 1975 *Amendment Bill*. Whereas the latter provided for approximately 24 per cent of the additional grant to be allocated to rural roads (excluding national roads), approximately 36 per cent to national roads and about 36 per cent to urban roads, the *Roads Acts Amendment Act 1976* allocated about 45 per cent of the grant to rural roads, 23 per cent to national roads, and 31 per cent to the urban roads

category. In arriving at this pattern the government claimed that it had simply responded to the wishes of the States. In the words of the then Deputy Leader of the National Party, Mr I. Sinclair:

> As honourable members are no doubt aware the Commonwealth expressed its concern at previous cut backs in funds for local authorities and we asked the States to direct these additional funds wherever possible for use at the local level. As a sign of our co-operative approach we have accepted the requests made by the States in respect of allocations and the States have given assurances that they are able to provide properly for local government authorities. (Australia, House of Representatives 1976, *Debates*, vol. HR98, p. 1261)

A further amendment, the *Roads Acts Amendment Act 1976* (No. 2) (Cwlth), was introduced six months later and provided for an additional grant of $35.8 million. About 39 per cent of the grant was allocated for expenditure on the construction of rural arterial and development roads, and about 46 per cent to the construction and maintenance of rural local roads. Of the total grant of $9918 million provided by the two amendment Acts, the rural local roads category received $45.17 million, approximately 45 per cent of the total.

THE PERIOD 1977 TO 1989

During the period of the Whitlam government the Commonwealth Bureau of Roads undertook its third, and as events transpired, final study of roads in Australia. The results of the study were presented to the Fraser government on 15 December 1975. In brief, the Bureau recommended a total program of expenditure of $5500 million (1973–74 prices) for the period 1976–77 to 1980–81. Of the total program it was recommended that the Commonwealth's contribution should amount to $2085 million. During the period from 1972–73 to 1975–76 the ratio of road expenditure to gross national expenditure (GNE) had fallen from 2.6 per cent to 1.6 per cent. It was envisaged that adoption of the recommended program would reverse this trend. Moreover, the Bureau's recommendations required a substantially faster rate of growth in real terms of Commonwealth contributions than that required of the States and local government authorities. This was justified on the ground that the Commonwealth had the greatest capacity to increase contributions to the roads budget, especially from petrol tax revenues. What the Bureau proposed was for Commonwealth contributions to increase from 37.1 per cent in 1976–77 to 43.2 per cent in 1980–81, and for the shares of the States and local government authorities to decline, respectively, from 33.4 per cent to 31.8 per cent, and from 29.5 per cent to 26.9 per cent (CBR 1975, p. 248).

As far as other aspects of the CBR's recommendations are concerned the following points are noted. First, with regard to road category allocations the 1975 report indicates a significant change, when compared with the 1973 report, in the Bureau's assessment of the emphasis the Commonwealth should give to each of the road categories. The 1973 recommendations of Commonwealth grants by road categories were as follows: national highways 19.6 per cent; urban arterials 34.98 per cent; urban locals 1.40 per cent (total urban 36.38 per cent); rural arterial and development roads 18.37 per cent, and rural local roads 14.76 per

cent (total rural roads, 33.03 per cent). However, in the 1975 report the national highway category was increased to about 38 per cent of the recommended grant while the urban and rural roads categories fell from about 36 per cent and 33 per cent, respectively, to approximately 29 per cent and 28 per cent of the recommended grant. For both the urban and rural roads categories the adjustment was at the expense of arterial roads.

Second, the report recommended a continuation of the practice of quota arrangements for State contributions to the roads program. Third, on the issue of matching grants by road categories the Bureau departed from its previous stance by arguing that such conditions should not be imposed. The explanation offered was that since the recommended program was smaller than the program recommended in the previous report, the States required greater flexibility in determining the allocation of their own funds (CBR 1975, p. 279). An alternative explanation is that the Bureau, by reversing its previous recommendations, was simply responding to the political constraints made clear by the controversy generated by the Whitlam government's 1974 roads legislation.

Finally, on the matter of road program approval arrangements the Bureau also shifted from its previous approach and recommended that, with the exception of national highways, submission of programs to the Bureau, for approval by the Commonwealth, should not include detailed estimates of costs of individual projects, or of the amounts to be expended in any one year. Instead, submissions should provide a description of intended projects. Further, the Bureau recommended that steps be taken to establish a '... co-operative planning procedure ... in which the Bureau is a partner with both levels of Government to obviate the need for further consideration of projects by the Bureau' (CBR 1975, p. 257).

The Fraser government's legislation was introduced to the Parliament in September 1977 and ratified without amendment in November that year. The government's policy was enshrined in two Acts: the *States Grants (Roads) Act 1977 (Cwlth) and the Transport Planning and Research (Financial Assistance) Act 1977* (Cwlth). The former specified the amounts of financial assistance and time profile of assistance to be provided to the States for the construction and maintenance of national highways and other road designations, for the period 1977–78 to 1979–80, as well as the conditions attached to that assistance.

The *State Grants (Roads) Act 1977* (Cwlth) provided for a total grant of $1425 million (current prices) and thus exceeded the amount provided under the previous triennium by approximately $200 million. However, the grant represented about 55 per cent of the amount recommended by the Bureau. The grant was made available to the States at the rate of $475 million per annum with a commitment from the government to maintain the real value of the grant for the period 1978–80. Furthermore, the legislation retained the previous road categories, and the relative distribution of the total grant among the States was fairly similar to the Bureau's recommendations.

In addition to the significant difference between the level of grant provided by the 1977 legislation and the Bureau's recommendations, there were also differences in the importance attached to the various road categories. The government's policy was to continue to shift the priorities in favour of rural arterial roads and national highways, largely at the expense of the urban arterial category. Application of the Bureau's weights to the actual grant would have meant that allocations to national highways, rural arterial roads, rural local roads, and urban local roads would have fallen, respectively, by $30.95 million, $66.60 million, $20.6 million and $42.2 million while allocations to urban arterial roads and the MITERS category would have experienced, respectively, increases of $147.46 million and $13.4 million.

No explanation was offered by the government for the weights established in the legislation apart from an announcement by the Minister, Mr Nixon, that the Commonwealth government was committed to:

> ... continue funding for the national highways network and the main rural arterial network ... and that support for urban arterial roads in the legislation just ended had, in our view, taken an excessive part of the total available Commonwealth funds. (Australia, House of Representatives 1977, *Debates*, vol. HR106, p. 1189)

However, in other respects the 1977 legislation was consistent with the Bureau's recommendations. Thus provision was made for quota requirements and for the continuation of program approval arrangements of the kind established by amendment in 1976.

The 1975 report was the last study prepared by the Commonwealth Bureau of Roads. In March of 1977 the Fraser government amalgamated it with the Bureau of Transport Economics (BTE) and since then investigations of road funding and expenditure issues have been carried out by that body, now known as the Bureau of Transport and Communications Economics (BTCE). In undertaking its investigations the BTE was not required by government to make recommendations regarding 'warranted and feasible' levels of funding or grant allocations by road categories. However, its analyses have considered, in varying degree, the economic merits of road expenditure decisions. Thus in its report, *An Assessment of the Australian Road System: 1979,* the BTE provides, *inter alia,* an assessment of the economic merit of the actual distribution of road expenditure over the period 1974–75 to 1978–79. The results for this period were obtained by adjusting the warranted expenditures by State and by road category, until the marginal benefit–cost ratios in each sub-category were equal, and total expenditure for all categories equalled the road budget. The results revealed misallocation in the use of funds at both the State and road category levels. Across States, the extent to which expenditure levels exceeded the estimated efficient level ranged from $16 million for Western Australia to $75 million for Victoria (1971–72 prices). For Queensland expenditure incurred was estimated at $213 million less than the efficient level.

For road categories the BTE analysis showed that expenditure on rural local roads was approximately $700 million, about twice the estimated economically efficient

level. For the other categories expenditure was below the estimated efficient amounts. These ranged from $58 million for urban arterials to $220 million for national highways.

Subsequent legislation in 1980 and 1981 resulted in a further relaxation of Commonwealth government controls over road investment decisions. The *Roads Grants Act 1980* (Cwlth) provided a grant of $628 million to the States, and for the first time, the Northern Territory, for 1980–81. The legislation reduced the number of road categories from eight to four: national highways, rural arterials, urban arterials and local roads. Apart from these changes the Minister foreshadowed the introduction of a formula approach to the allocation of funding for local roads among local government authorities.

It would seem, however, that the BTE's report had little impact on government policy. The legislation maintained the existing distribution of Commonwealth grants among the States, and the share of grants by road category and by States was also similar to established patterns. In this regard it is also noted that while the 1980 Act provided for the amalgamation of the rural local and urban local roads categories, the Minister, Mr Hunt, indicated that the Commonwealth government '... will expect the State governments to maintain the existing ratio of expenditure on rural and urban local roads' (Australia, House of Representatives 1980, *Debates*, vol. HR118, p. 2846).

The *Roads Grants Act 1981* (Cwlth) was essentially a continuation of the previous legislation. The Act provided $685 million for 1981–82 and introduced a number of administrative changes. These included a reduction in the number of road categories from four to three by combining the two arterial road categories, the removal of program-approval procedures, the abolition of matching quotas, and the withdrawal of the Minister's power to approve transfers of expenditure from national roads to other road categories. The Minister for Transport also reaffirmed the government's intention to introduce a formula arrangement for the apportionment of local roads grants. And indeed such an arrangement was put into effect during 1982.

The rationale for the Commonwealth's interest in a formula approach can be explained as follows. First, the adoption of a formula approach enabled the Commonwealth government to make clear to local authorities the extent of its effort in this area. For some time the Commonwealth had been concerned that its contribution to local roads had '... been obscured largely as a result of administrative arrangements for handling Commonwealth grants at the State level'. Second, a formula approach was viewed as a better means of assisting local authorities with their road planning arrangements and of ensuring '... that councils receive an equitable share of available funds' (Australia, House of Representatives 1980, *Debates*, vol. HR118, p. 2847).

In essence, the formula approach could be seen as an attempt by the Commonwealth to maximise the political benefits from grants for local roads. The

aim was to prevent the States from appropriating those benefits by claiming credit for decisions taken at the Commonwealth level.

The trend of relaxation of Commonwealth control over road investment decisions was reversed in 1982 with the enactment of the *Australian Bicentennial Road Development Trust Fund Act 1982* (Cwlth) (the ABRD Act) and in 1985 with the introduction of the *Australian Land Transport (Financial Assistance) Act 1985* (Cwlth) (the ALTP Act). While the former legislation was conceived as an additional source of funds to partly correct for the decline, in real terms, of Commonwealth funding since the mid 1970s, it also provided for the reintroduction of project approval arrangements, and empowered the Minister to set standards for national highways. Further, the ABRD Act reintroduced hypothecation of excise and customs duties on motor spirit and diesel fuel. The initial rate of duty was set at 1 cent per litre, rising to 2 cents per litre after 30 June 1983.

The ALTP Act extended hypothecation not covered by the ABRD Act. The rate was set initially at 3.66 cents per litre with indexing provisions to maintain the real value of the program through to June 1990. The Act also extended to all Commonwealth road expenditure the controls reintroduced in the ABRD Act, except for local roads.

In January 1989, the Commonwealth government brought about further policy changes with the introduction of the *Australian Centennial Roads Development Act 1989* (Cwlth). The program continued hypothecation of fuel excise, the initial charge on fuel being set at 4.95 cents per litre. Commonwealth grants were allocated to four categories of roads: national highways, national arterials, state arterials and local roads. While the distribution of the latter two are designated in the Act, the allocation of funds to national highways and national arterials was based on an assessment of national priorities and subject to ministerial determination. Provision was made for project approval arrangements (for the national roads categories) and for the States to introduce 'quality assurance' and pavement management systems.

SUMMARY AND CONCLUSION

This chapter has focused attention on the various changes which have occurred in the Commonwealth's approach to roads policy since 1969. Whereas for most of the period from 1922 to the late 'sixties the Commonwealth left the States essentially free to determine how Commonwealth funds should be apportioned by road classes and project types, this has not been the case since the enactment of the *Commonwealth Aid Roads Act 1969.* Armed with the information and advice provided by the then recently established Commonwealth Bureau of Roads, the Liberal – Country Party government under Gorton's leadership attempted to inject some economic rationality into Commonwealth roads policy. This was reflected mainly in the changes made to the allocation of grants by States and to recognition of the need to increase expenditure on urban roads.

The return to power of the ALP in 1972 under the leadership of Whitlam, a long time proponent of substantial Commonwealth involvement in the roads sector, resulted in a significant increase in Commonwealth control over the use of road grants. This was manifest by the increase in the number of road grant categories, including the establishment of a national roads program for which the Commonwealth assumed total funding responsibility, the adoption of the program approval arrangements, and proposed controls over the use of State revenues directed to urban roads projects. This centralist approach was met with a great deal of criticism from the States and Opposition parties.

After the defeat of the Whitlam government in 1975, the Fraser government took steps to reduce the extent of Commonwealth involvement in the setting of road expenditure priorities. Thus amendments to the legislation in 1976, *inter alia*, softened the approval requirements by confining these to urban projects funded by Commonwealth grants. The amendment also removed the requirement of Commonwealth approval of Commonwealth funded local roads programs. The move for reduced Commonwealth control was continued through to the early 1980s. Since then, however, approval arrangements have been reintroduced for some road categories and the Commonwealth has defined its major planning responsibilities to include national highways and roads now designated as national arterials.

The discussion has also focused attention on Commonwealth government responses to the economic advice provided by the former Commonwealth Bureau of Roads. Decisions taken by the Commonwealth departed in many respects from the Bureau's recommendations, especially with respect to the recommended size of Commonwealth grants, and priorities by road categories. Granted that Commonwealth contributions were significantly less than the Bureau's recommendations, it is conceivable that the relative distribution of warranted expenditure by road categories would have differed from those determined for a much larger budget. Although such calculations (for a smaller budget) were not carried out by the Bureau, it is evident that the pattern of Commonwealth expenditure by road categories is a compromise of economic and other objectives of policy.

CHAPTER 6 STATE GOVERNMENT ROAD EXPENDITURE POLICY: A CASE STUDY OF QUEENSLAND

While a great deal is known about road expenditure decisions taken by the Commonwealth government, relatively little research has focused on the details of expenditure decisions taken by State government road authorities.

In this chapter an attempt is made to cast some light on State government roads policy by adopting a case study approach. For convenience the analysis is confined to the State of Queensland and focuses mainly on an examination, in varying degrees of detail, of expenditure decisions over the period 1950–51 to 1980–81.

The first section provides a short outline of the organisational structure of the Queensland Main Roads Department (MRD) and the nature of the road planning and programming process which developed during the post Second World War years examined in this study, and continued through to 1989 when the MRD became part of the Queensland Department of Transport. This is followed by an examination of the pattern of fund allocation according to the various MRD Divisions and Districts of the State, mainly during the period 1950–51 to 1976–77. A brief discussion of the pattern of fund allocation at the City and Shire level is also provided. The next section considers the expenditure pattern more formally by testing two models of the expenditure process which, for reasons to be outlined, incorporate area and population as independent variables.

The statistical analysis of the two models of road expenditure allocations covers the period 1950–51 to 1980–81. The final section attempts an assessment of the impact of Commonwealth government roads policy, especially during the 1970s, on the regional pattern of fund allocation.

THE PLANNING AND PROGRAMMING OF ROAD WORKS

For road planning and programming purposes the Queensland MRD established a highly decentralised organisational structure on a geographical basis following local government boundaries. For the period 1950–51 to 1980–81 the State was divided into four major Divisions which in turn were divided into a number of Districts. The Divisions were: the Northern Division, the Central Division, the South Western Division, and the South Eastern Division. They made up,

respectively, 39 per cent, 3 per cent, 24 per cent and 4 per cent of the total area of the State, and, respectively, accounted for 14 per cent, 11 per cent, 10 per cent and 65 per cent of the State's population as at June 1977. There are now five major Divisions: the fifth division, known as the Metropolitan Division, was created during the early 1980s to facilitate planning and administration of road works in the Brisbane metropolitan region.

As indicated, each of the Divisions is divided into a number of Districts. For the post-war years examined in this study there are thirteen Districts. The Northern, Central and South Western Divisions are each divided into three Districts, while the South Eastern Division is divided into four Districts. For the purposes of this study Districts 1 and 13 (the highly urbanised areas of the South Eastern Division) are examined as a single entity. An idea of relative sizes and road stocks of the Districts, as at 30 June 1970, is given in table 6.1

TABLE 6.1 INDICATORS OF ROAD STOCKS BY MAIN ROADS DEPARTMENT DISTRICTS (30 JUNE 1970)

MRD Districts	*Area (square miles)*	*Length of declared roads (miles)*	*Length of all roads habitually used by traffic[a] (miles)*
1 & 13	3 899	1 150.3	6 413.2
2	7 884	1 703.3	7 071.6
3	9 243	1 931.0	8 597.9
4	125 091	2 874.7	12 669.3
5	27 020	1 938.1	6 443.7
6	52 016	2 433.7	9 235.4
7	151 425	3 839.0	9 966.1
8	14 941	1 285.0	3 404.4
9	40 092	1 442.9	5 742.8
10	119 905	2 555.4	8 207.0
11	101 440	2 264.7	6 693.3
12	13 022	1 395.3	5 269.9
Total	665 978	24 813.4	89 714.6

a. Figures obtained from individual local authorities during preparation of the National Association of Australian State Road Authorities' Road Needs Survey 1969–79.

Source Queensland Main Roads Department (1970).

Assistant Commissioners (now called Regional Directors) were responsible for the administration of each Division's roads program. For the years 1950–51 to 1980–81 the allocation of the Department's budget among the Divisions was determined by the Commissioner and Deputy Commissioner in consultation with the Assistant Commissioners, subject to Ministerial approval. Budget estimates were often made over a five-year period with actual allocations occurring

annually. As part of this process the major responsibility for the planning and programming of a Division's road works was, and still is, a District function. The district engineers are required to engage in regular consultation with local authorities to assess the availability of resources, to determine local needs for road works, and to facilitate the works program. These programs are sometimes subject to modification to meet State government priorities. For example, during the 1960s the Queensland government made a political commitment to speed up the progress of the Flinders Highway project. In the 1970s the Landsborough Highway project assumed first place on the government's listing of program commitments. Further, the programming of projects within Divisions and Districts might also be affected by decisions taken by the Commonwealth government concerning the manner in which Commonwealth road funds are to be spent.

Within these constraints, the district engineer makes the trade-off between various projects on the basis of engineering criteria (see, for example, NAASRA 1973), the needs of local areas, and pressures exerted by local government authorities. The local government input is of considerable importance, especially in Queensland, given that the major part of the construction and maintenance work is carried out by local government authority work force using local government capital equipment.

A major objective of this chapter is to identify plausible determinants of regional road fund allocation over time. Interestingly, section 24 of the *Main Roads Act 1920* specifies, *inter alia*, that the roads authority should ensure that the annual budget is apportioned equally among the Northern, Central and Southern Divisions of the State. In the words of the Secretary for Agriculture, funds were to be allocated:

> ... according to the necessities of the people. Population does not always count. There are rich areas in the North and because there are no people there these districts have been neglected. (Queensland, Assembly 1919–20, *Debates*, vol. 133, p. 1723)

And again,

> ... I might point out that, while the bulk of the population is in Southern Queensland, it should be borne in mind that in the good old days most of endowment was spent in Southern Queensland and that is an additional argument why the money provided by the State should be spent as equally as possible in each Division of the State. (Queensland, Assembly 1919–20, *Debates*, vol. 133, p. 1813)

As shown later, this principle was not adhered to and no attempt was made (during the period under review) to develop and employ economic modelling procedures as a basis for determining regional fund allocations. Nevertheless, it seems reasonable to suppose that some consistently applied procedure or rule of thumb was employed. It is likely that past expenditure decisions as well as present commitments have an important bearing on fund allocation decisions: history injects some inertia into the decision making process. Moreover, application of engineering criteria to determine road needs frequently results in expenditure requirements exceeding available funds. Once previous commitments are met there is no difficulty in generating new and 'warranted' projects.

Thus, to a large extent the road fund allocation process adopted in Queensland has not lent itself to a comparison of the relative economic merits of programs between the Divisions or between Districts within a Division. This does not mean that each Division or District is assured a constant share of the total road budget. Changes in Divisional and District allocations occur, but generally as a gradual process.

THE PATTERN OF FUND ALLOCATION

The purpose of this section is to show what kind of relationship exists between expenditure in a given region (the Divisions, Districts and selected Shires and Cities) and the proportion of total road service performed by the road system in that region.

Given existing methods of charging and other institutional and environmental conditions, individual road users will derive benefits from road use which they value at no less than the cost to them. The actual value of benefits will differ considerably for different users, but the assumption is made (and is hard to replace or disprove) that the value of the benefit of any particular section of the road system is a direct function of the volume and type of traffic on it (see, for example, Harbeson 1965).

It would be ideal to have accurate time series data for traffic composition and volumes by the various regions. Unfortunately such data are not available for the period considered, and it is necessary to rely largely on motor vehicle registrations in a region as a proxy for traffic volumes and composition. This is provided for the years 1955–56 and 1966–67 to 1976–77. Other indicators of vehicle use such as petrol consumption by region are provided, but could only be obtained for the years 1971 to 1975, while estimates of annual average daily traffic by region are only available for the years 1964 (for Shires), and 1974 (for Districts).

Main Roads Department expenditure: Divisions and Districts

The following discussion begins with a brief description of the pattern of road fund allocation during the period 1922–23 to 1938–39, and for the post Second World War period 1945–46 to 1976–77. Details of road expenditure on the Queensland declared road system are found in appendix 1 of the MRD Annual Reports and are recorded, on a local authority basis, as permanent works and maintenance expenditure.

For the period 1922–23 to 1938–39 road expenditure data in the MRD Annual Reports are also recorded by Northern, Central and Southern Divisions. This is not the case for all years of the period 1945–46 to 1976–77. It should also be noted that because of changes to local government boundaries these Divisions of the State and their local government constituents may not be the same in area as those established during later years. This makes it difficult to provide a detailed analysis of road expenditure policy on the basis of uniform regions (especially at the District level), for the period from 1922–23 to 1976–77. However, it is

nonetheless of some interest to see what the data reveal for each of the periods 1922–23 to 1938–39 and 1945–46 to 1976–77.

MRD expenditure for the period 1922–23 to 1938–39, for the three Divisions as then defined, is shown in table 6.2. Tables 6.3 and 6.4 show, respectively, for the four planning Divisions mentioned earlier, the distribution of total MRD expenditure excluding urban freeway expenditure for the period 1945–46 to 1976–77, and the distribution of MRD expenditure including urban freeway expenditure. The data indicate that in neither period did the MRD pursue a policy in accordance with a strict interpretation of section 24 of the original Act.

In the period from 1922–23 to 1938–39 the Southern Division averaged 53.24 per cent of total MRD expenditure while the Central and Northern Divisions averaged respectively, 28 per cent and 19 per cent of total expenditure. For the period from 1945–46 to 1976–77 the Southern (i.e. the South Eastern and South Western Divisions combined), Central and Northern Divisions averaged respectively, 55 per cent, 23 per cent and 23 per cent of total MRD expenditure. A breakdown of the data for the Southern Division for this period, on the basis of the South Eastern and South Western Divisions, reveals that these Divisions

TABLE 6.2 MAIN ROADS DEPARTMENT EXPENDITURE IN EACH DIVISION, 1922–23 TO 1938–39[a]

Year	*Southern Division ($)*	*Share of State total (per cent)*	*Central Division ($)*	*Share of State total (per cent)*	*Northern Division ($)*	*Share of State total (per cent)*
1922–23	291 294	55.39	142 171	27.04	92 403	17.57
1923–24	391 722	56.48	308 832	30.64	142 253	16.88
1924–25	403 702	46.09	273 024	31.17	199 090	22.73
1925–26	655 468	48.16	388 284	28.53	317 132	23.30
1926–27	762 194	57.95	318 352	24.20	234 754	17.85
1927–28	864 448	53.11	467 838	28.74	295 392	18.15
1928–29	1 021 440	51.49	594 626	29.97	367 788	18.54
1929–30	1 384 202	57.68	577 434	24.04	440 084	18.32
1930–31	1 043 477	56.76	471 641	25.65	323 328	17.59
1931–32	675 735	59.66	304 633	26.90	152 253	13.44
1932–33	1 392 924	58.11	617 948	25.78	386 300	16.11
1933–34	996 624	57.06	391 208	22.40	358 788	20.54
1934–35	1 541 194	50.83	780 847	25.75	710 264	23.42
1935–36	1 351 654	52.35	628 940	24.36	601 500	23.30
1936–37	1 136 352	48.27	715 258	30.38	502 742	21.35
1937–38	1 511 742	52.69	832 498	29.02	524 834	18.29
1938–39	2 441 308	53.17	1 353 316	29.47	746 700	17.35

a. Pre-1945 Division boundaries.

Sources Queensland Main Roads Board Annual Report, Queensland Main Roads Department Annual Reports.

TABLE 6.3 MAIN ROADS DEPARTMENT EXPENDITURE IN EACH DIVISION, 1945–46 TO 1976–77, EXCLUDING URBAN FREEWAY EXPENDITURE[a, b]

Year	South Eastern Division ($)	Share of State total (per cent)	South Western Division ($)	Share of State total (per cent)	Southern[a] ($)	Share of State total (per cent)	Central Division ($)	Share of State total (per cent)	Northern Division ($)	Share of State total (per cent)	State total ($)
1945–46	696 696	30.56	624 138	27.77	1 320 834	58.33	408 406	18.17	527 724	23.48	2 246 964
1946–47	1 433 540	29.89	1 364 972	28.46	2 798 512	58.36	1 047 764	21.85	948 544	19.78	4 794 820
1947–48	1 755 792	31.43	1 517 216	27.15	3 273 008	58.58	1 333 336	23.86	979 954	17.54	5 586 298
1948–49	1 459 028	29.91	1 197 672	24.55	2 656 700	54.46	1 155 904	23.70	1 063 670	21.80	4 876 274
1949–50	1 780 964	30.95	1 616 452	28.08	3 397 416	59.04	1 213 238	21.08	1 145 788	19.90	5 756 422
1950–51	2 406 462	29.88	2 183 190	27.11	4 589 652	56.98	2 154 404	26.75	1 310 334	16.27	8 054 390
1951–52	3 288 428	29.91	3 115 198	28.33	6 403 626	58.24	2 628 446	23.91	1 962 234	17.85	10 994 306
1952–53	2 506 282	28.07	2 512 206	28.14	5 018 488	56.21	2 458 142	27.53	1 452 022	16.26	8 928 652
1953–54	2 814 284	31.00	2 397 296	26.40	5 211 580	57.40	2 123 728	23.40	1 743 786	19.21	9 079 094
1954–55	4 535 896	32.40	3 487 704	24.91	8 023 600	57.31	3 242 602	23.16	2 733 490	19.53	13 999 692
1955–56	4 783 790	31.60	3 797 858	25.09	8 581 648	56.68	3 831 598	25.31	2 726 466	18.01	15 139 712
1956–57	5 229 576	30.46	5 007 284	29.17	10 236 860	59.61	3 795 816	22.11	3 134 882	18.26	17 167 558
1957–58	5 601 968	31.15	4 979 946	27.69	10 581 914	58.83	3 886 234	21.61	3 518 168	19.56	17 986 316
1958–59	5 729 796	28.87	5 679 480	28.62	11 409 276	57.49	4 206 864	21.20	4 228 950	21.31	19 845 090
1959–60	6 518 918	26.02	6 320 202	26.10	12 839 120	53.01	5 854 180	24.17	5 524 968	22.81	24 218 268
1960–61	6 328 030	28.13	5 057 396	22.48	11 385 426	50.60	5 665 878	25.18	5 447 876	24.21	22 499 180
1961–62	7 708 398	30.07	5 504 560	21.48	13 212 958	51.55	6 096 012	23.78	6 323 484	24.67	25 632 454
1962–63	8 242 102	29.56	5 764 498	20.67	14 006 600	50.23	7 027 914	25.20	6 850 064	24.57	27 884 578
1963–64	10 456 190	29.55	7 039 870	19.89	17 496 060	49.44	8 910 032	25.18	8 983 694	25.38	35 389 786
1964–65	11 535 784	28.26	8 064 488	19.76	19 600 272	48.02	10 389 634	25.45	10 828 708	26.53	40 818 614
1965–66	9 630 806	26.25	7 221 123	19.69	16 851 929	45.94	8 958 345	24.42	10 871 744	29.64	36 682 018
1966–67	11 113 236	25.99	9 220 806	21.57	20 334 042	47.56	9 910 338	23.18	12 508 749	29.26	42 753 129
1967–68	12 709 828	27.97	9 804 239	21.56	22 514 067	49.54	9 950 740	21.89	12 983 888	28.57	45 448 695
1968–69	12 909 555	29.20	9 184 271	20.77	22 093 826	49.97	10 716 939	24.23	11 409 813	25.80	44 220 578
1969–70	14 185 756	29.39	9 612 753	19.92	23 798 509	49.31	11 459 471	23.74	13 009 292	26.96	48 267 272
1970–71	13 779 857	27.79	9 274 861	18.69	23 054 718	46.48	11 797 550	23.80	14 731 477	29.72	49 527 281
1971–72	15 526 618	27.75	10 422 082	18.62	25 948 700	46.37	12 959 189	23.16	17 052 098	30.47	55 959 987
1972–73	18 085 363	31.09	11 418 697	19.64	29 504 060	50.73	12 565 478	21.60	16 093 476	27.67	58 163 014

TABLE 6.3 MAIN ROADS DEPARTMENT EXPENDITURE IN EACH DIVISION, 1945–46 TO 1976–77, EXCLUDING URBAN FREEWAY EXPENDITURE[a, b] (Cont.)

Year	South Eastern Division ($)	Share of State total (per cent)	South Western Division ($)	Share of State total (per cent)	Southern[a] ($)	Share of State total (per cent)	Central Division ($)	Share of State total (per cent)	Northern Division ($)	Share of State total (per cent)	State total ($M)
1973–74	23 411 371	35.78	11 821 432	18.07	35 232 803	53.85	13 861 950	21.18	16 341 456	24.97	65 436 209
1974–75	29 916 317	35.47	14 042 611	16.65	43 958 928	52.12	19 313 586	22.90	21 074 052	24.98	84 346 566
1975–76	33 004 808	33.51	17 219 459	17.48	50 224 267	50.99	23 314 803	23.68	24 947 826	25.33	98 486 869
1976–77	43 309 188	34.17	20 922 639	16.50	64 231 827	50.68	31 060 157	24.50	31 453 986	24.81	126 745 970
1977–78	46 965 771	35.76	23 351 112	17.78	70 316 883	53.54	32 254 201	24.55	28 760 231	21.89	131 331 315

a. Combined South Eastern and South Western expenditures are shown to facilitate comparison with pre-1945 expenditures.
b. Urban freeway expenditure for the period 1971–72 to 1976–77 is included in table 6.4.

Sources Based on data contained in Queensland Main Roads Department Annual Reports.

TABLE 6.4 MAIN ROADS DEPARTMENT EXPENDITURE IN EACH DIVISION, 1971–72 TO 1976–77, INCLUDING URBAN FREEWAY EXPENDITURE[a]

Year	South Eastern Division ($)	Share of State total (per cent)	South Western Division ($)	Share of State total (per cent)	Southern[a] ($)	Share of State total (per cent)	Central Division ($)	Share of State total (per cent)	Northern Division ($)	Share of State total (per cent)	State total ($)
1971–72	28 550 970	41.38	10 422 082	15.11	38 973 052	56.49	12 959 189	18.79	17 052 098	24.72	68 984 339
1972–73	32 575 571	44.84	11 418 697	15.72	43 994 268	60.56	12 565 478	17.30	16 093 476	22.15	72 653 222
1973–74	37 721 527	47.30	11 821 432	14.82	49 542 959	62.12	13 861 950	17.38	16 341 456	20.49	79 746 365
1974–75	39 764 355	42.22	14 042 611	14.91	53 806 966	57.13	19 313 803	20.50	21 074 052	22.37	94 194 604
1975–76	42 352 088	39.28	17 219 459	15.97	59 571 547	55.25	23 314 803	21.62	24 947 826	22.30	107 834 176
1976–77	50 705 988	37.80	20 922 639	15.60	71 628 627	53.40	31 060 157	23.15	31 453 986	23.45	134 142 770

a. Combined South Eastern and South Western expenditures are shown to facilitate comparison with pre-1945 expenditures.

Sources Queensland Main Roads Department Annual Reports.

averaged respectively, about 32 per cent and 23 per cent of total expenditure, indicating that over the period 1945–46 to 1976–77 the average percentage distributions for the South Western, Central and Northern Divisions were very similar.

An examination of the data also shows that the percentage distribution of fund allocation for the South Eastern and Central Divisions was fairly stable for most of the period, namely, from 1945–46 to 1970–71, after which the South Eastern Division experienced a dramatic upward shift in its percentage share, reaching a peak of 47 per cent in 1973–74 and declining to 38 per cent in 1976–77, while the Central Division experienced a fall from about 24 per cent in 1970–71 to approximately 17 per cent in 1972–73 and then increased to approximately 23 per cent in 1976–77. The dramatic shift in the South Eastern Division's share is a consequence of the 1969 and 1974 Commonwealth Aid Roads Acts, especially the former, which provided for the earmarking of a substantial part of that aid for the development of urban arterial roads. In Queensland's case the bulk of this aid was allocated to expenditure on urban arterial roads in the city of Brisbane.

The pattern of expenditure shares for the South Western Division is somewhat different. As shown in tables 6.3 and 6.4 the Division's expenditure share was characterised by a high degree of stability about the 27 per cent mark until about 1959–60 (the maximum value is about 29 per cent and the minimum value is approximately 25 per cent), after which a gradual decline occurred, with relatively minor percentage changes about the 20 per cent level, between the years 1961–62 and 1970–71, and then a decline to 14.82 per cent in 1973–74, followed by an increase to approximately 16 per cent in 1976–77.

Likewise the pattern of expenditure for the Northern Division was fairly stable over the period from 1945–46 to 1958–59, having a mean annual value of about 19 per cent, a minimum value of 16.26 per cent and a maximum value of 23.48 per cent. From there on, however, until about the mid 1960s the percentage share gradually increased, and from that point until 1970–71 remained fairly stable about a mean of approximately 28 per cent, and then declined to 20.50 per cent in 1974–75, increasing to about 24 per cent in 1976–77.

Data showing the distribution, by Divisions, of MRD permanent works expenditure and maintenance expenditure are also available (see Docwra 1982) for the period 1945–46 to 1976–77. As expected, Divisional permanent works and maintenance shares varied in much the same manner as described for total expenditure, and had average values almost the same as those derived for total expenditure. For permanent works expenditure, the average percentage distribution of fund allocation over the period for the South Eastern, South Western, Southern, Central and Northern Divisions was respectively 31.11 per cent, 22.32 per cent, 54.43 per cent, 23.63 per cent and 22.92 per cent, while for maintenance expenditure the percentage distribution was respectively 33.23 per cent, 23.74 per cent, 56.97 per cent, 20.60 per cent and 21.40 per cent.

TABLE 6.5 COMPARISON OF MAIN ROADS DEPARTMENT EXPENDITURE AND MOTOR VEHICLE REGISTRATIONS IN EACH DIVISION, 1955–56, 1962–63 AND 1965–66 TO 1976–77

	South Eastern Division		*South Western Division*		*Central Division*		*Northern Division*	
Year	*Expenditure (per cent)*	*Registrations (per cent)*	*Expenditure (per cent)*	*Registrations (per cent)*	*Expenditure (per cent)*	*Registrations (per cent)*	*Expenditure (per cent)*	*Registrations (per cent)*
1955–56	31.60	56.99	25.09	17.52	25.31	11.74	18.80	13.77
1962–63	29.56	58.92	20.67	15.26	25.20	11.27	24.57	14.55
1965–66	26.25	59.48	19.69	13.92	24.42	11.57	29.64	15.01
1966–67	25.99	49.81	21.57	13.51	23.18	11.67	29.26	15.00
1967–68	27.97	60.09	21.57	13.30	21.89	11.61	28.47	15.00
1968–69	29.20	60.46	20.77	13.05	24.23	11.51	25.80	14.98
1969–70	29.39	60.77	19.92	12.46	23.74	11.47	26.96	15.12
1970–71	27.79	61.25	18.69	11.96	23.80	11.49	29.72	15.30
1971–72	41.38	61.81	15.11	11.48	18.79	11.41	24.72	15.30
1972–73	44.84	62.42	15.72	11.08	17.30	11.21	22.15	15.29
1973–74	47.30	62.94	14.82	10.92	17.38	11.02	20.49	15.11
1974–75	42.22	63.17	14.91	10.76	20.50	11.05	22.37	15.02
1975–76	39.28	63.11	15.97	10.67	21.62	11.12	22.30	15.10
1976–77	37.80	63.23	15.60	10.68	23.15	11.13	23.45	14.95

Sources Based on Queensland Main Roads Department Annual Reports and motor vehicle registration data (unpublished).

TABLE 6.6 COMPARISON OF MAIN ROADS DEPARTMENT EXPENDITURE AND MOTOR VEHICLE REGISTRATIONS IN EACH DISTRICT, FOR SELECTED YEARS 1955–56 TO 1976–77

	1955–56		*1962–63*		*1965–66*		*1967–68*		*1972–73*		*1976–77*	
Districts	*Expend.*	*Registr'ns*	*Expend.*	*Registr'ns*	*Expend.*	*Registr'ns*	*Expend.*	*Registr'ns*	*Expend.*	*Registr'ns*	*Expend.*	*Registr'ns*
1 & 13	13.59	43.59	11.86	46.94	12.86	47.47	14.35	48.03	34.59	50.81	25.51	51.09
2	9.88	7.00	10.22	6.10	7.75	5.99	7.95	6.12	6.67	6.21	7.33	6.63
3	9.42	9.05	7.96	8.13	6.95	7.56	7.11	7.82	5.97	6.72	5.05	6.70
4	9.31	3.62	7.24	3.20	6.79	2.82	7.15	2.20	4.56	1.73	5.83	1.49
5	6.36	4.74	5.47	3.93	6.36	3.54	7.31	3.29	5.17	2.63	4.72	2.49
6	10.28	6.17	11.43	6.10	9.69	6.03	8.12	6.30	6.06	6.48	9.65	6.51
7	6.55	1.81	6.80	1.70	8.43	1.41	5.55	1.27	4.75	0.87	4.76	0.75
8	9.42	3.76	7.47	3.47	6.30	4.13	8.23	4.04	6.47	3.86	8.75	3.87
9	8.72	6.67	8.68	7.12	8.12	7.61	9.47	7.66	8.52	7.75	9.07	7.80
10	1.86	1.54	7.34	1.95	9.55	1.71	7.90	1.85	6.58	2.03	6.51	1.69
11	7.43	5.56	8.54	5.48	11.97	5.69	11.20	5.49	7.04	5.50	7.86	5.46
12	7.18	6.40	6.98	5.88	5.74	6.02	5.36	5.94	3.57	5.40	4.95	5.52

Sources Based on Queensland Main Roads Department Annual Reports and vehicle registration data (unpublished).

Further insights are provided by examining the regional distribution of road funds in relation to available demand indicators. Tables 6.5 and 6.6 show, for MRD Divisions and Districts, respectively, the percentage distribution of MRD expenditure and estimates of the percentage distribution of motor vehicle registrations for selected years between and including 1955–56 and 1976–77.

As can be seen from table 6.5 the South Eastern Division (which comprises Districts 1 and 13, 2 and 12) received for the years 1955–56, 1965–66 and 1968–69, respectively, 31.60 per cent, 26.25 per cent and 29.20 per cent of MRD expenditure and accounted for 56.99 per cent, 59.48 per cent and 60.46 per cent of the State's motor vehicle registrations for the same years. The Central and Northern Divisions (which comprise, respectively, Districts 6, 7 and 8 and Districts 9, 10 and 11) together accounted for approximately 25.51 per cent, 26.58 per cent and 26.49 per cent of motor vehicle registrations and received 44.11 per cent, 54.06 per cent and 50.03 per cent of MRD expenditure. The relationship is altered somewhat in the post-1969 period as a result of the Commonwealth government's urban road grants. Thus, for example, for the years 1971–72, 1973–74 and 1976–77, respectively, the South Eastern Division received 41.38 per cent, 47.30 per cent and 37.80 per cent of total MRD expenditure while accounting for approximately 61.81 per cent, 62.94 per cent and 63.23 per cent of motor vehicle registrations for the same years. For the Central and Northern Divisions combined, MRD expenditure represented 43.51 per cent, 37.87 per cent and 46.60 per cent of the State's total expenditure while motor vehicle registration shares were 26.71 per cent, 26.13 per cent and 26.08 per cent of the State's total for the same years.

The differences in the relationship between MRD expenditure and motor vehicle registrations are even more striking when a comparison is made, as in table 6.6, at the District level. For instance, Districts 1 and 13 (which include the State's Capital City area) received for the years 1955–56, 1962–63, 1965–66 and 1967–68 about 13.59 per cent, 11.86 per cent, 12.86 per cent and 14.35 per cent, respectively, of MRD expenditure, and accounted for 43.59 per cent, 46.94 per cent, 47.47 per cent and 48.03 per cent, respectively, of the State's motor vehicle registrations. For the same years, Districts 7 and 10 together accounted for 3.35 per cent, 3.65 per cent, 3.12 per cent and 3.12 per cent of motor vehicle registrations and received 8.41 per cent, 14.14 per cent, 17.98 per cent and 13.45 per cent of MRD expenditure. The dramatic effect on the Commonwealth government's earmarked urban road grant in the post-1969 period is also indicated. Thus in the years 1972–73 and 1976–77 Districts 1 and 13 combined received 34.59 per cent and 25.51 per cent, respectively, of total MRD expenditure while accounting for 50.81 per cent and 51.09 per cent, respectively, of total motor vehicle registrations. Likewise Districts 7 and 10 combined received 11.33 per cent and 11.27 per cent of MRD expenditure and accounted for 2.90 per cent and 2.44 per cent of the State's motor vehicle registrations. However, the share of fund allocation to Districts 1 and 13 started to fall fairly sharply after about 1974–75, reflecting the decline in the significance of urban road grants under the 1974 Commonwealth Roads Acts.

TABLE 6.7 MAIN ROADS DEPARTMENT EXPENDITURE PER MOTOR VEHICLE REGISTERED, AND MOTOR VEHICLES REGISTERED PER SQUARE MILE IN EACH DIVISION, FOR SELECTED YEARS 1955–56 TO 1976–77

	Expenditure per motor vehicle registered ($)				*Motor vehicles registered per square mile*			
Year	*South Eastern Division*	*South Western Division*	*Central Division*	*Northern Division*	*South Eastern Division*	*South Western Division*	*Central Division*	*Northern Division*
1955–56	28.36	64.71	109.85	67.90	6.42	0.33	0.16	0.15
1962–63	31.02	83.76	138.18	104.36	10.12	0.43	0.23	0.25
1965–66	24.87	79.66	119.00	111.22	14.75	0.56	0.35	0.38
1966–67	26.44	97.13	120.84	118.68	16.00	0.59	0.38	0.40
1967–68	28.14	98.08	114.06	115.21	17.20	0.62	0.40	0.43
1971–72	48.01	94.35	118.07	115.81	22.65	0.68	0.51	0.56
1972–73	49.43	98.59	107.25	100.73	24.85	0.72	0.54	0.61
1973–74	52.74	95.24	110.65	95.17	27.24	0.77	0.58	0.66
1974–75	51.96	107.77	144.35	115.81	29.15	0.81	0.62	0.70
1976–77	59.64	145.70	207.55	156.56	31.10	0.86	0.66	0.75

Note South Eastern Division 24 805 square miles; South Western Division 161 354 square miles; Central Division 218 330 square miles; Northern Division 261 459 square miles.

Sources Based on Queensland Main Roads Department Annual Reports and vehicle registration data (unpublished).

The Divisions and Districts are, of course, not only heterogeneous in numbers of vehicles registered but also in area. Table 6.7 shows MRD expenditure per motor vehicle registered, by Divisions, for a number of selected years between, and including, 1955–56 and 1976–77, the size of each Division, and the number of motor vehicles registered per square mile of divisional area. Similar information is also available for the same years at the District level (Docwra 1982). The conclusion to be drawn from an examination of the data is that, in general, the larger the area of a Division or District the greater the total expenditure per motor vehicle registered. In other words there is, in general, an inverse relationship between vehicle density (registered vehicles per square mile) and expenditure per registered vehicle. This can be seen more clearly in table 6.8 which ranks the Districts for selected years in order of MRD expenditure per motor vehicle and vehicles per square mile.

This relationship between area and motor vehicle registrations is also highlighted in tables 6.9 and 6.10. In table 6.9 columns 1 and 2 show the distribution of total expenditure for the period 1964–65 to 1966–67 among the Districts in absolute and percentage terms, while columns 3 and 4 show the distribution of motor vehicle registrations for the year 1965–66. Column 5 shows the relationship between the percentage of motor vehicles registered in each District and the percentage of total expenditure in that District. Table 6.10 shows the same information for the years 1974–75, 1975–76 and 1976–77. As we would expect

TABLE 6.8 DISTRICTS RANKED BY MAIN ROADS DEPARTMENT EXPENDITURE PER MOTOR VEHICLE AND BY MOTOR VEHICLES PER SQUARE MILE, FOR SELECTED YEARS 1965–66 TO 1976–77

	Rank: Expenditure per motor vehicle				*Rank: Vehicles per square mile*			
District	*1965–66*	*1966–67*	*1972–73*	*1975–76*	*1965–66*	*1966–67*	*1972–73*	*1976–77*
1 & 13	1	1	2	1	1	1	1	1
2	5	5	5	4	2	2	2	2
3	2	3	3	2	3	3	3	3
4	10	10	10	11	10	10	11	11
5	8	8	9	8	7	7	8	8
6	7	7	4	7	8	8	7	7
7	12	11	12	12	12	12	12	12
8	6	6	8	9	5	5	5	5
9	4	4	6	5	6	6	6	6
10	11	12	11	10	11	11	10	10
11	9	9	7	6	9	9	9	9
12	3	2	1	3	4	4	4	4

Note For expenditure, a higher number indicates greater expenditure per motor vehicle; for vehicles a higher number indicates a smaller number of vehicles per square mile.

Sources Based on Queensland Main Roads Department Annual Reports and motor vehicle registration data (unpublished).

TABLE 6.9 RELATIONSHIP BETWEEN PERCENTAGE OF TOTAL MAIN ROADS DEPARTMENT EXPENDITURE AND PERCENTAGE OF TOTAL MOTOR VEHICLE REGISTRATIONS IN EACH DISTRICT, 1964–65, 1965–66 AND 1966–67

District	*(1)* *Expenditure for 1964–67 ($)*	*(2)* *Share of total State expenditure for 1965–67 (per cent)*	*(3)* *Total registrations as at 25.3.66 (no.)*	*(4)* *Share of total registrations (per cent)*	*(5)* *Column 2 ÷ 4 (ratio)*
1 & 13	15 985 201	13.29	309 011	47.47	0.280
2	9 687 225	8.06	39 025	5.99	1.346
3	8 706 333	7.24	49 218	7.56	0.958
4	8 012 519	6.66	18 385	2.82	2.362
5	7 787 565	6.48	23 037	3.54	1.831
6	12 589 649	10.47	39 252	6.03	1.736
7	9 077 448	7.55	9 164	1.41	5.355
8	7 591 220	6.31	26 859	4.13	1.528
9	9 111 927	7.58	49 541	7.61	0.996
10	11 996 522	9.98	11 130	1.71	5.836
11	13 100 752	10.98	37 074	5.69	1.914
12	6 607 400	5.49	39 176	6.02	0.912

Sources Based on Queensland Main Roads Department Annual Reports and motor vehicle registration data (unpublished).

TABLE 6.10 RELATIONSHIP BETWEEN PERCENTAGE OF TOTAL MAIN ROADS DEPARTMENT EXPENDITURE AND PERCENTAGE OF TOTAL MOTOR VEHICLE REGISTRATIONS IN EACH DISTRICT, 1974–75, 1975–76 AND 1976–77

District	*(1)* *Expenditure 1974–77 ($)*	*(2)* *Share of total State expenditure for 1974–77 (per cent)*	*(3)* *Total registrations as at 30.6.76 (no.)*	*(4)* *Share of total registrations (per cent)*	*(5)* *Column 2 ÷ 4 (ratio)*
1 & 13	92 959 252	27.65	661 179	51.10	0.541
2	23 493 356	6.98	84 061	6.50	1.074
3	18 305 430	5.44	85 655	6.62	0.822
4	17 798 210	5.29	19 917	1.54	3.435
5	16 080 769	4.78	32 428	2.51	1.904
6	29 907 381	8.89	83 733	6.47	1.374
7	18 554 238	5.51	10 080	0.78	7.064
8	25 236 897	7.51	50 129	3.87	1.940
9	29 139 833	8.66	100 780	7.79	1.112
10	24 814 455	7.38	23 554	1.82	4.055
11	23 521 196	6.99	71 095	5.49	1.273
12	16 369 830	4.86	71 325	5.51	0.882

Sources Based on Queensland Main Roads Department Annual Reports and motor vehicle registration data (unpublished).

Districts 1 and 13 combined recorded the lower value in column 5, and Districts 4, 7 and 10 the highest.

An obvious objection to the use of motor vehicle registrations as an indicator of demand for road space is that it may significantly understate, for some (or all) regions, relative levels of usage of the regional road networks. This would occur, for example, if vehicle usage were greater in some regions than in others or if a region's road network was used extensively by vehicles registered in other regions or in other States. Petrol consumption by region might thus be viewed as a better or more acceptable indicator of demand for a region's road network. It is of course possible that petrol purchased in one region is consumed in another region, so even petrol sales data have some weakness as an indicator of road usage. Moreover, the data also fail to reflect accurately the composition of traffic. Unfortunately there is little one can do about these difficulties until the data collection activities of road authorities are improved.

Estimates of petrol consumption by MRD Districts were obtained from BP Australia Ltd for the years 1971 to 1974. Examination of the data indicates a very close relationship between motor vehicles registered by the Divisions and Districts and petrol sales in those areas (table 6.11). A further indicator of regional road use is provided in the form of an estimate of the average of annual average daily traffic (AADT) for all declared roads by Districts for the years 1964 and 1968 (Queensland Main Roads Department 1970). A ranking of regions according to these data, together with a ranking by motor vehicle registrations and petrol consumption for the years 1971 and 1974, is shown in table 6.12. By and large the rankings of regions by AADT estimates are consistent with the rankings by motor vehicle registrations and petrol consumption.

It may be argued that the data relating expenditure per motor vehicle registered in the various regions should be adjusted to take account of the specific grants for beef cattle roads provided by the federal government during the early 1960s through to the early 1970s (see chapter 4). Table 6.13 shows, for selected years, District MRD expenditure per motor vehicle registered, including and excluding beef road grants. It should be noted, however, that taking the beef cattle grant out assumes that the MRD expenditure was not otherwise altered or affected in any way by the beef cattle grants. Put differently, it is assumed that a beef cattle grant is not matched by a low level of MRD expenditure, thus enabling a tied grant to be untied. While the adjustments do reduce the differences between the Districts in expenditure per motor vehicle registered, the differences are still very great. The important question is whether such differences can be justified on economic grounds. We return to this issue later in the chapter.

Additional information regarding District and Divisional fund allocations is shown in table 6.14. The table records the relationship between motor vehicle registration revenue and MRD expenditure by Districts and Divisions for most of the period from 1966–67 to 1974–75. Not surprisingly, the data reveal that for the early part of the period expenditure in the combined Districts 1 and 13 was considerably less than the amount of revenue collected from vehicle owners

TABLE 6.11 DISTRICT PERCENTAGES OF MOTOR VEHICLE REGISTRATIONS AND PETROL SALES, 1971 TO 1974
(per cent)

	1971		*1972*		*1973*		*1974*	
District	*Registrations*	*Petrol*	*Registrations*	*Petrol*	*Registrations*	*Petrol*	*Registrations*	*Petrol*
1 & 13	49.55	49.89	50.21	49.88	50.81	49.55	51.18	46.64
2	6.11	6.56	6.12	5.56	6.21	7.10	6.35	7.24
3	7.10	5.23	6.91	5.23	6.72	5.16	6.66	5.06
4	1.95	3.23	1.82	3.23	1.73	3.25	1.67	3.14
5	2.90	2.91	2.75	2.91	2.63	2.73	2.59	3.51
6	6.38	6.85	6.52	6.84	6.48	6.79	6.39	8.07
7	1.03	1.34	0.93	1.35	0.87	1.36	0.86	1.62
8	4.08	4.68	3.97	4.68	3.86	5.08	3.77	4.59
9	7.68	7.21	7.66	7.21	7.75	7.25	7.74	7.49
10	2.05	2.58	2.07	2.58	2.03	2.20	1.94	2.61
11	5.58	5.01	5.57	5.01	5.50	5.00	5.43	5.22
12	5.59	4.55	5.47	4.55	5.40	4.50	5.41	4.80

Sources BP Australia Ltd, Queensland Main Roads Department (unpublished data).

TABLE 6.12 DISTRICTS RANKED BY PETROL SALES, MOTOR VEHICLE REGISTRATIONS AND ANNUAL AVERAGE DAILY TRAFFIC

District	Rank: Petrol consumption		Rank: Registrations		Rank: Annual average daily traffic	
	1971	1974	1971	1974	1964	1968
1 & 13	1	1	1	1	1	1
2	4	3	5	5	2	3
3	5	5	3	3	5	4
4	9	9	11	11	9	10
5	10	10	9	9	7	8
6	3	4	4	4	8	9
7	12	12	12	12	11	12
8	7	6	8	8	6	6
9	2	2	2	2	3	2
10	11	11	10	10	10	11
11	6	7	7	6	7	7
12	8	8	6	7	4	5

Note A higher number indicates a lower ranking.

Sources Queensland Main Roads Department, B.P. Australia Ltd (unpublished data).

whose vehicles were registered in that combined District. Thus, for example, in 1967 and 1971 revenue exceeded expenditure by $3.57 million and $5.25 million, respectively. For all other Districts revenue fell short of expenditure. However, from 1972 to 1975 Districts 1 and 13 combined recorded an excess of expenditure over revenue, reflecting the impact of the 1969 Commonwealth Roads Act. In 1972 this difference was approximately $7.6 million and reached a maximum of $11.5 million in 1974.

Cities and Shires

A more detailed view of the pattern of regional fund allocation can be obtained by examining the apportionment of MRD funds at the Shire and City level. Table 6.15 provides some information regarding expenditure and demand indicators for a number of Shires for the years 1962–63, 1965–66, 1966–67, 1974–75 and 1976–77. The data include MRD expenditure, motor vehicle registrations, and expenditure per motor vehicle registered by Shire for the years shown. Adjustments have also been made to take account of the influence of beef cattle grants. Naturally, as the process of disaggregation is continued, eventually the size of the region may be so small that little faith can be placed on motor vehicle registrations as a reasonable indicator of demand for road space. Other indicators of demand for a regional network, such as annual average daily traffic, are required. Table 6.15 provides an estimate of average annual daily traffic (AADT) for each region for one year only. Comments on the usefulness of these data are made later.

TABLE 6.13 MAIN ROADS DEPARTMENT EXPENDITURE PER MOTOR VEHICLE REGISTERED IN EACH DISTRICT (FOR SELECTED YEARS), INCLUDING AND EXCLUDING BEEF CATTLE ROAD GRANTS

($)

	1965–66		*1967–68*		*1974–75*		*1975–76*		*1976–77*	
District	*Including BCG*	*Excluding BCG*	*Including BCG*	*Excluding BCG*	*Including BCG*	*Excluding BCG*	*Including BCG*	*Excluding BCG*	*Including BCG*	*Excluding BCG*
1 & 13	15.26	15.26	18.08	18.08	47.11	47.11	44.51	44.51	49.84	49.84
2	71.93	71.93	81.55	81.55	75.62	75.62	92.66	92.66	110.38	110.38
3	51.77	51.77	55.03	55.03	66.54	66.54	72.48	72.48	75.13	75.13
4	127.20	127.20	196.68	196.68	225.93	225.93	280.02	280.02	391.06	391.06
5	101.33	101.33	134.48	134.48	140.39	140.39	167.54	167.54	188.99	188.99
6	90.60	90.60	77.94	76.95	101.10	99.59	108.89	103.35	147.87	141.22
7	337.26	207.19	264.94	237.22	560.01	540.44	651.49	597.50	632.03	558.62
8	86.05	86.05	123.09	118.01	126.93	105.86	152.41	100.20	225.49	173.41
9	60.11	60.11	74.75	64.33	83.34	49.82	91.14	61.72	116.09	77.95
10	314.76	196.16	258.31	176.18	331.83	284.12	361.58	311.83	383.94	383.19
11	118.43	78.15	123.46	86.32	87.13	84.70	101.92	79.63	143.58	135.16
12	53.79	53.79	54.33	54.33	69.96	69.96	71.90	71.90	89.56	89.56

BCG Beef cattle roads grants

Source Queensland Department of Main Roads (unpublished data).

TABLE 6.14 MOTOR VEHICLE REGISTRATION REVENUE AND MAIN ROADS DEPARTMENT EXPENDITURE IN EACH DISTRICT AND DIVISION, 30 JUNE 1967 AND 1970 TO 1975

District or Division	*1966–67*		*1969–70*		*1970–71*		*1971–72*	
	E – R	*R/E*	*E – R*	*R/E*	*E – R*	*R/E*	*E – R*	*R/E*
1967 to 1972								
Districts 1 & 13	–3 577 143	1.6397	–4 196 942	1.5458	–5 251 298	1.6938	+7 625 570	0.6472
District 2	+1 130 123	0.3597	+2 479 947	0.3788	+2 407 894	0.4013	+2 616 238	0.3988
District 12	+1 110 431	0.4940	+1 162 951	0.5357	+791 128	0.6381	+1 114 429	0.5684
South Eastern Division	–1 336 589	1.0303	–554 044	1.0391	–2 052 276	1.1490	+11 356 237	0.6022
District 3	+1 382 854	0.5536	+1 080 612	0.6809	+1 045 842	0.6897	+1 398 710	0.6341
District 4	+2 705 755	0.1675	+2 150 610	0.2439	+2 194 327	0.2369	+2 533 994	0.2125
District 5	+2 101 542	0.2685	+2 426 472	0.2827	+2 066 701	0.3158	+2 405 239	0.2887
South Western Division	+6 190 151	0.3287	+5 657 694	0.4114	+5 306 870	0.4273	+6 337 943	0.3919
Southern Division	+4 853 562	0.7121	+5 103 650	0.7855	+3 254 594	0.8588	+17 694 180	0.5459
District 6	+3 512 924	0.2663	+2 012 087	0.4541	+2 190 887	0.4495	+2 325 336	0.4579
District 7	+1 844 842	0.1528	+3 049 779	0.1047	3 356 949	0.0925	+3 624 558	0.0830
District 8	+2 199 588	0.2530	+3 396 440	0.2223	+3 054 521	0.2584	+3 614 260	0.2338
Central Division	+7 557 354	0.2374	+8 458 306	0.2619	+8 602 357	0.2708	+9 564 154	0.2620
District 9	+2 225 063	0.3956	+3 063 666	0.3756	+3 166 403	0.3817	+3 669 082	0.3649
District 10	+3 515 274	0.1040	+2 576 960	0.1768	+3 186 820	0.1617	+4 859 043	0.1217
District 11	+3 822 008	0.2206	+3 619 441	0.2720	+4 346 284	0.2518	+4 163 821	0.2749
Northern Division	+9 562 345	0.2355	+9 260 067	0.2882	+10 699 507	0.2737	+12 691 946	0.2557

(Continued on next page)

TABLE 6.14 MOTOR VEHICLE REGISTRATION REVENUE AND MAIN ROADS DEPARTMENT EXPENDITURE IN EACH DISTRICT AND DIVISION, 30 JUNE 1967 AND 1970 TO 1975 (Cont.)

	1972–73		*1973–74*		*1974–75*	
District or Division	*E – R*	*R/E*	*E – R*	*R/E*	*E – R*	*R/E*
1973 to 1975						
Districts 1 & 13	+9 643 053	0.6163	+11 555 467	0.5957	+11 202 174	0.6177
District 2	+2 935 878	0.3945	+3 662 052	0.3674	+3 598 749	0.3870
District 12	+1 010 739	0.6107	+1 634 755	0.5124	+2 769 537	0.3971
South Eastern Division	+13 589 670	0.5828	+16 852 274	0.5537	+17 570 460	0.5581
District 3	+1 793 620	0.5871	+1 801 935	0.6006	+2 471 649	0.5361
District 4	+2 611 676	0.2127	+2 644 221	0.2180	+3 646 469	0.1706
District 5	+2 738 941	0.2711	+2 855 377	0.2732	+3 206 472	0.2575
South Western Division	+7 144 237	0.3743	+7 301 533	0.3823	+9 324 590	0.3360
Southern Division	+20 733 907	0.5968	+24 153 807	0.5125	+26 895 050	0.5002
District 6	+2 287 132	0.4812	+3 222 349	0.4106	+5 492 129	0.3005
District 7	+3 113 835	0.0979	+3 009 003	0.1077	+5 241 312	0.0635
District 8	+3 528 474	0.2501	+3 772 255	0.2490	+4 508 390	0.2300
Central Division	+8 929 441	0.2894	+10 003 607	0.2783	+15 241 831	0.2108
District 9	+3 831 618	0.3814	+3 301 012	0.4360	+5 092 022	0.3460
District 10	+4 071 572	0.1491	+4 479 177	0.1410	+ 6 809 091	0.0991
District 11	+3 397 801	0.3357	+3 431 432	0.3493	+3 782 064	0.3400
Northern Division	+11 300 991	0.2978	+11 211 621	0.3139	+15 683 177	0.2558

E Main Roads Department expenditure *R* Revenue from motor vehicle registrations

Source Queensland Main Roads Department (unpublished data).

TABLE 6.15 INDICATORS OF EXPENDITURE FOR SELECTED SHIRES

Shire or City (and percentage of State area)	*Indicator*	*1964*	*1962–63*	*1965–66*	*1966–67*	*1974–75*	*1976–77*
Albert (0.080)	Percentage of State motor vehicle registrations		0.69	0.71	0.73	1.60	1.89
	Percentage of MRD expenditure		3.53	4.27	4.00	2.91	3.55
	Expenditure per motor vehicle registration		317.98	339.18	33124	14081	186.85
	Annual average daily traffic in 1964	1 815					
	Ratio of MRD expenditure percentage to percentage of State registrations		5.11	6.01	5.48	1.82	1.87
Brisbane (0.058)	Percentage of State motor vehicle registrations		37.27	37.16	36.96	36.86	35.57
	Percentage of MRD expenditure		1.36	1.43	2.26	19.97	11.78
	Expenditure per motor vehicle registration		5.86	2.17	3.73	42.15	33.04
	Annual average daily traffic in 1964	7 830					
	Ratio of MRD expenditure percentage to percentage of State registrations		0.04	0.04	0.06	0.54	0.33
Cloncurry (2.897)	Percentage of State motor vehicle registrations		1.29	0.19	0.18	0.13	0.15
	Percentage of MRD expenditure		1.36	2.76	3.50	1.42	1.17
	Expenditure per motor vehicle registration		64.92	803.08	1 151.42	824.66	771.12
	Expenditure per registration excluding beef cattle grants		–	479.01	430.23	405.12	769.78
	Annual average daily traffic in 1964	50					
	Ratio of MRD expenditure percentage to percentage of State registrations		1.05	14.52	19.44	10.92	7.80
Richmond (1.562)	Percentage of State motor vehicle registrations		0.14	0.11	0.10	0.075	0.06
	Percentage of MRD expenditure		0.71	0.79	0.78	0.98	0.43
	Expenditure per motor vehicle registration		320.16	395.50	454.00	1 022.80	675.25
	Annual average daily traffic in 1964	45					
	Ratio of MRD expenditure percentage to percentage of State registrations		5.07	7.18	7.80	13.06	7.16

TABLE 6.15 INDICATORS OF EXPENDITURE FOR SELECTED SHIRES (Cont.)

Shire (and percentage of State area)	*Indicator*	*1964*	*1962–63*	*1965–66*	*1966–67*	*1974–75*	*1976–77*
Winton (3.120)	Percentage of State motor vehicle registrations		0.25	0.20	0.17	0.10	0.09
	Percentage of MRD expenditure		1.72	2.85	1.04	0.58	1.24
	Expenditure per motor vehicle registration		423.63	808.22	364.00	440.39	1 291.60
	Expenditure per registration excluding beef cattle grants		–	47.20	224.18	–	–
	Annual average daily traffic in 1964	40					
	Ratio of MRD expenditure percentage to percentage of State registrations		6.88	14.25	6.11	5.80	13.77
Carpentaria (3.943)	Percentage of State motor vehicle registrations		0.04	0.05	0.04	0.07	0.04
	Percentage of MRD expenditure		0.48	2.37	1.44	2.58	1.05
	Expenditure per motor vehicle registration		753.00	2 986.27	2 119.29	2 881.90	1 893.79
	Expenditure per registration excluding beef cattle grants		–	312.70	201.76	2 402.68	1 890.85
	Annual average daily traffic in 1964	25					
	Ratio of MRD expenditure percentage to percentage of State registrations		12.00	47.40	36.00	36.85	21.00
Etheridge (2.314)	Percentage of State motor vehicle registrations		0.05	0.05	0.05	0.03	0.03
	Percentage of MRD expenditure		0.56	4.09	4.32	0.59	0.36
	Expenditure per motor vehicle registration		645.54	4 522.95	5 055.57	1 222.21	1 084.92
	Expenditure per registration excluding beef cattle grants		–	200.66	225.44	–	887.21
	Annual average daily traffic in 1964	35					
	Ratio of MRD expenditure percentage to percentage of State registrations		11.20	81.80	86.40	19.66	12.00
McKinlay (2.361)	Percentage of State motor vehicle registrations		0.16	0.13	0.12	0.07	0.06
	Percentage of MRD expenditure		3.48	1.13	5.96	1.12	1.84
	Expenditure per motor vehicle registration		1 341.43	487.20	306.36	1 570.20	2 846.62
	Expenditure per registration excluding beef cattle grants		–	330.65	276.32	–	–
	Annual average daily traffic in 1964	45					
	Ratio of MRD expenditure percentage to percentage of State registrations		21.75	8.76	49.66	16.00	30.66

TABLE 6.15 INDICATORS OF EXPENDITURE FOR SELECTED SHIRES (Cont.)

Shire (and percentage of State area)	*Indicator*	*1964*	*1962–63*	*1965–66*	*1966–67*	*1974–75*	*1976–77*
Boulia (3.547)	Percentage of State motor vehicle registrations		0.06	0.04	0.04	0.03	0.03
	Percentage of MRD expenditure		0.83	0.62	0.64	0.43	0.51
	Expenditure per motor vehicle registration		906.63	812.99	1 005.36	1 281.47	1 989.37
	Expenditure per registration excluding beef cattle grants		–	338.16	260.83	1 015.22	1 989.26
	Annual average daily traffic in 1964	25					
	Ratio of MRD expenditure percentage to percentage of State registrations		13.83	15.50	16.00	14.33	17.00
Townsville (0.017)	Percentage of State motor vehicle registrations		3.24	3.37	3.54	4.12	4.16
	Percentage of MRD expenditure		11.11	0.24	0.84	0.74	1.67
	Expenditure per motor vehicle registration		21.21	3.97	14.44	14.04	40.09
	Annual average daily traffic in 1964	2 335					
	Ratio of MRD expenditure percentage to percentage of State registrations		0.34	7.12	0.24	0.17	0.40
Cairns (0.003)	Percentage of State motor vehicle registrations		1.68	1.71	1.69	1.71	1.78
	Percentage of MRD expenditure		0.01	0.043	0.45	0.46	0.13
	Expenditure per motor vehicle registration		0.64	1.40	16.06	20.76	7.25
	Annual average daily traffic in 1964	5 250					
	Ratio of MRD expenditure percentage to percentage of State registrations		0.005	0.025	0.26	0.26	0.07
Cook (7.232)	Percentage of State motor vehicle registrations		0.05	0.04	0.05	0.15	0.17
	Percentage of MRD expenditure		0.74	0.58	0.52	0.21	0.41
	Expenditure per motor vehicle registration		961.83	717.93	576.04	105.91	237.18
	Expenditure per registration excluding beef cattle grants		–	–	–	108.89	–
	Annual average daily traffic in 1964	20					
	Ratio of MRD expenditure percentage to percentage of State registrations		14.80	14.50	10.40	1.40	2.41

TABLE 6.15 INDICATORS OF EXPENDITURE FOR SELECTED SHIRES (Cont.)

Shire (and percentage of State area)	*Indicator*	*1964*	*1962–63*	*1965–66*	*1966–67*	*1974–75*	*1976–77*
Nebo (0.590)	Percentage of State motor vehicle registrations		0.04	0.04	0.04	0.03	0.03
	Percentage of MRD expenditure		1.17	0.59	1.12	0.53	1.00
	Expenditure per motor vehicle registration		1 470.28	793.46	1 545.00	1 094.98	2 679.62
	Expenditure per registration excluding beef cattle grants		–	–	–	827.41	564.89
	Annual average daily traffic in 1964	65					
	Ratio of MRD expenditure percentage to percentage of State registrations		29.25	14.75	28.00	17.66	33.33
Ilfracombe (0.381)	Percentage of State motor vehicle registrations		0.06	0.05	0.05	0.02	0.02
	Percentage of MRD expenditure		1.01	0.93	0.19	0.36	0.26
	Expenditure per motor vehicle registration		1 075.32	997.55	255.00	1 112.96	1 028.88
	Annual average daily traffic in 1964	55					
	Ratio of MRD expenditure percentage to percentage of State registrations		16.83	18.60	3.80	18.00	13.00
Dalrymple (3.924)	Percentage of State motor vehicle registrations		0.12	0.09	0.08	0.05	0.05
	Percentage of MRD expenditure		1.94	2.00	2.53	2.52	2.24
	Expenditure per motor vehicle registration		963.21	1 268.10	1 861.84	2 733.90	4 860.66
	Expenditure per registration excluding beef cattle grants		–	–	1 212.96	925.05	694.25
	Annual average daily traffic in 1964	95					
	Ratio of MRD expenditure percentage to percentage of State registrations		16.16	22.22	31.62	59.40	44.80

– No beef cattle grants

Sources Queensland Main Roads Department Annual Reports, Queensland Main Roads Department (1964, 1970), Queensland motor vehicle registration data (unpublished).

As might be expected, expenditure per motor vehicle registered shows a greater variation between Cities and Shires than between Districts. Again the pattern is for the larger and more sparsely populated regions to record expenditures per motor vehicle registered many times the amounts recorded in the smaller but more densely populated regions. For example, the City of Brisbane, comprising 0.058 per cent of total State area, recorded an average of $3.92 per motor vehicle registered for the first three years shown in table 6.15, and an average of $37.59 for the years 1974–75 and 1976–77. On the other hand the Shire of Etheridge, 2.314 per cent of total State area, recorded an average of $2506 per motor vehicle registered for the five years if the beef cattle grant is included, and an average of $636.21 per motor vehicle registered if the beef cattle grant is excluded.

As indicated, table 6.15 includes a measure of AADT. The figure recorded is a 'measure' of the use of the declared roads system in each region based on the AADT readings for various parts of the network (Queensland Main Roads Department 1964). If it is reasonable to assume that there are no significant differences in the extent to which efforts were made to record accurately the use of the various sections of the road system in each Shire, and that there were no significant changes in relative demand for road travel during the period 1962–63 to 1974–75, the measure of AADT serves a useful purpose. If there is understatement of road use, for example, so long as the understatement is uniform, it is still possible to comment meaningfully on the pattern of usage.

It can be seen from table 6.15 that the larger regions, which include the Shires of Etheridge, Carpentaria, Cook and McKinlay, all recorded relatively low estimates of AADT compared with the relatively smaller but more densely populated regions. In other words, the AADT measure of demand (given the assumptions made above) is consistent with the use of the motor vehicle registrations indicator. However, it is also noted that for most of the Shires mentioned a large part of the road mileage is classified as developmental road which has been constructed for the purpose of serving the beef cattle industry. Ideally, the indicators of regional demand for roads and road supply should include measures of the composition of traffic and the quality of the stock of roads. As mentioned earlier in this chapter, such measures are not available for the years recorded in this study.

Table 6.16 emphasises the magnitude of the differences between the proportion of total motor vehicles registered in an area — in this case the 12 Cities — and the proportion of MRD expenditure allocations in that area. As a group the Cities recorded an average of 57.90 per cent of motor vehicle registrations for the years 1955–56, 1962–63, 1966–67 and 1968–69, and an average of approximately 7.50 per cent of total MRD expenditure for the same years. The rest of Queensland accounted for approximately 42 per cent of motor vehicle registrations and approximately 92 per cent of total MRD expenditure.

In the years shown for the 1970s the table indicates a substantial increase in the proportion of fund allocation to the Cities. This increase reached a maximum in 1973–74 with the Cities receiving approximately 31 per cent of total MRD

TABLE 6.16 URBAN VERSUS RURAL ROAD EXPENDITURE AND MOTOR VEHICLES REGISTERED, FOR SELECTED YEARS 1955–56 TO 1977–78

	1955–56	*1962–63*	*1966–67*	*1968–69*	*1970–71*	*1972–73*	*1973–74*	*1976–77*	*1977–78*
Urban									
Registrations (per cent)	53.91	59.04	57.88	60.78	62.25	60.78	63.11	62.96	62.67
Expenditure (per cent)	6.39	7.87	6.99	8.89	10.01	29.60	31.06	18.89	14.89
Expenditure (per cent)/ registrations (per cent)	0.118	0.133	0.121	0.146	0.161	0.487	0.492	0.300	0.23
Rural									
Registrations (per cent)	46.09	40.96	42.12	39.22	37.75	39.22	36.89	37.04	37.33
Expenditure (per cent)	93.61	92.13	93.01	91.11	89.99	70.40	68.94	81.11	85.11
Expenditure (per cent)/ registrations (per cent)	2.03	2.24	2.21	2.32	2.38	1.795	1.868	2.189	2.279

Sources Queensland Main Roads Department Annual Reports, Queensland Main Roads Department.

expenditure, while accounting for about 63 per cent of total motor vehicle registrations. However, towards the end of the period the allocation to the Cities declined sharply, falling to approximately 15 per cent in 1977–78.

ROAD FUND ALLOCATION MODELS

In this section the analysis is taken a step further by formulating and testing some plausible models of the road fund allocation process in Queensland.

As suggested earlier, the fund allocation process is unlikely to be random: some fairly simple rules of thumb, or set of principles will be applied. Since in Queensland there is no statutory rule of thumb, apart from the ambiguous directive contained in section 24 of the original Main Roads Act, it is necessary to formulate plausible models based on: knowledge of the pattern of fund allocation by regions; rules of thumb used by other levels of government (for example, the Commonwealth); rules of thumb used by road authorities in other countries; and the constraints imposed by data availability. These points are explained as follows. First, it would appear from the discussion in the previous section that the area of a region is relevant to an examination of the regional pattern of fund allocation. Second, at the Commonwealth government level the distribution of road grants among the mainland States was, from 1922 to 1959, determined on the basis of an area–population formula, and from 1959 to 1969, on the basis of an area, population and motor vehicle registration formula. Third, the use of such formulae is by no means unique to Australia as shown, for example, in a study by Burch (1962) of the practices of state road authorities in the USA (see also Burns 1974). Apart from the use of area, population and motor vehicle registrations in road fund apportionment formulae, Burch's study also pointed to the use by some states of formulae incorporating such factors as petrol consumption, road mileage and property valuations.

On the basis of this knowledge (as well as the assumption of non-random behaviour) it seems reasonable to argue that the State of Queensland might also (for the period analysed) have apportioned road funds on the basis of some of the above mentioned elements. Formulation of plausible decision making rules (or models) is hampered by data availability. Specifically, it is not possible to test a model incorporating petrol consumption or motor vehicle registrations, since these data are either not readily available, or in the case of motor vehicle registrations, only available by regions for part of the period. The upshot is that the analysis is restricted to testing models which incorporate area and population as the independent variables. However, to reiterate, it is far from unreasonable to suggest that area and population might be considered by the decision makers when apportioning funds among regions of the State. Further, it should also be noted that, in an analysis of this kind, specification of a model or rule of thumb which can be shown to 'explain' expenditure decisions does not necessarily imply that the components of the analyst's model are consciously taken into consideration by the decision makers. In these circumstances the model simply says that the decision makers behave in a manner consistent with the characteristics of the model (see, for example, McFadden 1975).

Model A — an area–population formula

For reasons given above it was decided to test the hypothesis that the Queensland MRD has used a fund apportionment formula similar to the area–population formula adopted by the Commonwealth government during the period 1922 to 1959 (see Docwra 1982 and Docwra & Strong 1985). The Commonwealth formula can be expressed as:

$$E^i = \alpha \frac{P^i}{P} E + \beta \frac{A^i}{A} E \qquad (1)$$

where E^i, P^i and A^i are, respectively, the expenditure, population and area of State i, and E, P and A are the totals across all States.

The coefficients α and β are the weights attached by the Commonwealth government.

It is hypothesised that the Queensland road authority employed this formula for the purpose of allocating its annual road budget (excluding allocations on local government roads) among the major road planning regions, that is, the Divisions of the State. Using $j = 1, 2, 3, 4$, formula 1 can be written as

$$E_t{}^j = \alpha \frac{P_t{}^j}{P} E_t + \beta \frac{A_t{}^j}{A_t} E_t \qquad (2)$$

where t denotes time, measured in years.

Rewriting formula 2,

$$\frac{E_t{}^j}{E_t} = \alpha \frac{P_t{}^j}{P_t} + \beta \frac{A_t{}^j}{A_t} \qquad (3)$$

Given the nature of the investigation the introduction of an error term $\varepsilon_t{}^j$ for all j and t is appropriate. However, for all t,

$$\sum_{j=1}^{4} \frac{E_t{}^j}{E_t} = 1$$

so that the sum of the right hand side of formula 3 for all t must also be 1, introducing a restriction on the error terms for each t. Specifically, after the addition of $\varepsilon_t{}^j$,

$$\sum_j \frac{E_t{}^j}{E_t} = 1 = \alpha + \beta + \sum_{j=1}^{4} \varepsilon_t{}^j \qquad \text{for all } t \qquad (4)$$

Hence, $\sum_j \varepsilon_t{}^j = 1 - \alpha - \beta$. This non-random dependence between the four error terms in each time period can be removed by considering only observations on $j = 1, 2, 3$, and assuming that $\varepsilon_t{}^j$ is independent of $\varepsilon_t{}^k$ for $j, k = 1, 2, 3$ and $j \neq k$. The mean of $\varepsilon_t{}^j$ is assumed to be zero. The statistical model is thus

$$\frac{E_t{}^j}{E_t} = \alpha \frac{P_t{}^j}{P_t} + \beta \frac{A_t{}^j}{A_t} + \varepsilon_t{}^j \tag{5}$$

In order to test whether the Commonwealth government rule was applied in Queensland, it is convenient to add an extra parameter, an 'intercept' term, and to test the composite linear hypothesis H_0, that $\gamma = 0$, $\alpha + \beta = 1$. Finally, therefore,

$$\frac{E_t{}^j}{E_t} = \gamma + \alpha \frac{P_t{}^j}{P_t} + \beta \frac{A_t{}^j}{A_t} + \varepsilon_t{}^j \tag{6}$$

An F-statistic can be constructed to test this null hypothesis in a regression framework if $\varepsilon_t{}^j$ is assumed to be normally distributed. This F has 2 and $3T - 3$ degrees of freedom, where $t = 1, 2, \ldots, T$. If the null hypothesis is accepted, it can be concluded that a model of form 1 was applied by Queensland's road authority.

Estimation and testing

Data on the regional expenditures, population and areas were available for the years 1951–52 to 1980–81. The regions are categorised as the South Eastern, South Western, Central and Northern Divisions. The Northern Division was arbitrarily designated region 4, so was deleted as required in the previous section.

To allow for the possibility that the α and β weights might have changed over time, the null hypothesis was tested not only for all the data taken together, but also for subsets of the data.

The hypothesis test involves a comparison of an unrestricted regression for model 6 with a restricted regression, the joint restrictions being $\gamma = 0$ and $\alpha + \beta = 1$. The results of these unrestricted and restricted regressions are shown in table 6.17, together with the $F_{2,3T-3}$ statistics, where T is the number of years being observed. The results presented in table 6.17 show that support for the hypothetical rule can be sustained for part of the period, namely from 1963 to 1977. Further, while the area and population coefficients are statistically significant for the period 1951 to 1981, they are statistically insignificant for the periods 1952 to 1957 and 1958 to 1962. Clearly, further investigation is required.

An arithmetic analysis of the raw expenditure data suggested that the proposed rule of thumb might have been applied during the early and later years, but only to two of the regions. To examine this, a model which is consistent with the rule

TABLE 6.17 REGRESSION RESULTS: MODEL A

	Tests of Ho: $\gamma = 0$ and $\alpha + \beta = 1$			
Periods tested[a]	*Unrestricted ordinary least square estimates, with t statistics, 3T – 3 degrees of freedom*		*Restricted least squares estimates under Ho*	*F(.05)*
1951–81	$\hat{\gamma} = 7.71159$	(2.55)	$\tilde{\gamma} = 0.0$	$F_{2,90} = 18.39$
$T = 31$	$\hat{\alpha} = 0.34580$	(2.84)	$\tilde{\alpha} = 0.44267$	$F_{crit} = 3.1$
	$\hat{\beta} = 0.39243$	(4.45)	$\tilde{\beta} = 0.55733$	Reject Ho
1952–57	$\hat{\gamma} = 34.31049$	(6.12)	$\tilde{\gamma} = 0.0$	$F_{2,12} = 36.57$
$T = 5$	$\hat{\alpha} = -0.04013$	(–0.39)	$\tilde{\alpha} = 0.44206$	$F_{crit} = 3.89$
	$\hat{\beta} = -0.29190$	(–1.57)	$\tilde{\beta} = 0.55794$	Reject Ho
1958–62	$\hat{\gamma} = 31.79494$	(4.49)	$\tilde{\gamma} = 0.0$	$F_{2,12} = 15.57$
$T = 5$	$\hat{\alpha} = -0.02873$	(–0.27)	$\tilde{\alpha} = 0.42096$	$F_{crit} = 3.89$
	$\hat{\beta} = -0.25422$	(–1.25)	$\tilde{\beta} = 0.57904$	Reject Ho
1963–67	$\hat{\gamma} = 0.44145$	(0.12)	$\tilde{\gamma} = 0.0$	$F_{2,12} = 2.59$
T=5	$\hat{\alpha} = 0.40361$	(7.27)	$\tilde{\alpha} = 0.40357$	$F_{crit} = 3.89$
	$\hat{\beta} = 0.61089$	(5.56)	$\tilde{\beta} = 0.59643$	Accept Ho
1968–72	$\hat{\gamma} = 5.29848$	(2.09)	$\tilde{\gamma} = 0.0$	$F_{2,12} = 2.73$
$T = 5$	$\hat{\alpha} = 0.33987$	(9.26)	$\tilde{\alpha} = 0.41284$	$F_{crit} = 3.89$
	$\hat{\beta} = 0.44254$	(5.93)	$\tilde{\beta} = 0.58716$	Accept Ho
1973–77	$\hat{\gamma} = -1.33292$	(–0.36)	$\tilde{\gamma} = 0.0$	$F_{2,12} = 1.41$
$T = 5$	$\hat{\alpha} = 0.51658$	(9.92)	$\tilde{\alpha} = 0.49268$	$F_{crit} = 3.89$
	$\hat{\beta} = 0.56902$	(5.20)	$\tilde{\beta} = 0.50732$	Accept Ho
1976–81	$\hat{\gamma} = -4.79343$	(–1.39)	$\tilde{\gamma} = 0.0$	$F_{2,15} = 10.62$
T = 6	$\hat{\alpha} = 0.56772$	(11.79)	$\tilde{\alpha} = 0.48838$	$F_{crit} = 3.68$
	$\hat{\beta} = 0.71411$	(6.90)	$\tilde{\beta} = 0.51162$	Reject Ho

a. Financial years 1950–51 to 1980–81, etc.

of thumb and which can be applied to all the years together is tested. It is proposed that the rule of thumb be modified so as to allow it to vary smoothly over time. This varying set of weights can be conveniently and economically written as:

$$\alpha(t) = a + bt + ct^2 \quad \text{and} \quad \beta(t) = 1 - \alpha(t) \tag{7}$$

Therefore, model 5 is recast as

$$\frac{E_t{}^j}{E_t} = \alpha(t)\frac{P_t{}^j}{P_t} + \beta(t)\frac{A_t{}^j}{A_t} + \varepsilon_t{}^j \tag{8}$$

or

$$\frac{E_t^j}{E_t} = a\left(\frac{P_t^j}{P_t} - \frac{A_t^j}{A_t}\right) + b\left(t\frac{P_t^j}{P_t} - \frac{A_t^j}{A_t}\right) + c\left(t^2\frac{P_t^j}{P_t} - t^2\frac{A_t^j}{A_t}\right) + \varepsilon_t^j \qquad (9)$$

Estimation of *a*, *b* and *c* using ordinary least squares with no intercept yielded values of

$\hat{a} = 0.45603$ ($t_{90} = 15.58$)

$\hat{b} = -0.00688$ ($t_{90} = -1.665$)

$\hat{c} = 0.00029$ ($t_{90} = 2.297$)

The R^2 value, redefined about the origin, was 0.966. The $\alpha(t)$ function is therefore estimated as $\alpha(t) = 0.45603 - 0.00688t + 0.00029t^2$, which for all relevant values of t is between zero and one, implying the same for $\beta(t)$. Examination of how well this model explained the variation in expenditure shares can be seen in table 6.18, which gives the percentage deviations $100(\hat{E}_t^j - E_t^j)/E_t^j$, where $\hat{E}_t^j$ is the estimated expenditure share derived from the estimated equations 8 or 9. For the South Western and Northern regions, for the years until 1961, the percentage deviations are large relative to those observed elsewhere in the table, which suggests that the negative coefficients observed in table 6.17 are an indication of some deviation from the formula. In contrast, the percentage deviations recorded in table 6.18, for all regions from the mid 1960s through to 1977, are reasonably small.

In addition, table 6.18 shows that for the years 1977 to 1981 the area–population formula gives a reasonably good approximation of actual expenditure shares for the South Eastern and South Western regions while relatively large deviations between estimated and actual expenditure shares occur for the Northern and Central regions.

It would appear then, that while the conjectured formula provides a partial explanation of regional shares from 1950 to about 1962, policy changes initiated during the early 1960s resulted in a pattern of fund allocation reasonably consistent with the conjectured formula until about 1977. Since then further policy changes apparently occurred, resulting in some modification to the formula.

Model B — a utility maximisation model

A common procedure used by economists for analysing expenditure decisions is to postulate that decision makers (for example, firms and governments) attempt to maximise utility, subject to a budget constraint. An examination of road expenditure in Queensland using such an approach was undertaken by Docwra (1982) and by Docwra and Strong (1985) for the period 1951 to 1981. The discussion in this section describes the form of the model and the results obtained. Further details of the structure of the model are explained in a theoretical paper by Beggs and Strong (1982).

It is supposed that the road authority is not indifferent to alternative patterns of fund allocation. More formally, it is assumed that the road authority's preferences can be represented by a utility function U whose components are the set of allocations corresponding to each of the planning regions (that is, Divisions) of the State. If S_1, S_2, S_3 and S_4 represent the proportions of funds allocated to MRD Divisions 1, 2, 3 and 4, then we have:

$$U = f(S_1, S_2, S_3, S_4) \qquad (10)$$

TABLE 6.18 PERCENTAGE DEVIATIONS[a] BETWEEN ESTIMATED AND ACTUAL REGIONAL EXPENDITURE SHARES[b]
(per cent)

Year	*South Eastern*	*South Western*	*Central*	*Northern*
1951	–2.48	–26.96	–12.94	70.78
1952	–3.74	–30.03	–1.48	55.91
1953	1.40	–29.41	–14.92	73.75
1954	–8.21	–24.94	0.13	47.39
1955	–12.62	–20.44	1.39	45.35
1956	–10.78	–21.01	–7.05	58.12
1957	–7.76	–32.09	6.54	56.28
1958	–10.09	–28.55	9.18	46.38
1959	–3.96	–31.09	11.38	35.79
1960	2.77	–24.66	–2.41	27.49
1961	–1.62	–12.38	–6.84	20.49
1962	–7.72	–8.55	–1.06	17.87
1963	–5.85	–4.97	–6.81	18.20
1964	–4.63	–1.70	6.96	13.63
1965	0.73	–1.27	–7.99	9.38
1966	7.49	–2.17	–3.46	–2.34
1967	9.65	–11.43	1.05	–0.97
1968	2.80	–11.32	6.65	0.71
1969	–1.07	–8.91	–3.84	11.98
1970	–0.07	–5.88	–2.42	6.55
1971	6.90	–1.37	–2.89	–3.28
1972	8.47	–2.29	0.61	–5.85
1973	–1.67	–8.35	5.78	3.29
1974	–13.35	–1.38	7.13	14.08
1975	–11.32	5.85	–1.63	13.67
1976	–4.52	0.48	–5.56	10.84
1977	–3.82	6.31	–8.94	9.89
1978	–9.64	–2.92	–14.03	38.90
1979	7.28	–9.96	–19.40	21.59
1980	–6.56	–8.69	–9.56	30.57
1981	–1.29	–12.40	–5.85	18.17

a. Estimated expenditure share minus actual expenditure share, as a percentage of actual expenditure share.

b. Estimated expenditure derived from the area–population apportionment model.

where $\sum_{i=1}^{4} S_i = 1$ and $S_i > 0$.

A further requirement is that marginal utility is declining, at least in the domain where decisions are usually made.

Let $U = \gamma S_1^{\alpha 1} S_2^{\alpha 2} S_3^{\alpha 3} S_4^{\alpha 4}$, where γ is a positive constant and the α's are positive weights representing the significance the road authority attaches to each region. It is assumed that the authority attempts to maximise U, subject to the above mentioned constraints.

That is, the aim is determine the values of S_i such that maximisation of U takes place.

To determine these values of S_i define the Lagrangian function L, where

$$L(S_1, S_2, S_3, S_4, \lambda) = \gamma \prod_{i=1}^{4} S_i^{\alpha_i} + \lambda(1 - \sum_{i=1}^{4} S_i) \qquad (11)$$

It can be shown that:

$$S_i = \frac{\alpha_i}{\sum \alpha_i} \quad \text{at the optimum for all } i \qquad (12)$$

The expression has an appealing and simple interpretation: the allocations are clearly seen to be in line with the weights α_i.

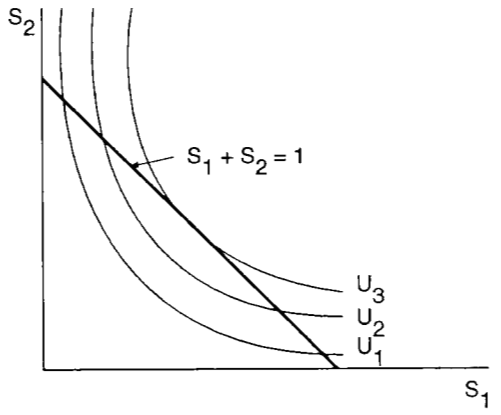

Figure 6.1 Regional road fund shares

The argument developed so far can be given a brief graphical interpretation, Suppose only two regions are of interest. Then the utility function can be represented by a two-dimensional indifference map as shown in figure 6.1.

The indifference curves should not be drawn above the line $S_1 + S_2 = 1$. Unless the authority fails to use all of its budget for road expenditure, all observations of the authority's activity will be along the line $S_1 + S_2 = 1$. As α_1 and α_2 vary the indifference map is transformed and the contour tangential to the $S_1 + S_2 = 1$ line will shift so as to locate the tangency point toward the axis i where α_i increases.

The statistical estimation of the value of α_i could be carried out directly, but for our purposes more information is required. Since we have assumed that the area and population of each region are of importance to the road authority for the determination of regional fund allocation, the α_i weights can be thought of as being functions of area and population. Interpretation is facilitated if these functions are increasing or decreasing functions for all values of area and population. A convenient form[1] for these functions is:

$$\alpha_i = e^{\theta_0 + \theta_1 x_{i1} + \theta_2 x_{i2}} = e^{\theta_0} e^{\theta_1 x_{i1} + \theta_2 x_{i2}} \tag{13}$$

where x_{i1} and x_{i2} represent information regarding the population and area of region i.

As noted elsewhere (Docwra & Strong 1985), the monotonicity of the α_i function with respect to each category characteristic means that the category shares are also monotonic with respect to the category characteristics. Therefore, the θ parameter can be directly interpreted.

It must also be assumed that the α_i values include some random component ε_i, which is a continuous random variable taking values $-\infty < \varepsilon_i < \infty$. The α_i now appear as

$$\alpha_i = e^{\theta_0} e^{\theta_1 x_{i1} + \theta_2 x_{i2} + \varepsilon_i} \tag{14}$$

which is still positive for all values of θ, x_{i1}, x_{i2} and ε_i.

Given this form for α_i, which of course is not unique, equation 12 becomes:

$$S_i = e^{\theta_1 x_{i1} + \theta_2 x_{i2} + \varepsilon_i} \Big/ \sum_{j=1}^{4} e^{\theta_1 x_{j1} + \theta_2 x_{j2} + \varepsilon_j} \qquad \text{for } i = 1, 2, 3, 4 \tag{15}$$

This can be divided through by S_1, for $i = 2, 3, 4$, to yield

---

1. The function need not be restricted to this form. We could, for example, have a logarithmic form in the exponent.

$$\ln\left(\frac{S_i}{S_1}\right) = \theta_1(x_{i1} - x_{11}) + \theta_2(x_{i2} - x_{12}) + (\varepsilon_i - \varepsilon_1) \qquad \text{for i} = 2, 3, 4 \qquad (16)$$

Given appropriate assumptions a regression model is created with $\ln(S_i / S_1)$ as the dependent variable, $(x_{i1} - x_{11})$ and $(x_{i2} - x_{12})$ the independent variables, and $(\varepsilon_i - \varepsilon_1)$ the error term.

The generalised least squares method can be used to estimate θ_1 and θ_2 (see Johnston 1972). The procedure followed was to use an orthogonal transformation, by which the regression model is made amenable for the application of ordinary least squares.

It should also be noted that the small number of regions, four in all, means that the number of observations relative to the number of parameters to be estimated in any year is too small for statistical purposes. Because of this, estimation proceeded by using observations from two consecutive years. Such a procedure is permissible if it is believed that the road authority's behaviour is not subject to dramatic (and frequent) variations. Hence we have

$$\ln\left(\frac{S_i}{S_1}\right) = \theta_1(x_{i1} - x_{11})t + \theta_2(x_{i2} - x_{12})t + (\varepsilon_i - \varepsilon_1)t \qquad (17)$$

(for $i = 2, 3, 4$ and $t = 1, 2$; $t = 3, 4$; ...; $t = 27, 28$; $t = 29, 30, 31$ and the second subscript on the x's denotes the variable number.

As shown elsewhere (Docwra 1982; Docwra & Strong 1985), ordinary least squares was applied to the transformed variables, for the years 1951–52, 1953–54, ..., 1973–74, 1975–76, 1979–81. That is, 15 regressions were run, producing 15 estimates for the (θ_1, θ_2) pair. The results are presented in table 6.19.

The results indicate that the θ_1 and θ_2 weights have varied over time, suggesting a continually changing influence of population and area.

It is also interesting to observe that the coefficients θ_1 and θ_2 were estimated to have negative values until 1960, reproducing the inverse expenditure to population/area relationship exhibited in table 6.17. The weights evolve to positive values as time progresses, and so it is desirable to model the weights so as to be able to test for an evolving, time dependent process leading towards a population–area formula. To do this, a time subscript t is attached to equation 15 to produce

$$S_{it} = e^{\theta_1 x_{i1t} + \theta_2 x_{i2t} + \varepsilon_{it}} \Big/ \sum_{j=1}^{4} e^{\theta_1 x_{j1t} + \theta_2 x_{j2t} + \varepsilon_{jt}} \qquad (18)$$

where t represents time (in this case, $t = 1, 2, ..., 31$), corresponding to 1951, 1952, ..., 1981).

TABLE 6.19 REGRESSION RESULTS: MODEL B (CONSECUTIVE YEARS)

Years	Population (θ_1)	*t*-statistic 4 degrees of freedom	Area (θ_2)	*t*-statistic 4 degrees of freedom	R^2	$F_{1,4}$
1951 and 1952	–0.01450[b]	–3.15	–0.03343	–4.77[a]	0.89	33.15
1953 and 1954	–0.03176	–1.93	–0.06811	–2.70[b]	0.69	9.17
1955 and 1956	–0.00423	–1.23	–0.01960	–3.66[a]	0.91	41.43
1957 and 1958	–0.00921	–4.60[b]	–0.02681	–8.47[a]	0.97	133.19
1959 and 1960	–0.00457	–1.38	–0.01347	–2.59[b]	0.75	12.11
1961 and 1962	0.00762	3.44[b]	0.00587	1.67	0.85	23.50
1962 and 1963	0.01133	3.48[b]	0.01179	2.25[b]	0.80	16.70
1965 and 1966	0.01451	5.45[a]	0.02111	4.92[a]	0.88	29.78
1967 and 1968	0.01222	5.54[a]	0.01766	4.90[a]	0.88	30.74
1969 and 1970	0.01248	9.05[a]	0.01449	6.39[a]	0.96	96.65
1971 and 1972	0.01778	39.29[a]	0.02657	35.14[a]	0.99	1544.39
1973 and 1974	0.01699	7.54[a]	0.01635	4.29[a]	0.95	81.58
1975 and 1976	0.01922	6.79[a]	0.01895	3.93[a]	0.94	64.36
1977 and 1978	0.01518	2.49	0.00960	0.91	0.78	27.19
1979 to 1981	0.01245	3.53[b]	0.00641	1.05	0.81	60.22[c]

a. Regression coefficient significant at 5 per cent or better.

b. Regression coefficient significant at 10 per cent or better.

c. $F_{2,7}$.

Next, on the assumption that θ_{1t} and θ_{2t} vary smoothly with time, let

$$\theta_{1t} = a_1 + b_1 t + c_1 t^2 \qquad \text{and} \qquad \theta_{2t} = a_2 + b_2 t + c_2 t^2 \tag{19}$$

As a result of these manipulations a set of equations similar to equation 17 can be derived, a typical member of which can be shown as:

$$\ln\left(\frac{S_{it}}{S_{1t}}\right) = (a_1 + b_1 t + c_1 t^2)(x_{i1t} - x_{11t}) + (a_2 + b_2 t + c_2 t^2)(x_{i2t} - x_{12t}) + (\varepsilon_{it} - \varepsilon_{1t})$$
$$\text{for } i = 2, 3, 4 \qquad \text{and} \qquad t = 1, 2, \ldots, 31 \tag{20}$$

Ordinary least squares can be applied to equation 20 to estimate the a_1, b_1, ..., c_2 parameters. The results are shown in table 6.20. All of the variables are significant at the 1 per cent level, and the calculated F enables the conclusions that the variables adequately explain variations of the dependent variable.

Table 6.21 shows estimated values of θ_1 and θ_2 for the years 1951 to 1981. These are derived from equation 19. Table 6.22 shows the estimated share ($\hat{S}$) and the actual shares (S) for the four regions over time, using equations 18 and 19, and the estimates of the six parameters. Examination of the table reveals strong correlation between $\hat{S}$ and S over the 30-year period.

TABLE 6.20 REGRESSION RESULTS: MODEL B (QUADRATIC FORM), 1951 TO 1981

Variable	*Estimated value*	*t-statistic, 87 degrees of freedom*
a_1	–0.02295	–6.99
b_1	0.00326	7.43
c_1	–0.00007	–5.29
a_2	–0.05183	–10.15
b_2	0.00655	9.34
c_2	–0.00015	–7.31

$R^2 = 0.84$, $F_{6,87} = 68.57$.

TABLE 6.21 ESTIMATES OF θ_1 AND θ_2, 1951 TO 1981

Year	θ_1 *(population)*	θ_2 *(area)*
1951	–0.0197	–0.0454
1952	–0.0167	–0.0393
1953	–0.0138	–0.0335
1954	–0.0110	–0.0280
1955	–0.0084	–0.0228
1956	–0.0059	–0.0179
1957	–0.0036	–0.0133
1958	–0.0015	–0.0090
1959	0.0007	–0.0050
1960	0.0027	–0.0013
1961	0.0044	0.0021
1962	0.0061	0.0052
1963	0.0076	0.0080
1964	0.0090	0.0105
1965	0.0102	0.0127
1966	0.0113	0.0146
1967	0.0122	0.0162
1968	0.0131	0.0175
1969	0.0137	0.0185
1970	0.0143	0.0192
1971	0.0146	0.0196
1972	0.0149	0.0197
1973	0.0150	0.0195
1974	0.0150	0.0190
1975	0.0148	0.0182
1976	0.0145	0.0171
1977	0.0140	0.0157
1978	0.0135	0.0140
1979	0.0127	0.0120
1980	0.0119	0.0097
1981	0.0108	0.0071

TABLE 6.22 ESTIMATED AND ACTUAL REGIONAL SHARES OF MAIN ROADS DEPARTMENT ROAD EXPENDITURE 1951 TO 1981: MODEL B (QUADRATIC FORM)

Year	$\hat{S}_1$	S_1	$\hat{S}_2$	S_2	$\hat{S}_3$	S_3	$\hat{S}_4$	S_4
1951	0.31	0.30	0.31	0.27	0.22	0.27	0.16	0.16
1952	0.31	0.30	0.30	0.28	0.22	0.24	0.17	0.18
1953	0.31	0.28	0.29	0.28	0.23	0.28	0.18	0.16
1954	0.30	0.31	0.28	0.26	0.23	0.23	0.19	0.19
1955	0.30	0.32	0.28	0.25	0.23	0.23	0.20	0.20
1956	0.29	0.32	0.27	0.25	0.23	0.25	0.20	0.18
1957	0.29	0.30	0.26	0.29	0.24	0.22	0.21	0.18
1958	0.29	0.31	0.25	0.28	0.24	0.22	0.22	0.20
1959	0.28	0.29	0.25	0.29	0.24	0.21	0.32	0.21
1960	0.28	0.27	0.24	0.26	0.24	0.24	0.24	0.23
1961	0.28	0.28	0.24	0.22	0.24	0.25	0.25	0.24
1962	0.28	0.30	0.23	0.21	0.24	0.24	0.25	0.25
1963	0.28	0.30	0.23	0.21	0.24	0.25	0.26	0.25
1964	0.28	0.30	0.22	0.20	0.24	0.25	0.26	0.25
1965	0.28	0.28	0.22	0.20	0.24	0.25	0.27	0.27
1966	0.28	0.26	0.21	0.20	0.24	0.24	0.27	0.30
1967	0.28	0.26	0.21	0.22	0.24	0.23	0.28	0.29
1968	0.28	0.28	0.21	0.22	0.23	0.22	0.28	0.29
1969	0.28	0.29	0.20	0.21	0.23	0.24	0.28	0.26
1970	0.28	0.29	0.20	0.20	0.23	0.24	0.28	0.27
1971	0.29	0.28	0.20	0.19	0.23	0.24	0.28	0.30
1972	0.29	0.28	0.20	0.19	0.23	0.23	0.28	0.30
1973	0.29	0.31	0.19	0.20	0.23	0.22	0.28	0.28
1974	0.30	0.36	0.19	0.18	0.23	0.21	0.28	0.25
1975	0.30	0.35	0.19	0.17	0.23	0.23	0.28	0.25
1976	0.30	0.34	0.20	0.17	0.23	0.24	0.27	0.25
1977	0.31	0.34	0.20	0.16	0.23	0.24	0.26	0.25
1978	0.33	0.37	0.19	0.18	0.22	0.26	0.26	0.20
1979	0.32	0.32	0.20	0.19	0.23	0.27	0.26	0.22
1980	0.32	0.37	0.20	0.18	0.22	0.24	0.25	0.21
1981	0.33	0.36	0.20	0.18	0.22	0.23	0.24	0.23

INTERPRETATION OF RESULTS

The relative importance of the area and population weights provides some indication of the nature of the policy objectives pursued by Queensland's road authority during the period reviewed. By and large one would expect that population has more relevance as an indicator of a region's economic need for road space than area (see Munro 1975). The results of the econometric analysis described in the previous section provide some evidence to support the hypothesis that non-economic considerations have played an important part in the State decision makers' preference function — a conclusion which is consistent with findings reported earlier in this chapter. Specifically:

- there are considerable differences between regions in MRD expenditure per motor vehicle registered;

- as a general rule, expenditure per motor vehicle registered varies inversely with vehicle density; and
- in those areas where vehicle density is lowest, the demand for road space as measured by other indicators of demand (for example, AADT, and petrol consumption) is lowest.

How to interpret the weight given to the area factor or to low population (vehicle or person) density regions is of particular interest. As indicated, one of the objectives of the early Main Roads Acts was that State government road funding should be directed to promoting the economic development of the State. This objective — manifest by the weight given to large areas — appears to have been important in the period examined, notwithstanding that development benefits are only vaguely defined and, of course, never measured.

In addition to the developmental objective there is also the matter of regional equity (see, for example, Burns 1974). It is a well known practice of State (and Commonwealth) governments to use public enterprises as vehicles for achieving income redistribution goals. This is clearly evident in the price and investment decisions of public enterprises such as railways and electricity, and there is no reason to suppose that the provision of road space would be seen by governments in a different light. Usually it is argued that those who live in sparsely populated rural areas have fewer transport alternatives than those who live in urban areas; that life is tougher in the country than in the cities; and that rural dwellers and producers have suffered a loss in real income by virtue of Commonwealth government tariff policies. All of these claims have been used at one time or another to justify income transfers by means of public enterprise, price, output and investment policies. The manner in which road funds are apportioned among regions is one means by which equity and/or social goals can be achieved, and indeed are achieved. As stated by Mr C. N. Barton, a former Queensland Commissioner for Main Roads:

> ... the most difficult and most contentious problem of road authorities is the determination of priorities for work ... Given the necessary basic information on such things as production, traffic, local costs and so on, it is possible to carry out cost benefit analyses and work out programmes on this basis. However if we do we will find numbers of areas where no road funds would be spent, thus creating feelings of injustice which will be expressed through political channels. We might find too that we are making no investment whatsoever in development, the economic effects of which are hard to assess. This method can be used only as one guide. (Barton 1967, p. 7)

Finally, with regard to the specifics of fund allocation formulae, it is important to reassert that no claim is made by the author that the Queensland MRD uses, or has used, a utility maximisation formula of the kind presented in this study. The purpose of the econometric analysis is simply to examine some plausible hypotheses (given available data) concerning the regional allocation of State road funds. Other hypotheses (not necessarily inconsistent with those examined here) may be formulated: for example, that the allocation process is the outcome of a mixture of historical, institutional and political factors. While such an explanation might be difficult to formalise it is likely to be judged by some readers as the most

plausible explanation of what actually happens. Even so, the econometric analysis is not inconsistent with this interpretation. In addition it facilitates understanding of the effects of funding decisions, and in this regard, complements the analysis undertaken in the first half of this chapter.

The impact of Commonwealth policy: 1969 to 1980

As shown, a significant shift in the pattern of road fund allocations between rural and urban areas occurred during the period of the 1969 Commonwealth Aid Roads Act. Of the total grant provided by the Act, Queensland received $231.6 million, of which $99.24 million (approximately 43 per cent) was earmarked by the Commonwealth for expenditure on urban arterial roads. As a consequence the proportion of total MRD funds allocated to urban roads rose, from approximately 9 per cent in 1968–69 to about 30 per cent in 1973–74. However, the proportion of MRD funds allocated to urban arterial and sub-arterial roads fell to about 15 per cent in 1977–78. This decline in the urban sector's relative share reflects the change in weight attached to urban arterial roads in the 1974 and 1977 Commonwealth legislation. With regard to the former, the Queensland government received $147 million under the terms of the *Roads Act 1974* and $80 million under the *National Highways Act 1974*. Grants for urban arterials and urban local roads represented approximately 20.60 per cent of the total, while rural arterial roads, rural locals, and national highways received respectively, 13.56 per cent, 17.48 per cent and 35.24 per cent of the total grant.

Given that roads designated as national highways are essentially rural arterial roads (major interregional and intercity roads), the effect of the 1974 Commonwealth legislation was to reverse the change in priorities established by the 1969 legislation, increasing the major rural roads category (rural arterials plus national highways) from about 24.5 per cent to approximately 45 per cent of the Commonwealth grant.

As mentioned, this shift in Commonwealth preferences away from the urban arterial category was continued in the 1977 Commonwealth road grants legislation. Under that legislation Queensland received a total grant of $300 million. The distribution of that grant by road categories, in absolute and percentage terms, was as follows: national highways, $122.7 million (40.90 per cent); rural arterial roads $69.0 million (23.0 per cent); rural local roads $56.4 million (18.80 per cent); urban arterial roads $32.7 million (10.9 per cent); urban local roads $11.4 million (3.80 per cent); and MITERS $7.8 million (2.60 per cent). Overall, national highways, rural arterials and rural local roads accounted for 82.70 per cent of Queensland's total grant, while the urban arterial and urban local roads categories were apportioned 14.70 per cent of the total grant.

Given that Commonwealth and State government road priorities are often in conflict, an important issue concerns the extent to which the States are able to modify the objectives of Commonwealth policy. Much depends on the willingness or ability of the States to alter the balance of regional shares. This in turn is affected by:

- the ratio of Commonwealth funds to total funds;
- the extent to which Commonwealth funds are earmarked by road categories;
- the willingness and ability of the States to decrease the ratio of Commonwealth funds to total funds by increasing contributions from State sources of revenue; and
- the extent of the commitment of State funds to maintenance expenditure.

Since the bulk of Commonwealth funds are used for capital works projects, a large part of State sources of funds are used for maintenance purposes. Thus, given the extent of the earmarking of Commonwealth funds it would seem that States had relatively little flexibility (or discretionary power) to shift funds between rural and urban areas. Only if a State were prepared to increase vehicle registration fees or seek funds from other sources (for example, by increasing loan funds) and/or to lower maintenance standards in some regions would it be possible to significantly alter the balance of expenditure shares (as determined by Commonwealth preferences) between rural and urban areas. However, there is not likely to be a great deal of room for manoeuvre via adjustments to maintenance expenditure. And political and other considerations (for example, competing expenditure requirements) are likely to place severe limitations on the extent to which revenue can be raised from other sources.

In addition there is the matter of the distribution of urban population. In Queensland's case the bulk of the urban population is located in the south-east corner of the State. Thus, if it were supposed that the Queensland government had not wished to treat the Brisbane area as favourably as it was treated under the terms of the 1969 Commonwealth Aid Roads Act, it would have been difficult, for reasons given earlier, to have compensated for the urban grant by substantial reductions in fund allocation in other parts of the South Eastern Division. Likewise if the Queensland government had preferred to allocate substantially more funds to urban roads than actually accured during the period 1974–1980, this would have been difficult to attain because of the constraints imposed by the earmarking of Commonwealth grants by road categories and regional share considerations. For these reasons it seems reasonable to conclude that the Commonwealth's road policy from 1969 to 1980 had an important influence on the allocation of funds between Queensland's rural and major urban areas.

What else has the earmarking of funds achieved? First, with regard to the rural component of the Commonwealth grant, it is clear that the earmarking of this portion of the grant need not have any noticeable effect on the distribution of funds among the planning regions of the State. Only if a large portion of the grant is earmarked by road classes for which there is a zero, or limited designation in some regions, could earmarking of the rural component have a significant effect on regional shares. As far as Queensland is concerned it would appear that Commonwealth policy has had little impact on the regional distribution of the rural grant. State expenditure priorities, at least in relative terms, have prevailed. This can be confirmed by examining table 6.23, which shows the distribution of MRD funds by Districts for the period 1949–50 to 1977–78.

TABLE 6.23 MAIN ROADS DEPARTMENT EXPENDITURE IN EACH DISTRICT, 1949–50 TO 1977–78

Year	*Expenditure Districts 1 & 13 ($)*	*Share State total (%)*	*Expenditure District 2 ($)*	*Share State total (%)*	*Expenditure District 12 ($)*	*Share State total (%)*	*Expenditure District 3 ($)*	*Share State total (%)*	*Expenditure District 4 ($)*	*Share State total (%)*	*Expenditure District 5 ($)*	*Share State total (%)*
1949–50	944 522	16.41	486 552	8.45	349 890	6.08	698 578	12.14	407 382	7.08	448 812	7.89
1950–51	2 118 648	13.89	873 880	10.85	423 524	5.14	901 932	11.20	682 618	8.48	598 640	7.43
1951–52	1 509 064	13.73	1 181 972	9.75	597 392	5.43	1 375 410	12.51	844 946	7.69	894 842	8.14
1952–53	1 016 926	11.39	849 256	9.51	640 100	7.17	916 368	10.26	920 940	10.31	674 898	7.56
1953–54	1 275 446	14.05	983 506	10.83	555 332	6.12	1 041 176	11.47	696 108	7.67	660 012	7.27
1954–55	2 221 274	15.87	1 449 178	10.35	865 444	6.18	1 442 770	10.32	1 136 446	8.12	908 488	6.49
1955–56	2 056 996	13.59	1 619 626	10.70	1 107 168	7.31	1 633 967	10.80	1 201 318	7.93	962 572	6.36
1956–57	2 285 130	13.31	1 924 956	11.21	1 019 490	5.94	2 068 026	12.05	1 506 534	8.78	1 432 724	8.35
1957–58	2 522 918	14.03	1 824 114	10.14	1 254 936	6.98	2 142 486	11.91	1 385 526	7.70	1 451 934	8.07
1958–59	2 346 104	11.82	1 982 278	9.99	1 401 414	7.06	2 219 412	11.18	1 710 784	8.62	1 749 284	8.81
1959–60	2 619 834	10.82	2 246 898	9.28	1 652 186	6.82	2 409 342	9.95	1 834 068	7.57	2 076 792	8.58
1960–61	2 598 662	11.55	2 086 428	9.27	1 642 940	7.30	1 984 354	8.82	1 491 400	6.63	1 581 694	7.03
1961–62	2 917 136	11.38	3 103 882	12.11	1 687 380	6.58	2 037 082	7.95	1 952 784	7.62	1 514 694	5.91
1962–63	3 306 388	11.86	2 968 280	10.64	1 967 434	7.06	2 362 070	8.47	1 876 222	6.73	1 526 206	5.47
1963–64	4 620 988	13.06	3 604 184	10.18	2 231 018	6.30	2 787 560	7.88	2 328 094	6.58	1 924 216	5.44
1964–65	5 677 106	13.91	3 553 028	8.70	2 305 640	5.65	3 060 676	7.50	2 423 658	5.94	2 580 154	6.32
1965–66	4 716 318	12.86	2 807 200	7.65	2 107 288	5.74	2 548 150	6.95	2 338 615	6.79	2 334 358	6.36
1966–67	5 591 777	13.08	3 326 997	7.78	2 194 462	5.13	3 097 507	7.25	3 250 246	7.60	2 873 053	6.72
1967–68	6 523 224	14.35	3 752 234	7.95	2 434 370	5.36	3 232 729	7.11	3 249 969	7.15	3 321 541	7.31
1968–69	6 812 134	15.41	3 741 162	8.46	2 356 259	5.33	3 322 081	7.52	2 634 206	5.95	3 227 984	7.30
1969–70	7 689 117	15.93	3 992 022	8.26	2 504 617	5.19	3 385 914	7.02	2 844 281	5.89	3 382 558	7.01
1970–71	7 561 711	15.27	4 032 109	8.11	2 186 007	4.41	3 379 561	6.80	2 875 488	5.80	3 019 812	6.09
1971–72	8 592 813	15.36	4 351 864	7.78	2 581 941	4.61	3 823 051	6.83	3 217 650	5.75	3 381 391	6.04
1972–73	10 640 702	18.29	4 848 289	8.34	2 596 372	4.46	4 343 971	7.48	3 317 206	5.70	3 757 520	6.46
1973–74	14 270 099	21.81	5 788 928	8.85	3 352 344	5.12	4 511 486	6.89	3 381 492	5.18	3 928 454	6.00
1974–75	19 451 961	23.06	5 870 766	6.96	4 593 590	5.45	5 327 735	6.32	4 396 598	5.21	4 318 278	5.12
1975–76	20 086 641	20.39	7 789 911	7.91	5 128 263	5.21	6 208 762	6.30	5 577 237	5.66	5 433 160	5.22
1976–77	26 828 532	21.17	9 832 679	7.75	6 649 977	5.24	6 768 933	5.34	7 824 375	6.17	6 329 331	4.99
1977–78	28 699 672	21.85	10 955 553	9.34	7 310 546	5.56	8 021 333	6.10	7 852 785	5.97	7 476 994	5.69

(Continued on next page)

TABLE 6.23 MAIN ROADS DEPARTMENT EXPENDITURE IN EACH DISTRICT, 1949–50 TO 1977–78 (Cont.)

Year	Expenditure District 6 ($)	Share State total (%)	Expenditure District 7 ($)	Share State total (%)	Expenditure District 8 ($)	Share State total (%)	Expenditure District 9 ($)	Share State total (%)	Expenditure District 10 ($)	Share State total (%)	Expenditure District 11 ($)	Share State total (%)
1949–50	696 842	11.02	293 702	5.10	284 970	4.95	589 256	10.24	112 650	1.96	443 882	7.71
1950–51	1 058 178	13.14	631 398	7.84	464 828	5.77	625 572	7.77	165 030	2.05	519 732	6.45
1951–52	1 266 582	11.52	649 504	5.91	712 360	6.48	1 000 074	9.10	258 530	2.35	703 630	7.40
1952–53	1 130 120	12.66	666 374	7.46	661 648	7.41	733 426	8.21	244 700	2.74	473 896	5.31
1953–54	1 034 164	11.39	590 616	6.51	498 948	5.50	897 180	9.88	203 684	2.24	642 922	7.08
1954–55	1 333 176	9.52	869 066	6.21	1 040 360	7.43	1 380 204	9.86	263 672	1.88	1 089 614	7.78
1955–56	1 413 764	9.34	991 226	6.55	1 426 608	9.42	1 320 450	8.72	281 880	1.86	1 124 136	7.43
1956–57	1 454 586	8.47	1 013 140	5.90	1 328 090	7.74	1 142 588	6.66	860 918	5.01	1 131 376	6.59
1957–58	1 740 656	9.68	911 990	5.07	1 233 588	6.86	1 317 032	7.32	1 069 098	5.94	1 132 038	6.29
1958–59	1 536 234	7.74	1 251 940	6.31	1 418 690	7.15	1 583 580	7.98	521 240	2.63	2 124 130	10.70
1959–60	2 287 208	9.44	1 376 220	5.68	2 190 752	9.05	1 818 378	7.51	757 596	3.13	2 948 994	12.18
1960–61	2 027 882	9.01	1 353 760	6.02	2 284 236	10.15	2 295 196	10.20	789 660	3.51	2 363 020	10.50
1961–62	2 363 128	9.22	1 528 838	5.96	2 204 046	8.60	1 907 374	7.44	2 335 248	9.11	2 080 862	8.12
1962–63	3 047 240	10.93	1 896 374	6.80	2 084 300	7.47	2 419 894	8.68	2 047 496	7.34	2 382 674	8.54
1963–64	3 877 994	10.96	2 639 396	7.46	2 392 642	6.76	2 797 894	7.91	3 319 356	9.38	2 866 444	8.10
1964–65	4 245 526	10.40	3 809 078	9.33	2 335 030	5.72	2 452 704	6.01	4 569 822	11.20	3 806 182	9.32
1965–66	3 556 152	9.69	3 090 735	8.42	2 311 458	6.30	2 977 901	8.12	3 503 280	9.55	4 390 563	11.97
1966–67	4 787 971	11.20	2 177 635	5.09	2 944 732	6.89	3 681 322	8.61	3 923 420	9.18	4 904 007	11.47
1967–68	3 689 171	8.12	2 520 708	5.55	3 740 861	8.23	4 302 573	9.47	3 591 843	7.90	5 089 472	11.20
1968–69	3 211 431	7.26	3 131 685	7.08	4 373 823	9.89	4 216 138	9.53	2 416 517	5.46	4 777 158	10.80
1969–70	3 685 782	7.64	3 406 290	7.06	4 367 399	9.05	4 906 745	10.17	3 130 603	6.49	4 971 944	10.30
1970–71	3 979 570	8.03	3 698 997	7.46	4 118 983	8.31	5 121 061	10.33	3 801 455	7.67	5 808 961	11.72
1971–72	4 289 626	7.67	3 952 738	7.06	4 716 825	8.43	5 776 942	10.32	5 532 496	9.89	5 742 660	10.26
1972–73	4 408 151	7.58	3 451 769	5.93	4 705 558	8.09	6 194 183	10.65	4 784 758	8.23	5 114 535	8.79
1973–74	5 467 070	8.35	3 372 172	5.15	5 022 708	7.68	5 852 955	8.94	5 214 705	7.97	5 273 796	8.06
1974–75	7 851 171	9.31	5 607 416	6.65	5 854 999	6.94	7 785 742	9.23	7 557 743	8.96	5 730 567	6.79
1975–76	9 117 608	9.26	6 567 068	6.67	76 40 097	7.76	9 184 594	9.32	8 516 681	8.65	7 246 171	7.36
1976–77	12 938 602	10.20	6 379 754	5.03	11 741 801	9.26	12 169 497	9.60	8 740 031	6.89	10 544 458	8.31
1977–78	14 574 605	11.09	6 037 937	4.59	11 641 659	8.86	11 521 779	8.77	6 012 552	4.57	11 225 900	8.54

Sources Queensland Main Roads Department Annual Reports.

Second, on the basis of the analysis of road expenditure and demand indicators it seems reasonable to argue that the earmarking of Commonwealth road grants under the terms of the 1969 Act improved efficiency in resource use with regard to the allocation of road funds between the urban and rural sectors. However, between 1974 and 1980 a marked decline in the allocation of road funds to the urban sector occurred. This was a consequence of a change in Commonwealth policy and the constraints on the State's ability and willingness either to shift funds from other regions and/or to raise additional funds from other sources. Given the traffic characteristics of the urban sector, together with the history of MRD expenditure on urban roads, it is difficult to believe that such a decline was justified on economic grounds.

Finally, it is difficult to determine whether the earmarking of road grants among the rural categories resulted in the apportionment of relatively more funds to those functional classes (and road projects) which offered the highest economic returns. Unfortunately expenditure by road type (for the review period) is not recorded by functional class: instead, the legal classification is used. In addition it is not possible to provide an inventory of traffic and quantity–quality characteristics for each road type. Table 6.24 shows the average percentage distribution of MRD expenditure by legal class of road for each Division for the period 1963–64 to 1968–69 and from 1969–70 to 1977–78.

With the exception of the South Eastern Division, relatively minor changes occurred in the expenditure by legal class during the two periods. This of course does not necessarily mean that from an economic point of view improvements in fund allocation within each class (or some classes) have not occurred. For example, it might be supposed that the emphasis given to the national highways category by the Commonwealth has brought about an improvement in fund allocation within the major rural arterial group. But as tables 6.25 and 6.26 show, there are more miles of rural arterial roads than national highways in the higher traffic volume categories. Whether an improvement in fund allocation at this level occurred depends on the extent to which the more important parts of the rural arterial network (including roads now classified as national highways) were neglected in the past, and on the proportion of those roads that now fall within the national highways category. In discussing this issue with the author senior officers of the Queensland Main Roads Department made the point that, while some parts of the national highways system warrant increased expenditure, the emphasis given to this category by the Commonwealth had forced the State to reduce its commitment to other parts of the rural arterial roads category which are considered to be of equal, if not greater, economic importance. In the absence of more detailed information it is difficult to make definitive statements about the net effects of changes in road expenditure priorities. Nevertheless there is some evidence to suggest that improvements in resource use within Queensland's major rural roads category (rural arterial and national highways), during the period 1969 to 1980, might not have been of major significance.

TABLE 6.24 MAIN ROADS DEPARTMENT AVERAGE PERCENTAGE EXPENDITURE FOR EACH LEGAL CLASS OF ROAD, IN EACH DIVISION, 1963–64 TO 1968–69 AND 1969–70 TO 1977–78

(per cent)

Division	*State Highway*	*Main Road*	*Developmental Road*	*Secondary Road*	*Urban Arterial and Sub-Arterial Road*
1963–64 to 1968–69					
South Eastern Division	48.12	33.59	–	18.28	–
South Western Division	45.67	20.39	12.27	21.64	–
Central Division	49.21	18.69	18.30	13.79	–
Northern Division	43.39	11.98	32.79	11.88	–
1969–79 to 1977–78					
South Eastern Division	32.76	19.09	0.56	9.50	38.45
South Western Division	49.42	19.65	9.78	21.13	–
Central Division	52.81	15.86	17.56	13.37	–
Northern Division	44.66	10.72	29.24	12.03	–

– Not applicable

Sources Queensland Main Roads Department Reports.

TABLE 6.25 LENGTH OF RURAL ARTERIAL ROAD, ACCORDING TO TRAFFIC VOLUMES, IN EACH DISTRICT, JUNE 1974
(miles)

	District													
1974 AADT	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*Total*
>15 001	8								5		2	13		29
>10 001	17	3			2	2			5		3	14	6	52
>8 001	26	5			2	2		9	5		6	14	6	74
>6 001	30	5			2	2		9	5		6	19	8	89
>5 001	30	5	30		3	3		14	5		11	20	8	128
>4 001	57	6	37			3		15	5		11	28	8	174
>2 201	103	65	40	2	10	38		22	11		28	57	11	391
>1 101	168	187	199	2	39	117		50	31		77	109	11	982
>301	317	530	628	244	349	533		189	204	222	306	418	11	3 956
>141	386	745	803	669	662	945	76	329	310	453	428	565	11	6 388
>101	386	757	812	857	866	1 145	342	356	471	454	491	601	11	7 554
>26	386	878	938	1 737	1 340	1 655	1 191	435	695	1 283	985	734	11	12 295
>10	386	878	938	1 796	1 340	1 655	1 418	435	695	1 418	1 095	734	11	12 826
>0	386	878	928	1 796	1 350	1 659	1 418	435	695	1 418	1 095	734	11	12 830

AADT Annual average daily traffic

Note Rural arterials are functional class 1, 2, and 3 roads minus national highways.

Source Queensland Main Roads Department (1978).

TABLE 6.26 LENGTH OF RURAL NATIONAL HIGHWAYS, ACCORDING TO TRAFFIC VOLUMES, IN EACH DISTRICT, JUNE 1974
(miles)

	District													
1974 AADT	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*[a]	*Total*
>15 001								4	1					5
>10 001								4	1					6
>8 001			2					4	1			2		9
>6 001	1	18	17		2			6	1		1	4		50
>5 001	10	28	28		2	1		6	6		4	4		100
>4 001	10	50	40		3	2		6	10		5	6		134
>2 201	22	127	76	1	58	12		11	49		35	40		430
>1 101	51	127	98	19	91	91		102	141		77	93		890
>301	51	127	153	197	91	183	218	216	268	126	77	162		1 871
>141	51	127	153	213	91	183	333	220	268	313	77	162		2 193
>101	51	127	153	331	91	183	419	220	268	323	77	162		2 406
>26	51	127	153	331	91	183	419	220	268	323	77	162		2 406
>10	51	127	153	331	91	183	419	220	268	323	77	162		2 406
>0	51	127	153	331	91	183	419	220	268	323	77	162		2 406

AADT Annual average daily traffic
a. No roads designated as rural national highways.
Note Barkly Highway is included in these figures.

Source Queensland Main Roads Department (1978).

CHAPTER 7 CONSTITUTIONAL CONSTRAINTS: SECTION 92

As discussed earlier, an understanding of the history of Commonwealth and State government roads policy requires an appreciation of the constitutional framework which sets the legal bounds to regulatory and expenditure policies. This chapter extends the discussion of the link between the constitutional framework and roads policy by drawing attention to the evolution of judicial interpretation of section 92 and the effects of such for the regulation of road transport and for road user charges policy. The currently relevant part of section 92 states:

> ... on the imposition of uniform duties of customs, trade commerce and intercourse among the States, whether by means of internal carriage or ocean navigation shall be absolutely free.

Section 92 has given rise to great deal of litigation. While this extends well beyond the activity of interstate road transport operations a great deal of the discussion in this chapter is concerned with the history of the *Transport Cases*. However, it is necessary at times to refer to judgments in other areas of section 92 litigation which influenced decisions taken in the *Transport Cases*, which in turn, affected the structure and level of charges which the States and the Commonwealth have imposed on road transport operators engaged solely in interstate trade.

At the time of writing such charges have been constrained by the interpretation given nearly 40 years ago in the case of *Hughes and Vale v. The State of New South Wales* (1954) 93 CLR 1 and in *Hughes and Vale v. The State of New South Wales (No. 2)* (1955) 93 CLR 127. However, as a result of a recent fundamental change in view in the case of *Cole v. Whitfield* (1988) 62 ALJT 303 the legal constraints on road user charging policies may be significantly lessened in the future.

The discussion commences with a brief survey of section 92 litigation during the first 20 years of federation. This is followed by a discussion of the *Transport Cases* during the period 1933 to 1935.

The next section considers the period from *James v. The Commonwealth* (1935) 52 CLR 570 to the case of *Bank of New South Wales v. The Commonwealth* (1948) 76 CLR 1; (1949) 79 CLR 497 (PC) (the *Banking Case*). From here attention is focussed on the *Transport Cases* of the post *Banking Case* era; in particular the cases of *McCarter v. Brodie* (1950) 80 CLR 432 and *Hughes and Vale v. The State of New South Wales* (1953, 1954 and 1955). Relevant cases

subsequent to the latter are also mentioned. The final section briefly considers recent developments in the interpretation of section 92.

FEDERATION TO *MCARTHUR'S CASE*

The period commencing with the birth of the Australian federation in 1901 to *McArthur v. Queensland* (1920) 28 CLR 530 (*McArthur's Case*) saw the High Court involved in five cases concerning the interpretation of section 92 of the Constitution. Two of these cases occurred prior to the first World War and involved fairly simple issues while the remaining three occurred during the war years and were of a more complex nature.

In the first case, *Fox v. Robbins* (1909) 8 CLR 115, a State law which required a higher licence fee to sell alcohol derived from fruit growth in another State, than was required for selling alcohol made from locally grown fruit, was held to contravene section 92. In the second case, *R. v. Smithers* (1912) 16 CLR 99, a State law which made it an offence for a person to enter the State within a period of three years of conviction for an offence in another State was also held to be invalid. These two decisions established at the outset that section 92 was not restricted to tariff barriers.

The wartime cases were:

New South Wales Government v. The Commonwealth (1915) 20 CLR 54 (the *Wheat Case*)

Foggit Jones & Co. Ltd. v. New South Wales (1916) 21 CLR 357

Duncan v. Queensland (1916) 22 CLR 556

In the *Wheat Case* the matter at issue concerned the legality of a State Act (the *Wheat Acquisition Act 1914* of New South Wales) which gave the Crown power to expropriate wheat in the State and to compensate the owners. The High Court held, *inter alia*, that since the Act did not affect the owner's power of disposition, but rather the ownership of the wheat, it did not infringe section 92.

The cases of *Foggit Jones & Co. v. New South Wales* and *Duncan v. Queensland* were also concerned with laws aimed at ensuring availability of essential food commodities for war purposes. In each case the relevant Act was designed to prevent interstate sales of stock and meat without involving expropriation of property (as in the *Wheat Case*). In *Foggitt Jones & Co. v. New South Wales* the law was held to be inconsistent with section 92. However, in *Duncan v. Queensland* this decision was overruled as a result of a change in opinion by Griffith CJ. While the argument by Griffith CJ amounted to the adoption of the principle he had used in the *Wheat Case*, Duffy and Rich JJ placed emphasis on the purpose of the legislation, arguing that the declaration that the stock and meat were to be left for disposal of the Imperial Government was not intended to limit interstate trade, commerce or intercourse, but instead to prevent activities that would weaken the option of the Crown to take what was required for the armies.

This distinction between the intention or motive of a law and its effect was, as is shown later, to play an important part in a number of subsequent section 92 cases.

In 1920, however, in the case of *McArthur v. Queensland* the Court sought to establish a mechanical formula (see Nygh 1967, p. 3) according to which the validity of State action could be tested irrespective of purpose. This approach reflected the views and influences of Isaacs J. who, over the years, had gradually come to adopt a nationalistic interpretation of the Constitution.

The issue in *McArthur's Case* was whether a price fixing law of the State of Queensland represented an infringement of section 92 where the law was used for the purpose of setting a maximum price on the sale of goods imported from other States. The argument for the State that section 92 did not prohibit all State legislation which impinged on interstate trade, but only restrictions or impediments which were enforced because of the interstate character of that trade, was rejected by the Court. So too was the argument that '[a] transaction of sale is not commerce; it is part of a contract' ((1920) 28 CLR 537) and as such is not affected by section 92. The essence of the Court's approach was that it took a wide view of the terminology in section 92. Thus with regard to the meaning of the words 'absolutely free' in section 92 it was the Court's opinion that:

> ... [such words] cannot, therefore, be confined to pecuniary exactions or customs laws, but in order to have any substantial effect must, unless some better reason can be found, have their impediment or control by States with respect to trade, commerce and intercourse between them, considered as trade, commerce and intercourse. ((1920) 28 CLR 554)

Notwithstanding that the legislation under examination in *McArthur's Case* was a State Act, the Court deemed it appropriate to consider the implications of section 92 for the meaning and significance of section 51(i) of the Constitution which empowers the Commonwealth to make laws with respect to '[trade] and commerce with other countries, and among the States'. The nationalistic solution was adopted (see Sawer 1973): the Court pronounced that section 92 did not apply to the Commonwealth. In detail, the Court held that:

> ... [the meaning of Section 92] is that from the moment the Commonwealth assumed legislative control on a national basis of the customs, all State interference with interstate trade and commerce should for ever cease, and for that purpose Australia should be one country. It would have been idle to say that from that time Commonwealth interference should cease, because, according to the contemplation of the Constitution it had never begun; and not only would Section 92 be useless for that purpose, but it would be mischievous ... Section 92, if applied to the Commonwealth, would, in our opinion, practically nullify Section 51(i) altogether .... ((1920) 28 CLR 557–8)

THE *TRANSPORT CASES* OF THE EARLY 1930s

During the period from *McArthur's Case* to *James v. The Commonwealth* in 1936, fifteen cases concerning section 92 came before the High Court. While in a number of cases, especially those relating to State marketing laws, the formula adopted in *McArthur's Case* was applied, in a number of other cases such as

Ex parte Nelson (No. 1) (1982) 42 CLR 209 and the *Transport Cases*, where State laws were also at issue, the majority of the High Court was reluctant to give full effect to the decision in *McArthur's Case*. In part this was a consequence of the ambiguity inherent in the Isaac's formula[1] as well as a reflection of the support for the views of Evatt J, who was appointed to the Court in 1931.

Five cases involving State legislation pertaining to interstate transport came before the High Court in the period from 1933 to 1935. These cases were:

Willard v. Rawson (1933) 48 CLR 316

R. v. Vizzard (1933) 50 CLR 30

O. Gilpin Ltd. v. Commissioner of Road Transport (1935) 52 CLR 189

Bessell v. Dayman (1935) 52 CLR 215

Duncan and Green Star Trading Co. v. Vizzard (1935) 53 CLR 1493

No attempt is made to consider the details of each of these cases. Instead the discussion concentrates on the first three, giving special attention to *Vizzard's Case* and the case of *O. Gilpin Ltd. v. Commission of Road Transport*.

In the first mentioned case, *Willard v. Rawson*, an interstate carrier whose vehicle was registered in New South Wales and employed for use in trade between New South Wales and Victoria was convicted under a Victorian Act for non-payment of a Victorian registration fee. The issue before the Court concerned the validity of the State law with respect to interstate carriers.

The Court upheld the conviction. The purposive or 'pith and substance' test was invoked by Stark J who held that the main intention of the Act was to regulate motor vehicles, not restrict interstate trade. This argument was also supported by McTiernan J. Evatt J on the other hand drew on the principle enunciated by Higgins J in *Roughley v. New South Wales* (1929) 42 CLR 199 contending that for the Act to be invalid it had to be demonstrated that the legislation was aimed directly at the point of entry, in the course of commerce, into the State of Victoria. Rich J who, in *McArthur's Case*, had argued that what was important was the legal effect of the law, made a distinction between 'direct' and 'indirect' interference with interstate commerce. Specifically, Rich J contended that:

> ... what is forbidden by Section 92 is State legislation in respect of trade and commerce when it operates to restrict, regulate, fetter or control it and do this immediately or directly as distinct from giving rise to some inconsequential impediment. ((1933) 48 CLR 322)

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1. This was manifest in the case of *Ex parte Nelson* (No. 1). The question at issue was what acts constituted 'acts of interstate trade'? It was held (the Court divided equally on this issue) that a State law which prevented the importation into New South Wales of stock fodder and fittings from any other State in which there was reason to believe that an infectious or contagious disease existed, was contrary to section 92.

According to Rich J the burden of the Victorian Act, that is for interstate trade, was of an indirect or inconsequential nature. The one dissentient to the majority view was Dixon J.

The cases of *R. v. Vizzard* and *O. Gilpin Ltd. v. Commissioner of Road Transport* are of special significance in that they highlight the development of two opposing views of the protection afforded by section 92. The champions of these opinions were Evatt J and Dixon J. The former's views dominated the High Court's approach to section 92 issues throughout the 1930s and into the early 1940s, after which the Dixonian approach gradually came to be accepted, and triumphed as 'received doctrine' in 1954 when given the blessing of the Privy Council.

The issue before the High Court in the case of *R. v. Vizzard* related to the validity of the provisions of the *State Transport (Co-ordination) Act 1931* of New South Wales insofar as those provisions applied to persons engaged in interstate road transport operations. While the stated intention of the Act was expressed vaguely as '... to provide for the improvement and for the co-ordination of means and facilities for locomotion and transport' ((1933) 50 CLR 46) the real intention was to regulate competition between road and rail for the purpose of protecting the financial interests of the latter.

Basically, the Act provided that all private persons who wished to engage in the transport of goods and persons by road would need to obtain a licence from the Board of Commissioners to undertake such activities. The licence, if granted, was subject to various conditions. It could be restricted to the carriage of passengers or goods or to particular kinds of goods. It could also be for restricted operations with respect to routes and areas. In addition the licence was subject to conditions relating to taxes or charges for which maximum and minimum rates were specified. In the case of commercial passenger vehicles the payments were calculated on a passenger-mile basis, at a maximum rate of 1 penny per passenger-mile, while in the case of freight transport the maximum charge was set at 3 pence per ton-mile. These rates were often prohibitive. The revenue from these taxes was paid into the *State Transport (Co-ordination) Fund*, from which the Board, with the approval of the Executive Government, made payments for administration, for subsidies to vehicles used to provide feeder services to railways, or to the Government Railway Fund.

The majority decision of the High Court in *R. v. Vizzard* (Dixon and Starke JJ dissenting) was that the New South Wales *Transport (Co-ordination) Act 1931* was not obnoxious to section 92.

The dominant view, as noted earlier, was expressed by Evatt J. In a lengthy judgment Evatt J attacked the philosophy laid down in *McArthur's Case,* contending that it was far too broad in scope. To Evatt:

> The predominant object of Section 92 was to secure free trade and intercourse among what had formerly been self governing colonies and what were to become States which still possess very large powers of self government. To assert freedom of trade between such organised communities was to lay down in formal expression a well known economic doctrine and ideal ... Neither the words used, nor the

> underlying doctrine would seen to warrant an interpretation by which, first 'trade, commerce and intercourse' is resolved into the infinite number of Acts, transactions and operations which must occur in the course of it, secondly from this infinite aggregation there is subtracted that infinite number of acts, transactions and operations into which 'purely domestic' trade can similarly be resolved, and thirdly, each and every one of the acts, transactions and operations, still infinite in number, which comprise the remainder, the States are rendered unable to touch or regulate in any way whatsoever. Such a test seems to be incapable of satisfactory application. ((1933) 50 CLR 93)

What Evatt J contended was that section 92 loses a great deal of its importance if its various parts are analysed separately and the results of that analysis are later welded together. Read as a whole, section 92 was seen as stressing the importance of the free flow of goods interstate, so that goods produced in any State might be freely marketed in every other State, and so that nothing could lawfully be done to hinder or prevent such marketing. According to this (economic) interpretation of section 92 absolute freedom was attributed to trade, to commerce and to intercourse, but not to traders or travellers considered simply as individuals. This was not to say that section 92 did not confer rights upon individuals. On the contrary section 92 was seen as granting rights to individuals in the sense that '... any person may invoke its aid in an appropriate case; ...' ((1933) 50 CLR 93). Such a right, however, did not mean that individuals engaged solely in interstate trade, or whilst so engaged were free to '... determine for themselves the manner in which and the means by which, they will conduct their business or commerce in each State' ((1933) 50 CLR 93).

The States were thus free to regulate, organise, or 'coordinate' the means of transport within their boundaries notwithstanding that their policies might impose substantial burdens on individual operators and indeed, prevent many from engaging in interstate trade, provided that the effect of such policies, in the aggregate, was not detrimental to that trade. To Evatt J and his brethren supporters, the New South Wales statute under consideration satisfied this formula. More fully:

> In the present case, however, it is impossible to reach the conclusion that the New South Wales statute was designed for the purpose of preventing, hindering, limiting or obstructing trade, commerce or intercourse among the States. Further, there is no evidence that the Act has had the effect of reducing or restricting interstate commerce or intercourse. So far as appears, its effect is, by providing a more orderly system of land transport, to facilitate and increase the passage of persons and the flow of commodities to and from the State. ((1935) 50 CLR 77)

The question of whether the legislation was discriminatory or not was also an important consideration. In this and other *Transport Cases*[2] the point was made that '[the] operation of the Act in no way depends upon the interstate character of [the operator's journey]: it applies uniformly ... does not concern itself with the

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2. See for example, *O. Gilpin Ltd. v. Commissioner for Road Transport and Tramways (New South Wales)* (1935) 52 CLR 189.

difference between inter-State and intra-State trade' (statement by Rich J (1933) 50 CLR 51). However, such a distinction was not necessarily viewed as decisive. What was important was whether the legislation was designed expressly for the purpose of restricting interstate trade, commerce and intercourse, or instead, to regulate transport in such a manner as to facilitate, rather than hinder, the movement of commercial goods throughout the State ((1933) 50 CLR 51).

The dissent of Dixon J involved a totally antithetical interpretation of the protection guaranteed by section 92. While Mr Justice Evatt's approach required the Court, as Nygh (1967) and Sawer (1973) have noted, to reach a balance between State autonomy, including the right of a State to adopt new forms of social and economic arrangements and the free trade area created by the Constitution, Dixon J sought the adoption of a logical or purely conceptual test. This test was given '... its first coherent and persuasive expression' (Sawer 1973, p. 210) in Dixon's judgement in *O. Gilpin Ltd. v. Commissioner for Road Transport and Tramways (New South Wales).*

In contrast to Mr Justice Evatt's 'aggregative' concept of trade and commerce Dixon J argued that '[any] act or transaction for which protection is claimed under section 92 must be a part of trade, commerce or intercourse among the States...' ((1935) 52 CLR 204). By this he meant that any act or transaction carried out preparatory to, in the process of, or as a consequence of, interstate movement of persons and objects of interstate communication. To Dixon J consideration of the scope or purpose of the statute in question was irrelevant; so too was the matter of reasonableness of the law when considered in the light of the legitimate interests of the State[3]. The protection afforded by section 92 was seen as absolute:

> 'Free' must at least mean free of a restriction or burden placed upon an act because it is commerce, or trade, or intercourse, or because it involves movement into or out of the State. By this I mean that the application of the restriction or burden to the act cannot be made the consequence of that act's being of a commercial or trading character, or of its involving intercourse between two places, or of its involving movement of persons or things into or out of the States. ((1935) 52 CLR 205)

Moreover, Dixon J saw the object of section 92 as that of enabling individuals to undertake their business and personal intercourse with one another independently of State borders. In his own words:

> The constitutional provision is not based on mere economic considerations. I am unable to agree with the view that trade, commerce and intercourse should, in applying Section 92, be regarded as a whole and not distributively. The Constitution is dealing with a governmental power. It is not easy to appreciate the meaning of a guarantee of freedom of trade and intercourse unless it gives protection to the individual against interference in his commercial relations and movements. ((1935) 52 CLR 211)

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3. See for example, *Willard v. Rawson* (1933) 48 CLR 316 & 332.

As in *R. v Vizzard*, Mr Justice Dixon's ruling in *O. Gilpin v. The Commissioner for Road Transport,* was a minority view and remained so, at least as far as the *Transport Cases* are concerned, until the early 1950s.

THE PERIOD FROM 1935 TO 1948

Two non-transport cases of considerable importance to this review occurred during the period 1935 to 1948. They are, respectively, the case of *James v. The Commonwealth* ((1935) 52 CLR 570 and (1936) 55 CLR 1) and the case of *Bank of New South Wales v. The Commonwealth* (the *Banking Case*).

In the former case the issue before the High Court concerned the validity of the *Commonwealth Dried Fruits Act 1928–1935*, the effect of which was to prevent a producer of dried fruit from marketing any of his output interstate except on conditions laid down in the Act, which included conditions relating to the export of dried fruit from Australia. Regulation was achieved by means of an export quota. The Act made it an offence to market dried fruit interstate without a licence, and the issue of a licence was only made on the condition that the owner of dried fruit agreed to the Commonwealth government's control of the amount to be made available for export overseas.

The means of regulation employed by the Commonwealth were in essence no different from those previously employed by the South Australian government, and which, in *James v. Cowan* (1930) 43 CLR 386, (1932) 47 CLR 386 (P.C.) were held by both the High Court and the Privy Council as contravening section 92. However, in the case of *James v. The Commonwealth* the High Court upheld the validity of the Act, but only for the reason that it had, in 1928, held expressly in *James v. The Commonwealth* ((1928) 41 CLR 442), that section 92 did not bind the Commonwealth.

This decision was reversed in a subsequent appeal to the Privy Council. Their Lordships, mindful of the argument enunciated in *McArthur's Case*, that if the Commonwealth is bound by section 92 then section 51(i) is nullified, contended that '... though trade and commerce mean the same thing in section 51(i) they do not cover the same area, because section 92 is limited to a narrower context by the word "free"; ...' ((1936) 55 CLR 60). What was the nature of the freedom afforded by section 92? The Privy Council's answer to this question is encapsulated by the phrase '... freedom as at the frontier...' ((1936) 55 CLR 58). This was explained by stating that the essential conception was that:

> ... the people of Australia were to be free to trade with each other and to pass to and fro among the States without any burden, hindrance, or restriction based merely on the fact that they were not members of the same State. ((1936) 55 CLR 60)

Such a formulation would appear to suggest that all that section 92 prohibits is discrimination against interstate trade based on its being interstate. That this was not intended by the Privy Council is illustrated as follows. First, at an earlier point in the judgment the discrimination test was expressly rejected ((1936) 55 CLR 56). A second example is to be found in the Privy Council's treatment of previous

authority. Here reference is made to the Privy Council's decision in *James v. Cowan* and a High Court decision in *Peanut Board v. Rockhampton Harbour Board* (1933) 48 CLR 266 (the *Peanut Case*) in which both *James v. Cowan* and *McArthur's Case* were followed. These cases dealt with compulsory acquisition powers and in each of them such power was held to contravene section 92 on the ground that it prevented traders from selling their goods interstate if they so desired. The discrimination test was not invoked. As Howard (1968) points out:

> If in James v. Commonwealth the discrimination test was going to be approved it would have been necessary to override McArthur on this point as well as the main doctrine; to explain James v. Cowan on a discrimination ground and to overrule the Peanut Case. Instead both the more recent decisions were approved and this part of the McArthur doctrine was left untouched. (Howard 1968, p. 221)

The existing anomalous approach to section 92, however, was reinforced by also giving approval to the *Transport Cases*; thereby accepting the discrimination test and the approach adopted by Evatt J.

In 1937 another transport case came before the High Court. This was the case of *Riverina Transport Pty. Ltd. v. Victoria* (1937) 57 CLR 327. Here the appellant's claim was that the Victorian Transport Board's refusal to grant licences to particular motor vehicle operators wishing to carry goods interstate was for no other reason than that they wished to engage in interstate trade. The High Court upheld the validity of the *Victorian Transport Regulation Act* on the ground that it was in principle no different from legislation considered in previous transport cases and that the decisions made there were vindicated by the approval given in *James v. The Commonwealth* (1936) 55 CLR 1, to *Vizzard's Case*.

As stated by Evatt J:

> The applications were refused, not because the vehicles were carrying or intended to carry goods inter-state but because in the board's opinion, the carriage of goods inter-state was being provided for already and in a more efficient manner by co-ordinating the services of the railway system of the two States with local motor transport from all points in the Riverina to appropriate railway terminals. ((1937) 57 CLR 369)

The *Banking Case* represents another important landmark in the history of section 92 litigation in that it resulted in a rejection of the Evatt doctrine and a victory for the views of Dixon J. The issue in this case was the attempt by the Commonwealth, in the *Banking Act 1947*, to exclude private banks from conducting business in Australia. The ruling of the High Court was that such action was contrary to section 92 and this decision was subsequently upheld, on appeal, by the Privy Council.

The essential elements of the Commonwealth's argument were as follows. First, it was contended that the business of banking did not fall within the ambit of section 92. Instead, banking was merely a facility that might be used by commerce but could not itself be regarded as trade or commerce. This argument was accepted by Latham CJ and McTiernan J, but was refuted by Dixon J and other members who argued that the conception of commerce embraced

intangibles as well as the movement of goods and persons. This opinion was accepted by the Privy Council ((1949) 79 CLR 632).

A second argument which proved unacceptable to the Privy Council was that section 92 does not guarantee the freedom of individuals to engage in interstate trade. In their Lordships' view section 92

> ... does not create any new juristic rights, but it does give the citizen of State or Commonwealth, as the case may be, the right to ignore, and if necessary, to call upon the judicial power to help him to resist, legislative or executive action which offends against the section. ((1949) 79 CLR 635)

A related argument that section 92 was not offended if the law in question was not designed to, or had no tendency to, restrict the flow of business, was also rejected. This argument, it will be recalled, was first enunciated by Evatt J in *Vizzard's Case*. It was opposed by Dixon J on the ground that it was an irrelevant consideration: '... a consideration of an economic and not a legal character' ((1948) 76 CLR, 388), and by the Privy Council on the grounds of its conflict with reasoning in the *James Cases* and its impracticability. With regard to the latter:

> ... the test of total volume is unreal and unpractical, for it is unpredictable where by interference with the individual flow the total volume will be affected and it is incalculable what might have been the total volume but for the individual interference. ((1949) 79 CLR 635)

Further, the Privy Council denied the relevance of the discrimination test, that is, that the prohibition affected intrastate as well as interstate transactions of private banks and agreed with Dixon J, that the object of purpose of the legislation was also irrelevant.

As to the fundamental issue of the nature of the freedom afforded by section 92 the Privy Council advanced two propositions:

> (1) that regulation of trade, commerce and intercourse among the States is compatible with its absolute freedom; and
>
> (2) that Section 92 is violated only when a legislative or executive act operates to restrict such trade and commerce and intercourse directly and immediately as distinct from creating some indirect or consequential impediment which may fairly be regarded as remote. ((1949) 79 CLR 639)

While their Lordships were convinced that the Commonwealth *Banking Act 1947* did not satisfy the above tests, no attempt was made to clarify the boundary between legislative and executive acts which were to be regarded as direct or indirect in their consequences for trade, commerce and intercourse among the States; this task was bequeathed to the High Court.

THE *TRANSPORT CASES:* 1950 TO THE PRESENT

The implications of the Privy Council's reasoning in the *Banking Case* for the decisions taken by the High Court in the *Transport Cases* arose for judgment by the High Court in 1950 in *McArthur v. Brodie* (1950) 80 CLR 432. The fundamental issue was whether the *Victorian Transport Act 1933–1947*, which

disallowed commercial vehicles to use the State's highways unless licensed in accordance with the Act, was prohibitive or regulatory. Notwithstanding that the Act vested almost unlimited powers of granting and refusing licences in a State transport body, a majority of the Court took the view that the Act did not contravene section 92. Dixon J argued that the Privy Council's decision in the *Banking Case* had destroyed the arguments which had previously been held by the High Court as validating the various statutes considered in the *Transport Cases*, and dissented. He was joined by Fullagar J who reasoned along similar lines.

In 1953 the issue was raised again in *Hughes and Vale Pty. Ltd. v. New South Wales (No. 1)* (1953) 87 CLR 49. The plaintiff was a transport company incorporated in New South Wales and engaged in interstate transport of general merchandise between Sydney and Brisbane; the statute challenged was the *State Transport Co-ordination Act 1951*. The same majority ruling was reached by the High Court as in *McCarter v. Brodie*. Moreover, Dixon who was then Chief Justice formed one of the majority. His decision to support previous rulings, however, was not based on a change of argument, but instead, was advanced for the reason that he felt bound to accept the authority of the judgment in *McCarter v. Brodie* since nothing had occurred which altered, or added to, the circumstances then under consideration. Dixon CJ was influenced by the reasoning of Williams J in *McCarter v. Brodie* (1950) 80 CLR 477 and contended that as long as the decision taken in that case would not be applied outside the realm of commercial road transport there was no imperative reason to overrule that decision. In his own words:

> If the Transport Cases have no future application except where the conditions or considerations exist that arise from the State providing facilities for the carriage of goods both in the form of railways and in the form of roads, the danger is removed of the decision operating generally over the whole area of Section 92 and on that footing I think that we ought not to reconsider it. ((1953) 87 CLR 71)

While the High Court's decision supporting the validity of the New South Wales Act was based on a four to three majority, five of the seven members of the Court found it difficult to reconcile the validity of the Transport Acts with the principles set down and adopted in the *Banking Case*. Not surprisingly the matter came before the Privy Council. The appeal was successful (*Hughes and Vale Pty Ltd v. New South Wales* (1954) 93 CLR 1).

The basis for their Lordships' verdict were the dissenting arguments advanced by Dixon CJ and Fullager J in *McCarter v. Brodie*. There Dixon CJ had argued that the Privy Council's decision in the *Banking Case* had destroyed the three main premises upon which the *Transport Cases* were predicated, namely:

(i) that Section 92 does not guarantee the freedom of individuals;

(ii) that if the same volume of trade flowed from State to State before as after the interference with the individual trader, the freedom of trade among the States remains unimpaired; and

> (iii) that because a law applied alike to interstate commerce and to the domestic commerce, it may escape objection notwithstanding that it prohibits, restricts or burdens interstate commerce. ((1954) 93 CLR 21–22)

In addition to the above, Dixon CJ cited two further propositions settled by the *Banking Case* which were pertinent to the basis upon which the *Transport Cases* rested. These were:

> (i) ... that the object or purpose of an Act challenged as contrary to section 92 is to be ascertained from what is enacted and consists in the necessary legal effect of the law itself and not in its ulterior effect socially or economically...; and
>
> (ii) ... that the question of what is the pith and substance of the impinged law ... is beside the point when the law amounts to a prohibition, or the question of regulation cannot fairly arise. ((1954) 93 CLR 22)

A further proposition refuted by Dixon CJ, but not considered by the Privy Council in the *Banking Case*, was that concerning the distinction between motor vehicles as 'integers of traffic', and the trade of carrying by motor vehicles as part of commerce. To Dixon CJ no such distinction should be made.

The acceptance by the Privy Council of these six arguments meant that the only ground which could be invoked to support the legislation was that it was regulatory and not prohibitive of interstate trade and commerce. On this issue the Privy Council accepted the reasoning of Fullager J in *McCarter v. Brodie*:

> As to what is not regulation in the relevant sense, one thing at least is clear. Prohibition is not regulation ... It is quite impossible, in my opinion, to distinguish the present case from the case of a simple prohibition. If I cannot lawfully prohibit altogether, I cannot lawfully prohibit subject to an absolute discretion on my part to exempt from the prohibition. ((1954) 93 CLR 20)

The outcome was a rejection of the majority views in *Vizzard's Case* and of the licensing system which had applied to interstate commercial road users for a little more than 20 years.[4] Moreover, the Privy Council's decision vindicated the purely conceptual test enunciated so forcefully by Dixon J in *Gilpin's Case*.

The annulment of the decision in *Vizzard's Case* compelled the States to remould their road transport legislation. But this also was subject to legal challenge and held to contravene section 92. While separate decisions were made by the High Court in regard to legislation in four States (New South Wales, Victoria[5], Queensland[6] and South Australia[7]) the principal case was *Hughes and Vale Pty. Ltd. v. New South Wales (No. 2)* (1955) 93 CLR 127.

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4. The provisions of the Transport Acts were not invalid in so far as they applied to intrastate transport.
5. *Armstrong v. Victoria* (1955) 93 CLR 264.
6. *Hughes and Vale Pty. Ltd. v. Queensland* (1955) 93 CLR 247.
7. *Nilson v. South Australia* (1955) 93 CLR 292; *Pioneer Tourist Coaches Pty. Ltd. v. South Australia* (1955) 93 CLR 307.

The scheme of the amended legislation brought before the High Court in *Hughes and Vale (No. 2)* provided for a new set of provisions applicable to interstate commercial road operators. While it was still an offence to operate a commercial vehicle interstate unless a licence was granted by the Commissioner for Road Transport, the exercise of the latter's power to grant or refuse a licence was subject to a number of limitations. These were mainly whether the applicant was a fit and proper person to hold a licence, whether the vehicle was properly constructed and adequately equipped, and whether the vehicle could result in unreasonable damage, danger or unreasonable interference with other traffic on the roads.

Each of these restrictions was held by the High Court as displaying '... a tendency to vagueness and imprecision ...' ((1955) 93 CLR 157) the effect of which was to invest the Commissioner '... with an extremely wide discretion' ((1955) 43 CLR 158) rather than a limited discretion as apparently intended. In brief, the Court held that the legislation failed to provide an objective test against which the Commissioner's opinion could be evaluated.

In addition to these matters the legislation granted the Commissioner wide powers concerning terms and conditions to be attached to a licence. The conditions related to such matters as route, road, area of use, traffic regulations, preservation and maintenance of the roads, and the use and enjoyment of the roads by the public. The Commissioner's interpretation of these conditions was also unrestrained except for the requirement that they be of a regulatory nature. The High Court disposed of this argument and concluded that the licensing provisions were contrary to section 92, as they were designed to maintain a situation in which interstate carriage of goods and/or persons by private commercial operators was prohibited, subject only to the unfettered discretionary power of the Commissioner.

A second issue examined by the High Court in *Hughes and Vale (No. 2)* concerned the extent to which road charges might legitimately be imposed on commercial carriers as a condition of a licence, as well as the validity of fees for registration of interstate vehicles. While there was no logical necessity for the Court to consider the aforementioned charges in view of its decision on the licensing arrangements, it was nonetheless felt that it was '... undesirable to refrain from expressing a view upon this important subject' ((1955) 93 CLR 167), a subject which had hitherto '... not received consideration in this Court untrammelled by the conceptions held to be erroneous by the Privy Council in *Hughes and Vale Pty. Ltd. v. New South Wales (No. 1)* (1955) 93 CLR 167. The Court also considered that, since both the charges and the registration fees were financial imposts on interstate carriers, common principles applied to both.

The provisions relating to road charges were laid down in section 18(4) to (6) of the *State Transport Co-ordination Act 1931–1954*. The Commissioner for Motor Transport was empowered by the Act to set charges, at his discretion, for the use of the State's highways by interstate carriers. The Act specified that the rate and scale of charges may be determined on the basis of a mileage rate according to

the weight of the vehicle, laden or unladen. In determining the actual rate for any vehicle the Commissioner was directed by subsection (5E) to take into account a variety of considerations. These were stated as follows:

> All relevant matters including the cost of construction and maintenance of roads, the depreciation and obsolescence of roads, the necessity or desirability for the widening or reconstruction of roads, the wear and tear caused by vehicles of different weights, types, sizes and speeds and the monies available for the purpose of construction, maintenance, widening and reconstruction of roads from sources other than charges imposed pursuant to sub-section (4) of this section and the amount to be expended or proposed to be expended from the Country Main Roads Fund established under the Main Roads Act 1924–1954.

Once again it was the Court's view that the executive discretion to determine a charge was too great and the system of charges was declared invalid. However, while all members of the Court concurred with this decision, they differed as to the right of a State to impose a charge for the use of roads by vehicles involved in interstate trade. Kitto J opposed, without qualification, the notion that the States could impose road charges on interstate carriers on the ground that such charges were '... indistinguishable from a tax' ((1955) 93 CLR 223) and that section 92 '... is not open to mitigation by reference to the just and equitable' ((1955) 93 CLR 224). Taylor J also rejected the validity of a charge on interstate carriers, although he made one concession, namely, that a State could prevent the use of its roads by vehicles which, by reason of their weight or construction, were destructive of them and that the State could impose an appropriate charge for removing the restriction ((1955) 93 CLR 239–40).

The majority of the Court found grounds for reconciling the imposition of a charge on interstate carriers with section 92 by drawing on USA case law. Dixon CJ, McTiernan and Webb JJ explained that:

> The American phrase is that inter-state commerce must pay its way. It is but a constitutional aphorism, but it serves to bring home the point that in a modern community the exercise of any trade and the conduct of any business must involve all costs of fiscal liabilities from which, in reason, inter-state trade or business should have no immunity. Those who pay them are not unfree, they merely pay the price of freedom. ((1955) 93 CLR 172)

Pursuing this further their Honours observed that what was of crucial importance in the interpretation of the phrase 'inter-state commerce must pay its way' in the American litigation was that charges imposed on State owned highway facilities used for interstate commerce must '... represent a fair compensation or recompense...' ((1955) 93 CLR 174) and that to be reasonable or fair the charge must be related to the use of the highways and the wear and tear incurred. Moreover, the charge should not treat interstate carriers unfavourably compared with intrastate operators and the proceeds of the charge should be devoted to highway purposes ((1955) 93 CLR 174).

Accepting this principle the majority of the Court held that it would be legitimate for a State to impose a charge for the use of its highways by interstate carriers provided that the charge was related to highway maintenance costs only. Dixon CJ, McTiernan and Webb JJ stated that:

> It does not seem logical to include capital costs of new highways or other capital expenditure in the costs taken as the basis of the computation [*that is, of the charge*]. It is another matter with recurring expenditure incident to the provision and maintenance of roads. ((1955) 93 CLR 176)

while Williams J contended:

> ... *[a road charge]* could not include an item relating to the cost of construction of new roads, although it could contain an item relating to the cost of widening and reconstructing old roads where some additional width or a strengthened pavement was required to carry the evergrowing amount of traffic and the ever-increasing size and weight of vehicles using the roads. ((1955) 93 CLR 195)

No attempt was made by their Honours to elaborate on these views.

Finally, the Court also held that the imposition of registration fees on interstate commercial carriers calculated on the basis of vehicle weight, type of engine and tyre was invalid since the fees did not bear any clear relationship to the use of the roads, and hence could not be viewed as an attempt to extract a fair and reasonable payment for road maintenance costs caused by interstate commercial vehicles ((1955) 93 CLR 182).

As a consequence of the decision in *Hughes and Vale (No. 2)* the States were forced to amend their Transport Acts a second time. This effort received the initial approval of the High Court in 1957 in *Armstrong v. Victoria (No. 2)* (1957) 99 CLR 28.

The amended Victorian legislation imposed a scheme of road charges designed to take account of the observations made in *Hughes and Value (No. 2)*. It also provided for a scheme of registration charges. The road charge was referred to in part II of the Act as a contribution to maintenance charge, and was assessed at the rate of one-third of a penny per ton of the sum of the tare weight of the vehicle and 40 per cent of the load capacity of the vehicle, per mile of public highway along which the vehicle travelled in Victoria[8]. In addition, the charge applied only to vehicles having a load capacity in excess of four tons. The revenues derived from the charge were to be credited to a special road maintenance account and could only be spent on the maintenance of public highways either directly by the Country Roads Board, or indirectly by local authorities.

The High Court held by a majority of four to three that the charge was constitutional on the ground that it was in line with the guidelines enunciated in *Hughes and Vale (No. 2)*. The dissenting judges (Webb, Kitto and Taylor JJ) followed the opinion of the minority in *Hughes and Vale (No. 2)*.

In contesting the validity of the legislation the plaintiffs argued that the charge was unreasonable on the grounds that it was a flat rate, and as such, failed to

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8. Subsection (1) of section 26 of the *Commercial Goods Vehicle Act 1955* (Vic.).

distinguish between different loads. The reply of Dixon CJ to this argument was that, while the charge was a fixed amount per ton-mile, the amount paid varied with the weight of the vehicle, and that vehicles assessed as causing relatively minor damage to the roads were excluded from the charge. Further, it was also argued by Dixon CJ and Williams J that it would be unreasonable to expect the calculation of the charge to be determined according to the route taken by a vehicle of a particular weight carrying a particular load. In the words of Williams J:

> Section 92 protects the freedom of the inter-State trader to use every road in the State. In such a calculation therefore it is reasonable to take into account this network as a whole. ((1957 99 CLR 70–1)

The inclusion of the multiplier of 40 per cent of load capacity in the determination of the charge was also accepted by the Court as a reasonable element based on what '... experience suggests as the likely average of the loads carried by vehicles ...' ((1957) 99 CLR 48), and in the circumstances accommodated the criticism that vehicles engaged in trade were not always fully loaded and that the nature of their loads varied.

Further points accepted by Dixon CJ and Williams J relating to the issue of maintenance and estimates were:

> (a) that it is proper to ignore that a proportion of road costs is met from rates;
>
> (b) there is no reason for excluding from the figures for maintenance an estimate of what ought to have been expended but had not been expended. ((1957) 99 CLR 50)

Another argument, that the legislation should be declared invalid because its true purpose was to protect the interests of the railways, was also rejected by the Court. Dixon CJ contended that he could find no evidence to support this view, but pointed out that even if he could, it would not be a sufficient reason for opposing otherwise valid legislation. Williams J adopted the same attitude, declaring that:

> ... the fact that the position of the railways in this competition is improved by making these vehicles contribute to the maintenance of the roads is not a ground for invalidating the legislation if the charge is properly related to the use of the roads. ((1957) 99 CLR 72–3)

Finally, the Court rejected those sections of the Victorian legislation which related to the imposition of registration fees on vehicles engaged solely in interstate trade. In essence, the majority view was that such changes contravened section 92

because they were not assessed according to the use made of Victorian roads ((1957) 99 CLR at 60).

Following the decision in *Armstrong's Case*, New South Wales and Queensland levied the same fee of one-third of a penny per ton-mile. Subsequent litigation in 1959 challenging the validity of the New South Wales and Queensland statutes was rejected by the High Court,[9] notwithstanding that road conditions were not identical in all States.[10] The Court held that no evidence had been produced to suggest that the legislation was not a genuine attempt to impose a reasonable charge for road maintenance costs.

Another attempt to have the New South Wales legislation declared invalid was made in 1961 in *Breen v. Sneddon* (1961) 106 CLR 406. In this case the defendant sought to introduce evidence which he contended would show that the road maintenance charge bore no relation to the wear and tear of the roads. Some of the reasons given were:

- the charge was based on load capacity;
- heavier vehicles as such did not necessarily cause more damage to roads than vehicles of lighter loads; and
- related to the previous reason are such factors as number and size of tyres, tyre pressure and the distribution of the load over the road surface, speed and speed limitations.

In addition it was contended that the Commonwealth petrol tax should also be taken into account when ascertaining whether the charge was prohibitive.

The High Court refused to admit this evidence. The judgment made a distinction between facts relevant to a matter of constitutional validity and facts relevant to an issue between parties. In ascertaining a matter of validity it was pointed out that the Court would inform itself of whatever facts it viewed as relevant at the time. This was not meant to suggest that litigants could re-open the issue of validity whenever they felt that they were in a position to provide evidence showing some neglect or variation in the facts relied on in a previous judgment. As stated by Howard:

> The question of validity once being determined, it remained determined unless and until the court permitted it to be re-opened. In the present case *[that is, Breen v. Sneddon]* the evidence was inadmissable because it was not relevant to any issue between the parties themselves but only to the validity of the law to be applied to the determination of that issue. (Howard 1968, p. 269)

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9. *Commonwealth Freighters Proprietary Limited v. Sneddon* (1959) 102 CLR 28 (New South Wales legislation); and *Boardman v. Duddington* (1959) 104 CLR 456 (Queensland legislation).

10. South Australia and Western Australia introduced road maintenance charges respectively in 1964 and 1966.

The Court held that the reasonableness of the road maintenance charge had been resolved in *Armstrong's Case* and subsequently confirmed in *Commonwealth Freighters Pty. Ltd. v. Sneddon* and in *Boardman v. Duddington* and that in its opinion there was no reason to reconsider the question of its validity.

The Queensland legislation was also the subject of another High Court case in 1962 in *Allwrights Transport Ltd. v. Ashby* (1962) 107 CLR 662. Here the defendant contended that the legislation was invalid with respect to commercial vehicles using the Barkly Highway for journeys between Queensland and the Northern Territory. It was argued that one half the cost of maintaining the highway, insofar as it lies in Queensland, was met by the Commonwealth and, further, that the revenues collected from the charges imposed on vehicles using the highway were in excess of the amount expended on its upkeep. The Court rejected these arguments declaring that:

> The validity [of a charge] has depended on the question of whether such a thing, considered as a whole, is inconsistent with freedom of Inter-State commerce: not whether this or that carrier of goods or the users of this or that highway, considered separately and in their particular circumstances, obtain a full return for what they pay by way of charge or whether the Government receives from them, regarded as separate individuals, more money than it spends to cover their particular needs or to repair the wear and tear for which they may properly be held responsible; still less is a particular contribution by the Commonwealth to be taken into account. ((1962) 107 CLR 668–9)

There were no further challenges to State road maintenance contribution legislation until 1967 when the validity of the New South Wales *Road Maintenance Contribution Act 1958–1965* was considered by the Privy Council in the case of *Freightlines and Construction Holding Ltd. v. New South Wales* (1967) 46 CLR 1. The appeal was rejected by the Privy Council, and since then the law on the subject of financial exactions from interstate commercial road carriers has remained as enshrined in *Hughes and Vale (No. 2)* and *Armstrong v. Victoria (No. 2)*.

Another series of transport cases which followed the *Hughes and Vale (No. 1)* decision has dealt with the issue of what is actually an interstate journey. The cases involved fall into two categories: those dealing with intrastate parts of interstate journeys, and the matter of 'border-hopping'. No attempt is made to trace out the details of these cases. The main conclusions will suffice.

With regard to the former category it seems that the closest that one can get to giving a reasonable statement of the High Court's current view is that an intrastate journey takes on an interstate character it if is an integral or normal part of another transaction which is itself clearly of an interstate character. Decisions concerning this issue, such as, for example, in *Pilkington v. Hammond Pty. Ltd.* (1974) 2 ALR 563, have tended to stress the element of continuity. If there is a lack of continuity in the journey it is likely that the High Court will conclude that more than one journey is involved and that the intrastate segment would not be entitled to the protection guaranteed by section 92. Use of phrases such as 'physical continuity'

and 'integral part', however, are likely to result in different interpretations and so no precise conclusions are possible.

As to the second mentioned category the issue before the High Court has concerned the practice of transport operators crossing a State border for the purpose of seeking the protection of section 92 and then recrossing the border to a destination in the original State. This practice was spawned by the decision in *Hughes and Vale (No. 1)* since that decision made it financially advantageous for road transport operators to engage in interstate transport as against intrastate transport.

By 1962 six cases concerning border-hopping had come before the High Court. Three of these were viewed as genuine cases of border crossing and the other three as contrived.[11] The rule that emerged was that section 92 will protect only those interstate journeys that are properly incidental to the transactions taken as a whole. Along with this approach the judgments made many references to the main purpose and essential character of the transactions. However, by 1980 each of the States had removed the road maintenance tax, and as a consequence eliminated the incentive for transport operators to engage in border-hopping.

RECENT DEVELOPMENTS

Before turning attention to the landmark decision in *Cole v. Whitfield* and the case of *Bath v. Alston Holdings Pty. Ltd.* (1988) 62 ALJR 363, mention is made of the case of *Clark King and Co. Pty. Ltd. v. Australian Wheat Board and the State of New South Wales (1978)* 52 ALJR 670, partly for the reason that it highlights the divergent and confusing nature of much of section 92 interpretation, and also for the reason that the inconclusive outcome of a challenge to the Clark King decision in the case of *Uebergang v. Australian Wheat Board* (1980) 145 CLR 266 helped to set the stage for a fundamental reassessment of section 92.

Briefly, the 1978 *Clark King Case* concerned the validity of the Australia-wide wheat pooling and stabilisation scheme established under the provisions of the *Commonwealth Wheat Stabilisation Act 1974* and of the complementary legislation of the Australian States including, in particular, the New South Wales *Wheat Industry Stabilisation Act 1974.*

The purpose of the scheme is to stabilise the return to Australian wheat growers by avoiding the consequences of fluctuating international demand and prices for wheat, and to ensure a uniform domestic price for wheat set aside for local consumption.

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11. The so-called genuine cases are: *Naracoorte Transport v. Butler* (1956) 95 CLR 455; *Golden v. Hotchkiss* (1956) 101 CLR 568; and *Beach v. Wagner* (195) 101 CLR 644. The contrived cases are: *Harris v. Wagner* (195) 103 CLR 452; *Western Interstate Pty. Ltd. v. Madsen* (1961) 107 CLR 102; and *Egg Marketing Board v. Bonnie Doone Trading Co. (NSW) Pty. Ltd.* (1962) 107 CLR 27.

The principal issue for judgment by the High Court was whether sections 10, 11 and 12 of the State Act could lawfully be applied to wheat subject to interstate trade. These sections required a wheat grower to sell wheat through the Australian Wheat Board.

The centrepiece of the argument in support of the status quo was that the State Act was part of a legislative arrangement which combined Australian and State legislation in substantially identical terms for the purpose of stabilising the wheat industry in Australia, and that, while the scheme involved the creation of a government monopoly, such action should, given the nature of the industry, be viewed as a practical and reasonable form of regulation. The inspiration for this argument is to be found in an obiter statement by the Privy Council in its judgment in the *Banking Case*, namely:

> ... their Lordships do not intend to lay it down that in no circumstances could the exclusion of competition so as to create a monopoly either in a State or Commonwealth agency or in some other body be justified. Every case must be judged on its own fact and in its own setting of time and circumstances, and it may be that in regard to some economic activities and at some state of social development it might be maintained that prohibition with a view to State monopoly was the only practical and reasonable manner of regulation and that interstate trade and intercourse thus prohibited and thus monopolised remained absolutely free. ((1949) 79 CLR 640–1)

The defendants' argument was supported in a joint judgment by Mason and Jacobs JJ and rejected by Barwick CJ and Stephen J, while Murphy J in a brief statement contended that, since the legislation did not impose, directly or indirectly, any customs duty or similar tax discriminatory against trade or commerce among the States, it did not contravene section 92. Thus the scheme was held to be valid by a majority of three to two.

In rejecting the validity of the legislation Barwick CJ stated:

> There can be no warrant, in my opinion, by reason of changing political or economic climate for pushing out the perimeters of laws regulatory in nature to the point where they effectively destroy the guaranteed freedom *[that is, of Section 92]*. ((1978) 52 ALJR at 681)

Stephen J likewise rejected the relevance of the quoted passage from the *Banking Case*. In addition he was plainly influenced by evidence in the form of a draft paper prepared by the Industries Assistance Commission on the Wheat Stabilisation Scheme. The report was highly critical of existing arrangements, and recommended a number of alternative schemes based on economic efficiency criteria.

What seems to have been of importance to Mason and Jacobs JJ was the complementary nature of the Commonwealth and State statutes.

> A State marketing scheme which prohibits sale and delivery of a product interstate faces immediate problems with S.92, and it is not easy to see how such a prohibition is regulatory of all trade and commerce (including interstate trade and commerce) in the product. An Australia-wide scheme providing for acquisition of the product by a single marketing authority constituted by the Commonwealth and existing in each

> State means that at one place or another the product will come within the operation of complementary statutes of the Commonwealth and the States. ((1978) 52 ALJR at 696)

Moreover, Mason and Jacobs JJ made no reference in their judgment to the Industry Assistance Commission's report and yet were able to conclude that:

> We are left in no doubt that a stabilisation scheme is needed and that the tests of practicality and reasonableness (which includes fairness to all without discrimination throughout Australia) are satisfied by the comprehensive compulsory scheme which has been adopted. ((1978) 52 ALJR at 696)

The Court's decision was the subject of challenge in the *Uebergang Case.* In a judgment handed down in October 1980, the Court determined that it required more facts before it could reach a final decision. Apparently what was intended was that by seeking out the facts of the matter the Court would be better placed to provide room for economic argument, and thereby facilitate an answer to the question of whether the existing arrangement for marketing by monopoly is the only 'factual and reasonable' means for regulating the industry. However, as events transpired the case was not pursued by Mr Uebergang and the issue lapsed.

But the difference of opinion expressed in the two cases prompted Mason J in *Miller v. TCN Channel Nine Pty. Ltd.* (1986) 161 CLR 556 & 571 to state that '... there is now no interpretation of Section 92 that commands the acceptance of the majority of the Court'. In the same case, however, Mason and Deane JJ expressed their preference for an interpretation of section 92 which was to prevail in *Cole v. Whitfield.* It is to that case that attention is now directed.

In short, the case of *Cole v. Whitfield*, the so-called *Crayfish Case*, involved the operator of a Tasmanian crayfish farm who was charged with having offended Tasmanian law by being in possession of crayfish which did not meet the minimum size requirements. The crayfish had been caught legally in South Australia and purchased by the Tasmanian farmer and brought to Tasmania. The case was initially dealt with in the Magistrate's Court which ruled in favour of the defendant who had sought to rely on the protection of section 92. Subsequently the case was taken to the Supreme Court of Tasmania and then to the High Court which on the basis of the interpretation of section 92 described below, ruled unanimously that the Tasmanian regulations did not contravene section 92.

As suggested by Coper (1988) the time was right for a fundamental reappraisal of section 92. Mr Justice Mason, who along with Deane J had express dissatisfaction with the existing lack of agreement of interpretation of section 92, had recently been appointed Chief Justice, and Toohey J and Gaudron J were new members.

The reappraisal included an examination of the background of events and *Convention Debates* which led to the formation of the Australian federation. Not surprisingly, this review led to the observation that the creation of a customs union or free trade area was a major objective of the federalist movement.

> Attention to the history which we have outlined may help to reduce the confusion that has surrounded the interpretation of s92. That history demonstrates that the principal goals of the movement towards the federation of the Australian colonies included the elimination of intercolonial border duties and discriminatory burdens and preferences in intercolonial trade and the achievement of intercolonial free trade. As we have seen apart from ss99 and 102, that goal was enshrined in the various draft clauses which preceded s92 and ultimately in the section itself.

And further:

> The expression 'free trade' commonly signified in the 19th century, as it does today, an absence of protectionism, that is, the protection of domestic industries against foreign competition. Such protection may be achieved by a variety of different measures — tariffs that increase the price of foreign goods, non-tariffs barriers such as quotas on imports, differential railway rates, subsidies on goods produced and discriminatory burdens on dealings with imports — which, alone or in combination, make importing and dealings with imports difficult or impossible. Sections 92, 99 and 102 were apt to eliminate these measures and thereby to ensure that the Australian States should be a free trade area in which legislative or executive discrimination against inter-State trade and commerce should be prohibited. Section 92 precluded the imposition of protectionist burdens: not only inter-State border customs duties but also burdens, whether fiscal or non-fiscal, which discriminated against inter-State trade and commerce. That was the historical object of Section 92 and the emphasis of the text of Section 92 ensured that it was appropriate to attain it. ((1988) 62 ALJR 310–11)

Reflecting the notion that the words 'absolutely free' are to be interpreted as a guarantee of freedom from any kind of regulation or burden, the Court proceeded to consider the problem of identifying the nature of the various burdens from which section 92 guarantees absolute freedom. Drawing on its historical review the Court concluded that section 92 should be reinterpreted as providing immunity from State or federal laws which are discriminatory in a protectionist sense. More fully:

> The history of s92 points to the elimination of protection as the object of s92 in its application to trade and commerce. The means by which that object is achieved is the prohibition of measures which burden inter-State trade and commerce and which also have the effect of conferring protection on intra-State trade and commerce of the same kind. The general hallmark of measures which contravene s92 in this way is their effect as discriminatory against inter-State trade and commerce in that protectionist sense. ((1988) ALJR 311)

Although the Court did not engage in a detailed analysis of the concept of discrimination it did, however, make the point that the concept encompasses not only the apparent intent of legislation but also the factual operation of the law.

Brief mention was also made of the relationship between section 51(*i*) and section 92. Two main points were made. First, that Commonwealth legislations made under section 51(i) would have to satisfy the new doctrine. Second, that the possibility of factual discrimination (in a protectionist sense) occurring under a section 51(i) law concerned only with interstate trade and commerce may not be important where the law in question involves complementary Commonwealth and State legislation. This is the same proposition that was addressed by Mason and Jacobs JJ in the *Clark King Case*.

From the economist's point of view there are difficulties with the latter concept. A fundamental issue is whether the Court in applying the discrimination test will give proper consideration to the economic issues involved. Given that the inspiration for the new doctrine is derived from an examination of the history of the *Convention Debates*, and thus the emphasis given to the free trade concept, it follows that, in addressing the issue of discrimination, emphasis needs to be given to its economic meaning. The fact that regulation may affect interstate and intrastate traders in a like manner is not a sufficient condition to warrant the conclusion that discrimination in a 'protectionist sense' does not occur. The economists' test is to ask what effect regulations, charges and so on have on the allocation of resources, and in the present context what those effects are so far as the achievement of economic integration is concerned. That the Court has not fully grasped the implications of the customs union concept is highlighted by the majority decision in *Bath v. Alston Holdings Pty. Ltd.* (1988) 62 ALJR 363. In this case the issue concerned the legality (in terms of section 92) of a Victorian law which required Victorian retailers of tobacco purchased from out-of-state wholesalers to pay a substantially higher licence fee than required of retailers who purchased tobacco from Victorian wholesalers. Under Victorian law the latter are required to pay a licence fee based on wholesale revenues, while the licence fee for retailers who purchase from Victorian wholesalers is a nominal amount. In essence the Court had to determine whether the fee imposed by the Commissioner of Business Franchise on Alston Holdings Pty Ltd (the purchaser of tobacco products from a Queensland wholesaler, who, under Queensland law was not subject to a wholesale tax) was discriminatory in a protectionist sense.

The Court, applying the new doctrine, ruled against the plaintiff in a four to three decision. No attempt is made to detail the argument advanced by the Court. Suffice it to say that if the discrimination test is considered in economic terms then what is important in this instance is whether the fee imposed on the Victorian retailer would alter the relative competitive position of local and imported tobacco. The short answer is that this is not likely to have occurred. Given that the Victorian wholesale tax is passed on to retailers, the same tax imposed on retailers of imported tobacco, which is not subject to a similar tax in its State of origin, would not affect comparative advantage. This line of reasoning is essentially the position adopted in the minority decision.

CONCLUDING REMARKS

This chapter has focused attention on the High Court's interpretation of section 92 of the Australian Constitution, mainly in the context of the *Transport Cases* which began in early 1930s through to post *Hughes and Vale* interstate land transport litigation. It is clear from this review that the Court's interpretations of section 92 have had important policy implications for government regulation of interstate road transport and road user charges, and thus, resource allocation within the interstate land transport sector. It is also evident that the Court has generally been unaware of the implications of its decisions for resource use, and that interpretation depends, in part, on who is on the High Court.

The most recent fundamental change in interpretation of section 92 occurred in *Cole v. Whitfield*. In that decision the Court accepted the argument that section 92 was inserted in the Constitution to facilitate the development of a common market within the Australian federation. Further, the Court has interpreted this to mean that regulation of interstate transport is acceptable so long as it does not discriminate against interstate trade in a protectionist sense. The interpretation of the words 'discriminate' and 'protectionist' is of fundamental importance. While these words have a particular meaning in economic theory, and relevance to the economic concept of a common market, it seems that the Court at present is still not fully appreciative of the economic theory which underpins the common market concept. Thus, while the reasoning in *Cole v. Whitfield* allows, in principle, for the adoption of policy initiatives to greatly improve resource use within the road transport sector and between transport modes, it is also possible, depending on the Court's interpretation of the meaning of 'discrimination', for policies which are contrary to the common market concept to receive the Court's blessing. This, and related issues are examined in more detail in the next chapter.

CHAPTER 8 OVERVIEW AND CONCLUSIONS

The previous chapters have dealt with a variety of issues ranging from matters concerning the theory of efficient road price and expenditure policy to the complex of political, legal and institutional factors which have shaped Commonwealth government and State government roads policy from about 1926 through to the late 1980s.

Since a large amount of ground has been covered it is considered desirable to complete this study by bringing together the main issues and themes raised earlier and to highlight the main conclusions.

FEDERALISM AND ROADS POLICY: OBJECTIVES AND CONSTRAINTS

In chapter 3 attention was drawn to a number of provisions of the Australian Constitution which suggest that a major economic reason for the establishment of the Australian federation was the creation of an integrated national economy. This is highlighted especially by section 92 and reinforced by other provisions, such as section 51 subsections (i), (ii) and (iii) and sections 99, 102 and 104, which were inserted in order to prevent various forms of discrimination and preference by Commonwealth and State governments.

The importance of an economically efficient transport system for the creation of a common market requires little elaboration. The removal of restraints to trade such as tariffs on goods — an issue of major concern to the founding fathers — destined from one State to another is a necessary, but not sufficient condition, for the creation of a common market. There are many other ways by which trade can be impeded. These include the adoption of policies which lead to inefficiencies in the provision, pricing and regulation of use of transport infrastructure and services. Since the economic rationale for the creation of a common market, and thus an integrated national economy, is the promotion of efficiency in resource allocation, this implies that economic efficiency should be of paramount importance as an objective of national transport policy.

In the Australian federal system the Commonwealth government has the fiscal capacity and constitutional power to exercise considerable influence in the roads sector. In particular, the Commonwealth's potential for influence is evident in its ability to contribute to the funding of road programs and the setting of program

priorities made possible by section 96 of the Constitution, and because of its trade and commerce powers, most notably, section 51(i). As explained earlier this latter power enables the Commonwealth to legislate in relation to transport that is integral to trade and commerce among the States and other nations. Thus it is within the power of the Commonwealth government to pass laws for the purpose of regulating aspects of interstate road transport (for example, safety and vehicle dimension characteristics), provided of course, that such regulation does not offend section 92.

While the framers of the Constitution attached great importance to the common market concept it was also recognised that an essential feature of a federal system is that each State has powers to make laws and implement policies and practices which promote the welfare of the members of that State. But it was not intended that the pursuit of State interests should be such as to inhibit the achievement of national economic objectives. The dilemma, in political and constitutional terms, is to get the balance of responsibilities, policies and practices, consistent with the attainment of national, State and local objectives. Although various arguments have been advanced for changes to the Constitution to strengthen the Commonwealth government's powers to pursue national economic objectives, most recently, in the *Report* of the Advisory Committee on Trade and National Economic Development to the Constitutional Commission (1987), it is clear, so far as roads policy is concerned, that the Commonwealth government has sufficient power to promote economic efficiency at the national level. However, Commonwealth government roads policy for almost fifty years failed to establish a clearly defined program of road expenditure priorities consistent with the national economic interest. While national governments in other federal systems, such as Canada and the USA, in 1944 and 1956, respectively, had taken steps to develop a national highways program, similar action was not taken by the Commonwealth government, after the failure of an initial attempt in 1926, until the early 1970s.

For much of the period from about 1930 through to the late 'sixties, the Commonwealth government left the major decisions regarding road expenditure priorities to the discretion of the States. But this was by no means complete. Commonwealth intervention in priority setting re-emerged during the 'forties. Responding to strong pressure from local government authorities and the Country Party, the Commonwealth earmarked part of its road grant for local government roads. By 1954 this earmarked category represented 40 per cent of total Commonwealth funding.

Further, the allocation of Commonwealth road grants among the States appears to have been dominated by 'equity' considerations which, in political terms, reflected the importance of the equal representation which each of the States have in the Senate. Thus the States with the largest areas, but smaller populations, namely Western Australia, South Australia and Queensland, were especially favoured by allocation formulae which gave considerable weight to the area factor. For Tasmania, which is small in both area and population, equity

was deemed to be achieved by providing that State with 5 per cent of the Commonwealth grant.

An important question is the following: why did it take the Commonwealth so long to use its constitutional powers to establish an interstate roads program to facilitate the development of an integrated national economy? To some commentators (Mathews & Jay 1972) the Commonwealth government's failure to take such action was 'especially puzzling'. Indeed, as they correctly argued, the development of such a system is clearly the responsibility of the Commonwealth government. To provide a plausible explanation to the 'puzzle' it is necessary to consider the interests of the States and the politics of federalism.

As argued, an important feature of the Australian federal system is that State governments pursue policy objectives determined principally by State interests and parochial concerns. This has been clearly demonstrated by Stevenson (1987) in the context of the operation of State railway systems in Australia, and for roads, by this and other studies (for example, Docwra 1982, BTE 1984). The dominance of State interests and the institutional constraints which make it difficult for the State road authorities to significantly alter the regional pattern of State road fund allocations provides a strong argument for an 'interventionist' Commonwealth government in order to ensure that economic efficiency is an important objective and consequence of Commonwealth roads policy. In political terms it is usually much more difficult for the States to place national objectives at the top of the policy agenda, especially if these are seen to conflict with State interests.

An obvious point to make in the context of the politics of federalism is that conflict between Commonwealth and State governments will arise when either level of government fears that its objectives are at risk as a consequence of actions taken by the other. So far as road funding is concerned the States are unlikely to oppose Commonwealth control of the use of Commonwealth funds provided that such controls do not inhibit the achievement of State road investment and maintenance priorities. Thus the earmarking of road grants by the Commonwealth for particular categories of roads, and the use of general matching grant arrangements, are unlikely to generate political conflict provided that the States have control over the use of their own funds and sufficient flexibility and discretion in the use of road grants. However, there is no guarantee that such a harmonious outcome would necessarily lead to a highly efficient use of resources within the roads sector.

The Commonwealth government's reluctance to develop an interstate highways program during the period under consideration is difficult to explain except in terms of philosophical considerations concerning the respective roles of the States and the Commonwealth government, and in terms of a desire by the latter to minimise conflict with the States. It is likely that both factors have played an important role. And indeed if one examines the history of the use, or lack of use, of Commonwealth powers in other areas of the long distance transport sector (that is, sea, air and rail transport) over the same period, the conclusion to be drawn is that the Commonwealth was reluctant to use its powers to pursue a

national policy where conflict with the States was likely to arise (Docwra & Kolsen 1989). Of the four sectors, the potential for conflict was at its greatest in the areas of road and rail transport. From the perspective of the States the development of a national highways system, especially after the *Hughes and Vale* case of 1955, would have contributed further to the weakening of rail transport's competitive advantage over long distance routes. The States wanted to develop their road systems but they also wished to protect their rail enterprises. Thus it was in the interests of the States to discourage Commonwealth control over the use of Commonwealth road grants and to rationalise this in terms of 'States' rights' arguments.

The failure of the Commonwealth to promote the national interest in the road sector, in this same period, is also highlighted by its apparent lack of concern for the consequences of State regulation of the interstate road transport industry during the years up to *Hughes and Vale*. Although such regulation was clearly at odds with the concept of a common market, it was abandoned, not because of a policy decision, or initiative taken by the Commonwealth government, but in response to a private company's challenge to the constitutional validity of the regulation in 1954. Moreover, the Commonwealth did not see fit to use its powers under section 51(i) to promote a national perspective with regard to regulation of vehicle weight and dimension characteristics of vehicles engaged in interstate transport operations. This inertia resulted in different regulations in each of the States and the Territories and as such was inimical to the achievement of an efficient use of resources in the interstate land transport sector. In addition to these considerations there is also the matter of the division of road funds between the rural and urban sectors. As we have seen the Commonwealth government's road grants made no explicit provision for urban roads. The intention was to develop the rural road network, leaving the responsibility for decisions regarding urban road construction entirely to the States. The Commonwealth government's decision to ignore the urban roads sector can be explained largely, if not entirely, by the influence of the then Country Party in the long period of rule by Coalition governments.

Since the late 1960s a number of changes have occurred in the Commonwealth's approach to road funding arrangements. As a result of the establishment of the Commonwealth Bureau of Roads in the early 'sixties the Commonwealth was able to consider the road funding issue and objectives of Commonwealth policy in the context of advice based on economic principles. The Bureau's economic approach, constrained by existing methods of road funding, and institutional factors at the State level, led to policy advice which required alterations in the established pattern of Commonwealth allocation among the States, and to the categorisation of road grants by road types. While political considerations played an important part in the adjustments which the Commonwealth made to the recommended allocations by States and road categories, the new approach was judged by most commentators as a move towards greater economic efficiency. Significantly, a large part of the Commonwealth grant was apportioned to the development of urban arterial roads. Although the adjustments made to the Bureau's recommendations were in response to the Country Party's concern to

protect the interests of rural dwellers, it would seem that the Commonwealth's intention to improve road capacity in the major cities was not in conflict with State objectives. During this period urban transport issues had reached a high spot on the policy agenda. By the end of the 1960s most of the States had completed studies of their urban public transport and road systems and were committed to upgrading both.

The acceptance by the States of the increase in Commonwealth intervention under the leadership of Prime Minister Gorton was not to continue during the period of the Whitlam Labor government. The efforts by the latter to make greater use of matching grants and monitoring procedures were strongly resisted by the States and the federal Opposition. Given that the extension of Commonwealth controls was also accompanied by a significant reduction in the real value of Commonwealth road funding, the resistance of the States to the Commonwealth's increased intervention is hardly surprising.

Our review in chapter 4 also shows that after the Whitlam government's demise successive Coalition and Labor led governments under the leadership, respectively, of Prime Ministers Fraser and Hawke eased the extent of direct Commonwealth intervention in the determination of road priorities by eliminating matching grant requirements, reducing the number of road grant categories, and by focusing the Commonwealth government's regulation of technical matters on the national highways category.

From what has been said so far it is clear that roads policy in Australia is essentially a story about supply-side issues and their resolution in the context of the politics of Australian federalism, and institutional and constitutional considerations. Within this framework the application of economic principles by Commonwealth and State governments to supply-side issues has had a fairly brief and somewhat chequered history. The attempt by the Commonwealth Bureau of Roads during the 1960s and early 1970s to use economic criteria to determine an 'optimal' level of road expenditure, by level of government and road categories, was important notwithstanding the technical difficulties and criticisms associated with such modelling exercises. As explained, the Bureau's advice was accepted by the Commonwealth in some respects and modified in others by reference to political and budgetary considerations. Thus, while Commonwealth roads policy during the period of the life of the Commonwealth Bureau of Roads resulted in some efficiency gains in some areas of road expenditure, it is difficult to determine the net outcome.

Since the demise of the Commonwealth Bureau of Roads, responsibility for providing economic advice on Commonwealth road expenditure issues has resided with the now Bureau of Transport and Communications Economics (BTCE). Unlike the Commonwealth Bureau of Roads, the BTCE has refrained from attempts to estimate optimal levels of road expenditure by all road types and by level of government. This, one assumes, is in large part a consequence of the technical difficulties in developing robust macro-economic road evaluation models. It also reflects political realities. Further, the BTCE's approach of

focusing on a narrow range of road categories is consistent with the view that the Commonwealth government's major responsibility with respect to road funding is to identify roads of national significance. However, the problem of determining an efficient level of road expenditure for all road categories for each State still remains. Under present arrangements road expenditure levels by both State and Commonwealth governments are determined by a complex of factors. Although these include economic efficiency criteria, these criteria fail to dominate the decision making process.

SOME ROAD COST RECOVERY ISSUES

The discussion in chapter 2 focused attention on the connection between efficient charges for road use and optimal road maintenance and investment policies. At present road user charges in Australia have little relationship to road damage and congestion costs. However, steps have recently been taken by the Commonwealth and the States to introduce a nationwide charging scheme for the various categories of heavy vehicles, based on road damage costs. These initiatives are a response to studies of road cost recovery arrangements undertaken by the Inter-State Commission during the period 1986 to 1989. Since the demise of the Commission (see below) in 1989, a great deal of the responsibility for technical and policy advice on national road cost recovery issues now resides with the National Road Transport Commission, created by the Commonwealth government in 1991.

While there has been much debate about methodologies for determining appropriate contributions to costs of road supply by various classes of vehicles, the remarks made here concern the objectives of road cost recovery policy, the importance of having a clear distinction between road user charges and road user taxes, the role of Commonwealth and State fuels taxes, and the link between efficient road cost recovery and investment and maintenance decisions.

An important point to emerge from the discussion in chapter 2 is that efficient cost recovery has a special meaning in economics: it is a feature of equilibrium conditions for both single product and multi-product firms in highly competitive markets. In principle the results of the competitive model can be applied to the monopoly case such as the road supply industry. Prices need to be systematically related to resource costs and to reflect congestion costs. Further, if the first best charges do not lead to cost recovery because of economies of scale, then an option for government is to impose a revenue constraint to mirror the competitive outcome. Thus price would be set in such a way as to maximise economic benefits from existing facilities and adjustments to capacity, subject to the constraint that cost recovery is achieved. This is often described as a form of second best pricing.

It is important to take the above comments about road cost recovery and economic efficiency a little further. One issue which requires additional comment is the matter of the connection between efficient cost recovery and the level and mix of road expenditure and maintenance decisions. As shown, economic theory

establishes a strong link between efficient road cost recovery and road expenditure decisions. Not only is it important to get the level and structure of charges 'right', but also of great importance is the need to ensure that investment and maintenance decisions maximise user benefits. Efficient cost recovery doesn't help a great deal if the allocation of revenues to road projects fails to meet the efficiency test. In short, cost recovery per se is not necessarily a reflection of efficiency in resource use.

The present approach to determining the costs of road supply to be recovered from users is to adopt the pay-as-you-go approach (PAYGO). This requires that all expenditure incurred in a given period by the Commonwealth and State governments on major arterial roads and national highways is recovered from users in that period. There are obvious difficulties with this approach but it does have practical advantages. One problem is that it assumes that expenditure incurred is optimal in economic efficiency terms. This, as we have seen, is highly unlikely. A part of the difficulty is that expenditure on the road system may have little relationship to levels of costs imposed on the road system. There is also the problem that expenditure incurred in the period in question (usually one year) is attributed to current users. But the attraction of the PAYGO approach is that it is easy to implement and data requirements are less demanding than other approaches.

It should also be noted that the determination of levels of cost recovery by various vehicle categories requires determination of relevant revenues. As explained earlier there are a variety of imposts levied by Commonwealth and State governments on road users. Some of these, such as registration fees and a component of the Commonwealth fuels tax, are viewed by government as road user charges while others, such as imposts on vehicle components and the non-hypothecated part of Commonwealth and State fuels charges, are viewed as taxes. This distinction requires some comment.

First, from a resource allocation viewpoint it is the total amount of the impost (charge plus tax), not the amount hypothecated for expenditure on roads, which affects transport choices, such as choice of vehicle type, choice of mode, and, for industry and households, choice of location. Accordingly, if road users are to be taxed, then, subject to qualifications regarding externalities, similar tax treatment should apply to other modes of transport, especially rail. In other words, economic efficiency requires that the price–marginal cost ratios should be similar for alternative modes of transport.

Second, hypothecation provides no guarantee that total road expenditure and its distribution by location and road type will be based on economic efficiency criteria. So far as recent Commonwealth government hypothecation of the fuels tax is concerned it merely formalises previous arrangements. Thus, in the context of present charging arrangements, Commonwealth funding for roads might be significantly different from optimal. Further, should the proportions of the tax and charge components of the present fuels impost be varied the resulting change would mean higher or lower cost recovery ratios for users depending on whether

the tax component is reduced or increased. The point to emphasise is that such changes (usually made without reference to resource allocation consequences) have implications for cost recovery policy, and the taxation of other transport modes.

In addition there is the fundamental question of the role to be played by charges on diesel and petrol in a more efficient charging regime. At the theoretical level there are strong arguments for removing charges on fuel used by commercial vehicles. Apart from the fact that road damage costs by vehicle types are not directly related to fuel consumed, a principal economic objection to the fuel charge is that it is a charge on an input and as such can distort resource use (see, for example, Industries Assistance Commission 1986, appendix K).

COST RECOVERY: SOME POLICY IMPLICATIONS

There are a number of conditions which need to be satisfied to enable cost recovery policy to achieve a reasonably efficient and equitable result. Some of the most important of these conditions are now considered.

Given that the Commonwealth, the States, and Territories do impose taxes and charges on road users, it is evident that a necessary condition for reform of road user charging arrangements is that there be agreement by governments regarding the principles to be applied in determining charges for the various vehicle types. This requirement was argued by the Inter-State Commission in its various reports on cost recovery arrangements, but for a number of reasons, including the differences in interests of the States and the Commonwealth, and the impact of changes to charging arrangements on various road user groups, the move towards reform is likely to be a fairly slow process.

Adoption of a uniform approach to charging is not a sufficient condition for reform since the latter requires that the accepted principles for charging reflect, so far as is practicable, the costs caused by different vehicle types. As argued earlier, the theoretical ideal requires that charges accurately reflect the road damage costs caused by vehicles as well as congestion costs. At present, proposals for reform of the charging system have focused on the road damage aspects of user charges to the neglect of congestion charges. While there are undoubtedly sound political and institutional arguments for this approach, as well as practical considerations, it is nevertheless important that congestion charges be seen as an integral part of the reform process.

A further important requirement is that attention needs to be given to establishing a strong link between improved methods of charging and maintenance and investment decisions. As noted, improving the method of charging may not be of great significance if efficiency in resource use is not a major objective of road expenditure policy. Ideally, the reform process should take place on both the demand and the supply side.

Road authorities will need to give more attention to maximising user benefits from road expenditure. With improved methods of charging and use of measuring devices to record use of sections of the road network by vehicle type and by weight characteristics, it is possible to obtain an estimate of the lower limit of benefits to users. One approach would be to compare this revenue equivalent of benefits with actual expenditure (Kolsen & Docwra 1987). Adjustments to the capacity and quality characteristics of a road should then proceed on the basis of revenue–expenditure relationships. Thus improvements to a road section (subject to qualifications regarding externalities) would be made whenever revenue generated was substantially greater than current expenditure. In theory the aim would be to establish similar revenue–expenditure relationships for the various parts of the network. If, for a road authority, these similar relationships were greater than unity this would suggest that a greater level of expenditure on the road network is justified on efficiency grounds. In essence, this approach requires road authorities to act more like private firms in maximising road user benefits.

It is highly unlikely that fine tuning would be possible. Some cross-subsidisation between sections of the road network (as is presently the case) may be unavoidable, partly on equity grounds and partly because information available is not sufficiently good to prevent some averaging occurring in practice. However, it is important that the 'ideal' not be made the enemy of the 'good'; the relevant question is whether alternative proposals for charging and allocating road funds lead to a more efficient use of resources than current practice.

It is not the author's intention to review the various proposals for cost recovery as detailed in the Inter-State Commission reports and in studies by the National Road Transport Commission. Suffice it to say that significant improvements will require the use of at least simple distance measuring devices fixed to specific vehicles, where the costs of so doing can be justified. Further, on first best theoretical grounds, charges for road use should not be levied on inputs such as fuel. However, for practical reasons this statement needs to be qualified: removal of the fuel tax only makes economic sense if more efficient and equitable means are available for charging road users. Thus, if it were possible to have universal application of distance metering devices for heavy vehicles this would weaken arguments in support of the fuels tax as a cost recovery mechanism. However, since private motor vehicles cause little damage to the road system but cause a great deal of the costs of congestion and pollution, taxes on fuel may still have an important part to play in a charging scheme in the absence of proper congestion charges. The arguments in favour of the fuel tax as a road user charge tend to disappear if congestion charging is also adopted.

But radical improvements in methods of charging are not likely to occur in the short term. At present the use of simple distance measuring devices would seem to be mainly of use for larger vehicles, and the possibilities for the implementation of congestion charging, while encouraging at the technical and economic level, are highly constrained by perceptions of what is politically and socially acceptable. To achieve such acceptability it will be necessary for both Commonwealth and

State governments to convince road users of the benefits to be derived from adoption of more efficient charging methods. An important part of this process will be to establish mechanisms for facilitating more efficient use of revenues generated from user charges so that greater attention is given to maximising user benefits.

Adoption of charging methods which have a reasonable connection to the theoretical ideal will also have implications for Commonwealth and State taxing arrangements. Total Commonwealth revenue from fuels taxation on road users in 1989–90 was $5082 million (BTCE 1992, p. 24). Total road expenditure from Commonwealth revenue sources in that year was $1366.6 million. That is, about 27 per cent of the revenue was spent on road construction and maintenance. In other words, about 73 per cent was treated as 'pure' taxation. At the State level, for the same year, government revenue from all imposts on road transport was $2755.4 million, from which the States spent $2233 million or 81 per cent. Thus 19 per cent was treated as a 'pure' tax.

The willingness of government, especially the Commonwealth, to remove or substantially remove the fuels impost will depend on attitudes and responses to alternative ways of raising the shortfall in fuels tax revenues, and Commonwealth policy regarding public sector expenditure. This is a complex issue and highlights another dimension of the limits to the rate at which economically efficient and equitable charging mechanisms can be introduced.

ROADS POLICY, REGULATION AND THE HIGH COURT

Our analysis of roads policy in Australia has highlighted the constitutional framework which sets the theoretical bounds to what governments may or may not do. As shown, what happens in practice often falls short of the theoretical possibilities. This has sometimes occurred when pursuit of the national interest would have placed the Commonwealth in conflict with the States. In addition, interpretation of relevant sections of the Constitution may change over time and thus shift the bounds of what can be achieved in theory and in practice. An example of this is the changes which have occurred in the High Court's interpretation of section 92 of the Constitution.

As explained, the legal interpretation of section 92 is of fundamental importance to the development of a national transport policy consistent with the creation of common market. From the early 1930s until the early 1950s the Court's interpretation of section 92 allowed the States to regulate interstate road transport so as to effectively protect the financial interests of the State railways. The Court's view was that the transport regulations imposed by the States did not offend section 92 since there was no evidence that interstate trade in 'aggregate' was adversely affected. The change in interpretation which came with the *Hughes and Vale* road transport cases in 1954 and 1955 completely reversed the conclusions reached in similar earlier cases. The effects of this interpretation were dramatic. The immediate effect was to greatly increase competition between road and rail on interstate transport routes (see, for example, Joy 1964).

In the longer term the States lost control over intrastate road haulage through border hopping and other practices. Eventually a new equilibrium was established between road and rail transport.

While the resource allocation effects of the *Hughes and Vale* interpretation are likely to be judged by most economists as an improvement in allocative efficiency, economic criteria were not part of the reasoning process which led to the change in interpretation. This is highlighted by the Court's reasoning with regard to the nature of charges which the States might impose on interstate transport operators without offending section 92. It was argued that the States could impose a charge to meet road maintenance costs caused by a vehicle engaged in interstate trade, but no contribution could be collected to recover capital costs. Apparently roads were viewed by the Court as warranting different treatment to other government-provided infrastructure such as aerodromes and ports which are also used as part of an interstate journey. Some insight into the Court's argument is provided by the following Statement by Kitto J:

> ... persons travel as a right on a public highway; ... and s92 prevents a State from excluding at will Inter-State users from using the road which for the time being are public highways .... that a doctrine has arisen that with respect to such roads which has to do with recompense or compensation and not with reward. ((1961) 106 CLR 416)

It would seem that the Court was influenced more by community perceptions of individual rights to use the road system and how roads should be financed, than by prevailing economic wisdom. The Court's acceptance of the pricing practices of the other mentioned State owned enterprises whose facilities are often used for purposes of interstate trade resulted in only partial acceptance of the similarity of the provision of roads to such enterprises. Be that as it may, the Court's view on charging for use of the roads resulted in significant anomalies in charges for use of the roads by vehicles engaged solely in interstate trade and those engaged in either intrastate trade or both. As we have seen, vehicles engaged solely in interstate trade were exempt from payment of State registration charges.

This situation continued for more than thirty years. By the early 1980s the issue of road cost recovery had attracted Commonwealth interest, and the Hawke government decided to address the anomaly by introducing a Commonwealth registration charge. This was achieved in 1985 with the enactment of the Federal Interstate Registration Scheme. The schedule of charges that was initially adopted by the government was based on the recommendations contained in the Inter-State Commission's 1986 report on road cost recovery arrangements. In that report, and indeed in subsequent similar studies by the Commission, the recommendations as to the structure and level of charges were constrained by the *Hughes and Vale* doctrine, notwithstanding that the Commission was aware of legal and other opinion that a different view might be taken by the High Court after thirty years, especially in light of the wealth of technical information then available on matters concerning the relationship between vehicle characteristics and road costs, and the technical possibilities for implementing more efficient user charges.

The constitutional constraints to regulation and reform of the demand side of roads policy have, as explained in chapter 7, undergone yet another change as a result of the decision in *Cole v. Whitfield* in 1988. While in theory the new interpretation has the potential to make the way clear for regulatory reform in a variety of areas, including the implementation of a road cost recovery scheme for interstate vehicles which allows for the recovery of capital expenditures and road maintenance costs (including non-separable components) in an economically efficient manner, and thereby to facilitate the achievement of the common market concept, such an outcome is by no means assured. Again one needs to hark back to a point made earlier, namely, that economic reasoning has little to do with the High Court's interpretation of constitutional matters — such as section 92 — which are of fundamental importance to the economic well-being of the nation. In terms of economic efficiency criteria the regulation of interstate road transport prior to *Hughes and Vale* scores very badly, while on balance, the *Hughes and Vale* interpretation scores very well, but not because of any economic insight on the part of members of the Court. The latest interpretation could, as indicated, open the door to significant reform of a variety of matters concerning impediments to interstate transport in general, and road cost recovery in particular. However, as argued in chapter 7, a lot depends on how the Court interprets the words 'discrimination' and 'discrimination in a protectionist sense'. There is no evidence that the Court is aware of the economic meaning of these terms or, by implication, aware of the price and cost information required to determine the presence or absence of discrimination in the economic sense. Thus it is conceivable that each State could have its own system of road user charges, but treat interstate and intrastate State vehicles equally, and not offend the Court's view of the meaning of 'discrimination in a protectionist sense'. Likewise the States, with or without the cooperation of the Commonwealth, could implement a uniform set of regulations or charges on intrastate and interstate vehicles, which would not satisfy the economist's test of discrimination and yet would prove acceptable to the Court. Alternatively, the Commonwealth and the States could implement a charging scheme based on economic criteria and have it rejected by the Court because it contravenes a legalistic concept of 'discrimination' and 'protectionism'.

The above comments are not intended to denigrate the High Court's expertise in its own area. Nor is it intended to present an unduly pessimistic view of the possibilities for regulatory reform. The difficulty is that legal methodology is not often well suited to dealing with economic complexities associated with interstate trade and commerce. As explained in chapter 3 the founders of the Constitution were not unaware of these difficulties and provided for the establishment of the Inter-State Commission to, *inter alia*, assist the High Court in dealing with such matters. The case for having an Inter-State Commission has been argued by a number of commentators (for example, Docwra & Kolsen 1984, and most recently by Coper 1989). In brief, the main arguments are that an Inter-State Commission, because of its constitutional status, would be able to guarantee independence of advice and to assist the High Court in establishing testable criteria for identifying discrimination or preference or actions which are 'unjust' or 'unreasonable' in matters concerning interstate trade and commerce.

However, as events have shown 'the second coming' of the Inter-State Commission — the fourth arm of government (Coper 1989) — was short-lived. For reasons not clearly articulated the Hawke Labor government returned the Inter-State Commission to the institutional graveyard in 1989 when the then Treasurer announced that a restructured Industries Assistance Commission, renamed the Industry Commission, would become the government's principal review and inquiry body in industry matters (ISC 1990, p. 4).

Anticipating its impending demise the Inter-State Commission recommended in its last report that another independent body be established to continue investigations of road user charges and to make recommendations to government on such matters and to coordinate road funding. As mentioned, the Commonwealth after a series of discussions with State government officials and Premiers, established the National Road Transport Commission (NRTC) by an Act of Parliament in 1991. It is not our intention to provide a detailed review of the tasks of the NRTC. In brief, the creation of the NRTC is the outcome of the demise of the Inter-State Commission and an attempt by the Commonwealth and the States to achieve intergovernmental cooperation on matters concerning road user charges and the establishment of a uniform framework of regulation for road transport in Australia. The Intergovernmental Agreement of 30 July 1991 which led to the establishment of the NRTC also provided for the establishment of a Ministerial Council whose principal function is to determine whether or not to disapprove the recommendations of the NRTC.

While the Inter-State Commission and the NRTC are not perfect substitutes the establishment of a body such as the NRTC was clearly necessary, in the absence of the Inter-State Commission, to facilitate reform of road transport regulation and road user charges. However, to return to the main theme of this section, the existing institutional framework will still be seen by some commentators as being less than ideal as a result of the absence of a body such as the Inter-State Commission whose expertise could have been utilised by allowing it, on its own initiative, to seek leave to intervene in relevant cases before the High Court and present factual information of the kind necessary for resolution of complex economic issues concerning regulation of trade and commerce between the States. As argued elsewhere (Docwra & Kolsen 1984) the long period of the non-existence of the Inter-State Commission contributed to the ad hoc nature of regulation resulting from the independent actions of the States and the Commonwealth and to the High Court's failure to appreciate the impact of its interpretation of section 92 on national economic welfare. While the NRTC has the potential to facilitate regulatory reform it cannot fill the constitutional void left by the Inter-State Commission's absence. How the new interpretation of section 92 constrains user charges policy and other changes to the regulation of interstate transport remains to be seen; as suggested there is no guarantee that the High Court's interpretations of key economic concepts will be consistent with the requirements for efficiency in resource use in the interstate land transport sector.

CONCLUDING REMARKS

Examination of roads policy in Australia provides a number of insights into the political economy of Australian federalism and the role of the High Court in setting the limits to the regulation of interstate transport. Important policy issues include the role of the Commonwealth government in providing funds for road expenditure by the States, and the extent to which the Commonwealth should attempt to influence road expenditure priorities. An important theme developed in this study is that the Commonwealth government has a major part to play in the development and implementation of transport policies, in this context, in the determination of road expenditure priorities and road cost recovery arrangements which are consistent with the promotion of the national economic interest. Our study has shown that this has not been the principal objective or effect of Commonwealth roads policy over the long period of Commonwealth involvement. For many years Commonwealth expenditure priorities were dominated by political considerations and the interests of the States. A strong interest by the Commonwealth government in developing a national roads policy is very much a recent phenomenon.

The need for the Commonwealth to use its constitutional powers to promote the national economic interest so far as road policy is concerned is highlighted, in part, by the analysis in chapter 6 of road expenditure policy in Queensland, in part by the work of such bodies as the former Commonwealth Bureau of Roads and the BTCE and, in part, by knowledge of the price and output decisions taken by other State owned enterprises. The study of Queensland road expenditure decisions over the period 1949–50 to the early 1980s demonstrates, *inter alia*, that economic efficiency criteria are not the sole or dominant criteria for determining road expenditure priorities. Like other State enterprises, road authorities have multiple goals which effectively result in cross-subsidisation from users of roads in densely settled areas to users of roads in sparsely populated regions. Further, it has been shown that it is not easy to make dramatic changes to regional shares of the road budget. Institutional and political pressures provide for a considerable degree of inertia in the fund allocation process.

A major point to be made is that history demonstrates that the States cannot always be expected to place the national interest ahead of State interests where these are seen to be in conflict. It is fair to say that the States have preferred Commonwealth road grants to be untied rather than tied to particular road categories, and that State opposition to Commonwealth roads policy is likely to be most obvious and public when the level of Commonwealth funding, combined with Commonwealth conditions on the use of funds, significantly reduces the discretion of the States to determine expenditure priorities. It was also indicated that the Commonwealth government's ability to affect the pattern of regional shares of road expenditure within a State would depend on the extent to which the categorisation of Commonwealth road grants is 'regional specific' as in the case of a rural–urban split, or is directed to the upgrading of a particular set of roads such as those designated as national highways.

By focusing attention on the political economy aspects of roads policy an attempt has been made to provide some explanation for the wide gap that exists between the theory of efficient road price and investment policy and the practice of roads policy in the Australian context. Unless there is some understanding of the complex of political, institutional and constitutional factors, including the role of the High Court as interpreter of the Constitution, and the existence of institutional failure, as determinants of past and present policies, there is unlikely to be much progress made in narrowing the gap, and thus providing for a more efficient and 'equitable' road expenditure and cost recovery program.

This study has touched on some of these complexities, and suggests a need for a great deal more research in such areas as intergovernmental cooperation and interstate land transport policy, the economics of the Constitution, and State road expenditure policy.

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Abbreviations

AGPS	Australian Government Publishing Service
ATRF	Australian Transport Research Forum
BTCE	Bureau of Transport and Communications Economics
BTE	Bureau of Transport Economics
CBR	Commonwealth Bureau of Roads
ISC	Inter-State Commission
NAASRA	National Association of Australian State Road Authorities

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