Towards a National Regional Benchmarking System

A report for the
Australian Local Government Association
and the
Department of Transport and Regional Services

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PREFACE

The original intention of this study was to produce a National Regional Benchmarking System. Such a system would permit comparison of the performance of regional economies, including the economies of local government areas. As the study progressed, it became apparent that this aim was too ambitious, for two reasons. First, local area statistics are in a state of flux. Several long-established data sources have been discontinued, largely on grounds of cost. On the other hand, new data sources are appearing. The new data sources do not cover the same ground as the discontinued sources: some of the ground is new, some of the old ground is lost, and until time series are developed the significance of the new series will not be fully understood. Second, the study found that the circumstances and priorities of Australian local governments vary widely, with accompanying variation in the priority given to different indicators. Not only this, but the Commonwealth, the various State and indicator users in the private, academic and not-for-profit sectors vary considerably in their interests and priorities. Accordingly, candidate indicators were assessed according to a standard template. Indicators of high general interest were identified, but it was not possible to settle on a definitive single list.

Executive summary

A National Regional Benchmarking System would comprise a set of socio-economic indicators available with reasonable accuracy at the regional level, and permitting inter-regional comparison. The primary purpose of the proposed system of indicators is the provision of information on regional economic performance. Other important uses include:

- identification of regions with similar structures and problems, to assist in mutual learning and strategy development;
- identification of regions which might be eligible for development assistance, including indicators which can be used to target such regions;
- specification of regional development strategies, including bringing a balanced range of indicators to the notice of those who are developing strategies, so guarding against lopsided strategy development;
- as an extension of strategy specification, target-setting and benchmarking; and
- interpretation of economic performance, including identification of factors which help to explain performance.

A system of regional economic indicators is far from a new idea. In Australia, statisticians have been compiling sets of economic indicators on a regional basis for over a century. However, their indicator sets are always in need of review, and no more so than at the present, due to the following:

- the abandonment of the former 'national development' economic model in favour of a much more market-oriented approach;
- rapid changes in technology and in skill requirements;
- continuing concern that economic indicators should take social costs and benefits into account; and
- rapidly increasing concern that conventional indicators fail to allow for environmental costs.

In response to these changes, economic development strategies at the regional level are moving away from the traditional emphasis on physical infrastructure towards the development and full utilisation of human and social capital.

There are many international precedents for the required review of regional economic indicators, but the major precedent for the present study is Australian: the recent ABS publication *Measuring Australia's Progress.* This study applies at the national level. A few of the indicators it puts forward are not relevant at the regional level, while many are not available at the regional level due to limited data collections. *Measuring Australia's Progress* is also different in scope: it aims to record whether, in retrospect, progress has occurred, whereas a National Regional Benchmarking system aims to provide data useful for developing future strategies as well as indicators of recent past economic growth and social welfare. However, the structure of headline and supplementary indicators in *Measuring Australia's Progress* provides a useful precedent, as does the balance reached between areas covered. Because of its emphasis on planning for the future, the present study includes a wider range of indicators regarded as influencing economic growth. It includes less in the environmental area, not because these indicators are unimportant, but because the development of regional environmental indicators is still in its infancy.

The study evolved through several stages:

- development of a series of indicators, which were presented at the 2001 Regional Cooperation and Development Forum;
- circulation of a discussion paper on possible regional indicators to the state and NT local government associations and to interested academics;
- consultation on the basis of the discussion paper with the state and NT local government associations and interested academics;
- preparation and circulation of a draft report and executive summary to the state local government associations and DOTARS Area Consultative Committees. The latter provided assessments of indicator priority; and
- preparation of this final report.

A National Regional Benchmarking System implies the definition of regions for which indicators would be published. It was not the purpose of the present project to define regions, and the position was taken that indicators should be available by local government area (LGA) to allow calculation for any region which comprises a single LGA or an aggregation of LGAs. The reasons for this were that:

- Local Government Councils are themselves responsible regional planning bodies;
- the areas of responsibility of many other regional planning bodies comprise aggregations of LGAs; and
- the LGA is the smallest geographic unit for which a wide variety of data is available (including data collected by postcode).

At the consultations with state local government associations and interested academics, it was often submitted that regions should not be imposed by the Commonwealth or state governments, but should be self-defined by the councils and people of the region. It was considered likely that local governments would wish to form different regions for different purposes, with any given council being a member of a number of different regional associations. This can be accommodated quite simply if regional indicators are calculated on a LGA basis and are capable of aggregation.

The greater part of the report consists of assessment of particular indicators which might form part of a National Regional Benchmarking System, either with headline or supplementary status. The discussion of individual indicators will not be summarised in this Executive Summary. Each discussion follows a template, which assesses:

- the underlying concept for each indicator;
- data availability;
- the capacity of the indicator to summarise a wide variety of information;
- the interpretation of the indicator in terms of good and bad;
- the robustness of the indicator with respect to statistical manipulation;
- its usefulness as an indicator of regional economic distress; and
- its usefulness as a target for regional planning.

These considerations should be taken into account in inclusion of indicators in a National Regional Benchmarking System.

Values are not provided for any of the indicators. Some of the indicators are still under development, while at the opposite extreme a number are readily available from the ABS. A further group of indicators is reported at regional level in National Economics *State of the Regions* reports, and is made available in the YourPlace data set. Appendix 2 includes maps of a number of these indicators, from the 2001 report; updates and maps for new indicators are to be included in the 2002 *State of the Regions* report.

Users of the indicators included in State of the Regions reports, or in other publications using data series recommended for a National Regional Benchmarking System, inevitably have their own purposes and interests, and will find some of the indicators more useful than others. They should have no compunction in making their own selection of indicators, taking into account the content of indicator assessments. For example, if their purpose is to set regional targets, they should consult this part of the template assessment for each group of indicators; if their purpose is descriptive, the relevant part of the template is 'capacity to summarise'.

The present study is not conducted in isolation, but in the knowledge that complementary studies are under way. It therefore makes no recommendations for final inclusion in, or exclusion from, a National Regional Benchmarking System. Instead it is offered as a contribution to an ongoing process of data development.

1. The rationale for a National Regional Benchmarking System

The themes of Australian economic history since 1788 have included the gradual displacement of the indigenous economy by market-oriented production through all regions of the country and the resulting growth of population, output and incomes. Initial displacement was followed by consolidation as the resources of each region were assessed. In some regions an initial pastoral economy was replaced by closer settlement, and in each colony at least one large city developed, based initially on the provision of services to its rural hinterland but increasingly evolving towards a diverse economic base including manufacturing.

The colonial, and later State and Commonwealth, governments made many contributions to this process of growth. They provided the legal and judicial underpinnings; they provided education and they provided physical infrastructure – in the nineteenth century mainly ports, railways and the beginnings of urban water supply, broadening during the twentieth century into provision of roads, sewerage, irrigation schemes, electricity, gas and telecommunications. The twentieth century also saw a variety of industry interventions: research, development and marketing support, mainly for agriculture, and tariff protection, mainly for manufacturing.

The process of national and regional economic growth was far from steady: there were booms and busts, both nationally and regionally. Abstracting from the trade cycle, some regions grew faster than others. However, Australia did not develop any significant depressed regions; it had nothing to compare with Appalachia or the Deep South in the USA. It also had nothing to compare with the depressed ghettoes of the large American cities. Perhaps this was due to the success of the state and Commonwealth governments in equitable allocation of education and infrastructure; but perhaps it reflected a fortuitously even distribution of economic opportunities between regions – these questions were never analysed, given the long experience of relative regional equality.

During the last two decades of the century much of the government activity associated with the ‘developmental state’ came to be seen as inefficient. There was a general reduction in tariffs and selective withdrawal from government provision of infrastructure. Limits were placed on support for education and research. The results of this program of reform have been much disputed. Did it increase the rate of economic growth? The answer to date is maybe: probably yes as compared with a continuation of 1960s policies, but perhaps no as compared with alternative interventionist policies attuned to changes in the world economy. Did it increase unemployment? The policy package has certainly not produced a return to the full employment of the post-war period, but there is still room to speculate as to whether unemployment is more or less than it would have been under alternative policies. Did it increase inequality? The answer is yes as regards the breakout in executive salaries, but apart from this the ABS reports reasonable constancy in the distribution of household incomes. But what about inequality between regions?

There is an argument that inequality between regions should not be of concern. After all, a region is a geographic abstract; when we say that there is inequality between regions we mean that there is economic inequality between people and households which exhibits regional patterns. It can then be argued that it doesn’t matter whether low-income and high-income people congregate together, provided that the distribution of income is satisfactory at the national level. If need be, those who find themselves in low-income regions can seek their fortunes in high-income regions. Similarly for unemployment; if jobs are readily available in Sydney, why shouldn’t all the unemployed go there?

The obvious reason why the unemployed do not flock to Sydney is that the city is already congested. High costs of living detract from the benefits of employment in Sydney. From an interventionist point of view the high cost of congestion in Sydney is an important argument for policies to promote development elsewhere, but the laissez-faire reply is that the market will adjust. According to this argument, regional inequality is quickly corrected by a combination of migration from high-unemployment to low-unemployment regions and by price signals which attract economic activity into low-cost regions.

The view that regional inequality should be ignored can be criticised on equity, efficiency and practical political grounds. The major equity argument is that growing up in a depressed region disadvantages children in various ways, both subtle, such as limited horizons, and financial, such as the cost of migrating to a prosperous region. There is also an equity argument which dates back to the early days of economics: differential regional growth results in patterns of undeserved capital gains and losses. These create barriers to migration from depressed to prosperous regions, and raise questions as to whether internal migration can correct regional inequality. Indeed, the observed migration of low-income people from the prosperous cities to depressed country towns suggests that, for many low-skilled people, the attraction of low rents outweighs the hope of employment – a case where market incentives are ensuring full occupation of dwellings at the expense of full employment of labour.

From an efficiency point of view, solutions to regional inequality which depend on internal migration can be costly, adding to congestion costs at destination and leaving stranded capital (mainly housing) at origin. Neglect of regional inequality can also be inefficient if it is associated with failure to take advantage of economic opportunities arising in the depressed region. For example, small business in such areas cannot easily raise finance by mortgaging housing, whereas this is a simple matter in the prosperous regions.

Finally, at the level of practical politics, geographic electorates ensure that issues of regional inequality cannot be ignored. In Australia the two-party system prevents elected members from pursuing the interests of their electorates with the single-mindedness usual in the USA, but members are still expected to represent local interests.

The issue, therefore, is how to document regional inequality constructively, with an emphasis on opportunities for enhanced economic development in the lagging regions. This report was commissioned by the Australian Local Government Association and the Commonwealth Department of Transport and Regional Services as a contribution to the accurate statistical description of Australia's regions from the point of view of opportunities for regional economic development The ultimate aim is to compile a National Regional Benchmarking System which allows accurate comparisons of regional trends in economic development.

This report has been prepared in a three-stage process. In the first stage, a number of new indicators were prepared and presented to local government representatives at the 2001 Regional Cooperation and Development Forum. In the second stage, a discussion paper was circulated to the state local government associations and to selected academics and state government personnel, and followed up by personal interview or, in some cases, by seminar followed by comments. A draft report was prepared, and circulated for further comment. In particular, it was circulated to DOTARS' Area Consultative Committees for assessment of priority rankings for the various indicators proposed.

1.1 Uses of a National Regional Benchmarking System

The term ‘benchmark’ originated when surveyors drew marks on buildings or natural landmarks to indicate places of known altitude. Metaphorically, it now covers virtually any basis of comparison, using virtually any metric. A national regional benchmarking system is accordingly a set of statistical indicators (metrics) which allow comparison between regions. Comparison can be extended to benchmarking by setting standard values.

The general purpose of the system falls well short of benchmarking. It is the provision of information on regional economic performance. For this purpose the system should bring together indicators of analytical and descriptive interest in the one convenient data set.

A more specific interest is the identification of regions which might be targeted for financial assistance with economic development, whether from government or the private sector. From the points of view of the Commonwealth and state governments and of the financial sector this covers information useful in project appraisal and in the identification of regions which should be eligible for development assistance. From a local point of view it covers information useful in making the case for investment attraction.

The indicator system is also intended to provide the basic data to underlie regional economic development strategies constructed by the Commonwealth, the states and local government. Provision of a national system will encourage regions to construct economic development strategies in terms of target values for at least some of the indicators, and so assist in the comparison of strategies across the nation.

By extension, provision of development finance could be made contingent on setting of targets, and continuing finance could depend on performance with respect to specified targets. This would not necessarily involve Commonwealth/state nomination of targets: it would also be possible for targets to be set by the region itself. If finance is to be made contingent on the achievement of targets it will be important that achievement is within regional control, and does not simply depend on international or national trends, or on the weather. There may therefore be a fourth major use for the indicator set: that is, to distinguish between factors which are under control of regional administrations, and those factors which influence economic development but are outside regional control.

1.1.1 The size of the indicator set

The present report weighs the merits of no less than 73 possible indicators, and points to gaps which may require additions to this already-extensive list. For example, work is only just beginning on the indicators required to describe and summarise the condition of the environment by region.

The demand for rural and regional statistics has recently been surveyed for the ABS by the SA Centre for Economic Studies (Hancock and Kosturjak, 2002). Not surprisingly, this survey finds a wide range of data requirements, even if the range of demand is confined to the needs of decision-makers in major public and private institutions. This wide range of demands must be offset against the costs of data collection. Over the past decade budgetary stringency has caused the substitution of cheaper but less accurate data for survey collections. Several significant regional data collections have been simply dropped.

Besides costs of collection, there is a second reason for economy in the presentation of data. Users can become bewildered if too great an array of data is set before them. The usual way to address this problem is by a system of headline and support indicators: headline indicators to summarise the state of affairs in broad subject areas, and support indicators to provide detail for those who need to know it. For example, for purposes of broad industry policy it may be sufficient to know the likely effect of a policy on the regional unemployment rate, but detailed planning for the provision of education and training requires specific data.

If a headline and support approach is adopted, two questions arise.

- How many headlines? In other words, how many discrete areas should be recognised?
- How many support indicators? Should all support indicators be relegated to supplementary packages, or should at least a selection be included?

The broad approach here follows the ABS in its recent Measuring Australia's Progress. There should be a comprehensible number of areas and hence of headline indicators. The precedents are between ten and twenty. Second, a selection of support indicators should be included, varying in number according to the complexity of the area and the availability of data.

Users of the National Regional Benchmarking data set will inevitably have varied interests. This means that they should bring their own sense of relevance to the indicators. Some will be central to the purpose at hand, others peripheral. Users should have no compunction about picking and grabbing the indicators which are useful to them – provided that they do not take this as an excuse to ignore relevant but inconvenient indicators.

This said, there is room for further work:

- to develop satisfactory indicators for areas not well covered at present; and
- to summarise and prioritise indicators in areas where alternative series are currently available,

beyond that undertaken in the present report.

The work of development, summarisation and setting priorities is best guided by a sense of the purpose of the indicators. Purposes include information, regionalisation, targeting, strategy development, benchmarking and performance assessment.

1.1.2 Indicators for information

Where indicators are used to provide information, it is desirable that:

- they accurately reflect underlying concepts;
- they allow valid comparisons between regions; and that
- they summarise large amounts of information in a small number of measures.

Indicators used for information are generally organised hierarchically. Summary or headline indicators are used to provide the broad picture, and the detail is filled in with more specific indicators. Summary indicators are sometimes constructed as weighted averages of a number of separate indicator series, but this methodology is inevitably complex, and an alternative approach is to select the single indicator which highlights the problem of greatest concern. In the case of description of distressed areas, the alternatives might be the unemployment rate (as a single indicator) or a compound of economic indicators. The

proposed indicators below include both straightforward indicators and indicators derived from processes of averaging and weighting.

For nearly a century the ABS has been providing the basic statistical indicators for Australia's regions. A number of additional indicators for information have been trialed in four years of National Economics *State of the Regions* reports.

1.1.3 Indicators for the recognition of regions with similar problems

It can be of considerable practical assistance to economic development practitioners in the regions if they are able to identify other regions with similar problems. This can lead to the sharing of experience and the formation of alliances.

In a sense, any indicator for which inter-regional comparisons are possible allows the identification of similar and dissimilar regions. However, Prof Froyland of Edith Cowan University had more than this in mind when she suggested that the indicator set should enable the identification of region-types such as the following:

- suburban regions undergoing redevelopment with gentrification (she instanced Scarborough, WA);
- regions suffering from loss of traditional economic base (e.g. Manjimup, WA, where the forestry industry is being curtailed in the interests of conservation); and
- regions where a significant group of residents is trading income for lifestyle. In some instances, such as Margaret River, WA, the income may come from small business, but regions can also be recognised where much of the income comes from social security.

Regions such as these cannot be identified from a single variable, but from a range, with different indicators being important in each case. There is likely to be a two-way relationship, with regions being tentatively identified on the basis of sets of indicators, and indicator sets being judged for their effectiveness in providing criteria which describe tentative regional identities.

National Economics has taken a step towards indicator-based identification of regions with common characteristics by applying classificatory algorithms to the indicator series included in its YourPlace data set. The resulting groups of LGAs include some insightful combinations, but also include groups for which it is difficult to find an intuitive commonality. Again, some LGAs change classification capriciously from year to year, reflecting changes in some of the less stable classifying variables: the classification might be improved if these variables were left out. Carried out at the LGA level, the classification also shows the influence of state differences in defining LGAs. For example, it identifies a group of low-population LGAs nearly all of which are in WA. The algorithm does not classify for low population as such, but does identify LGAs which have very little employment or output outside the farm sector. In other states this type of LGA has been virtually eliminated by local government reform which insists that each LGA must have at least one significant town.

1.1.4 Indicators for targeting investment

The Commonwealth, state governments and financial sector institutions are all involved in the distribution of development finance, and local government and regional bodies are often involved in claiming or helping to channel finance. Where funds are allocated on specific criteria, e.g. to achieve national standards in some aspect of infrastructure provision, or are allocated to meet specific investment opportunities, there may be little need to consult the

indicators of regional development in the proposed indicator system. However, when the aims of either general or sector-specific programs include assistance to lagging or economically distressed regions, it is desirable to have objective indicators to guide the allocation. The selection of indicators will depend on the purpose of the distribution: is it to take advantage of development opportunity? Is it to promote the development or lagging or distressed regions? Is it to achieve national standards in some area of service provision? Is it to strengthen adaptability to anticipated change? With each of these purposes, relevant objective indicators are required.

Where indicators are used to select target regions for non-commercial distribution of funds, they should be:

- simple, so that the reasons why regions are selected are clear;
- morally unambiguous, so that targeted regions are accepted as deserving aid;
- robust, so that they are not affected by one-off events and cannot be manipulated;
- equally valid across all regions; and
- should express concerns which are understood nationally.

This is a fairly tall order, and selection may involve threshold values of several indicators.

In the consultations, concern was expressed that the development of regional indicators might encourage a handout mentality, with regions emphasising their disadvantages in order to gain funds. However, encouragement of such a mentality is not inherent in regional indicators; it is very rare to find a region which does not have strengths as well as weaknesses. It is incumbent on the providers of development finance to put forward programs which identify and build on the strengths, and treat weaknesses as challenges rather than entitlements. In other words, they should emphasise investment, not redistribution for which better-targeted mechanisms already exist. The social security system provides targeted assistance on a family basis, while for local government the entitlement approach is already enshrined in the practice of the state local government grants commissions. There is no need to extend it into the area of development finance.

1.1.5 Indicators to assist with the specification of regional developmental strategy

Regional developmental strategies are of interest both to:

- the people of the region, and especially those responsible for development planning and implementation and those fostering the vigour of enterprises and investment; and
- people outside the region, and especially those providing finance for the development of the region or looking for economic advantage or synergies.

The availability of objective indicators on a regional basis can assist both groups in the formation and the subsequent monitoring of strategies.

Where indicators are used to set targets for achievement at the regional level, the list of desirable attributes includes several already encountered in identifying distressed regions. Indicators should be:

- simple, so that all concerned with achievement of the target understand what it means;
- morally unambiguous, so that achievement of the target is desirable;

- robust, so that the target cannot be achieved by chance or manipulation, but requires genuine achievement; and should be
- used in balanced indicator sets, including indicators which draw attention to developments in economic strategy at the global level (e.g. ensuring that regions consider the implications of the knowledge economy), and indicators which require regions to consider the process of development as well as its goals.

This does not imply that targets should be similar in all regions, or even that targets should be set for the same selection of indicators. Targets will differ according both to regional circumstance and strategy. However, the existence of the national regional benchmarking system will direct regions' attention towards targets expressed in terms of these indicators. The system will also require regions to give consideration to the effects of their development strategy across the whole range of national indicators, so discouraging lopsided and incomplete strategy formation. It is accordingly important that the national indicators form a balanced set, with no area of major concern over- or under-emphasised.

Regional development strategies, particularly as regards infrastructure, are often subdivided into projects. It is important to emphasise that a set of indicators provided on a comparable basis over the whole country will not be sufficiently detailed to provide all the background information for project assessment. However, it should be possible to model the effects of the project on target indicators, and use this information in the process of project appraisal.

1.1.6 Indicators for regional benchmarking

The benchmarking approach is a refinement of strategy preparation in terms of targets. It involves setting targets in a context of regional comparison, with an eye to best practice, given basic regional economic and social structure. The process becomes dynamic when target achievement is monitored in all regions in the comparison set, and targets are adjusted in the light of the evolution of best practice. This presupposes that indicators are available which permit valid inter-regional comparison. It is arguable that these indicators should be available for all regions, even if they are not targeted in all regions.

Apart from the greater emphasis on cross-region comparison, the requirements are the same as for indicators used in the specification of regional developmental strategy.

1.1.7 Indicators for interpretation of performance

Where indicators are used to interpret performance, the range required depends on the depth of the audit. Where a thorough investigation of the performance of a particular region is being carried out, there is no need to concentrate only on headline or target indicators. Detailed indicators of interest mainly to specialists need not form a compact set; similarly they need not be morally unambiguous. Their function is to provide additional information, which in terms of targets:

- may help to explain why targets were not met/were difficult to meet/were met easily, etc; and
- may help to identify new targets (e.g. where it was thought that meeting a particular target would automatically achieve another subsidiary target, but this turned out not to be the case.)

These considerations point towards a system of headline and support indicators covering the main areas of concern for economic development.

1.2 The data availability constraint

A major consideration in the development of indicators is data availability, accuracy and currency. It is expensive to collect data at the regional level (save where it can be collected automatically as a by-product of administration). The sample surveys which provide accurate data at the national and state levels are not statistically significant at the regional level, though regional values can often be inferred by combining national survey data with local data, particularly from the Census. (National Economics uses a process known as microsimulation for this purpose, calculating best estimates down to census collector's district level in some instances.) Regional data can sometimes also be collected by regional surveys, though these by their nature do not generate data which is comparable nationally.

In consultations, three major issues arose regarding data availability.

- **ABS budget and priorities**. With the Census, and formerly with the business register, the ABS is the prime source of regional data. Its sample surveys also provide regional data, sometimes directly (where the sample fraction is chosen so as to yield statistical significance for the region concerned) and indirectly (where the sample is large enough for microsimulation techniques to yield regional estimates in conjunction with the Census and other regional information). Unfortunately the collection and publication of regional information has come under attack from those whose priority is tax cuts over all else, and from those who have no interest in regional data or who, worse, would rather not see it collected because it might contradict their theoretical expectations. It is important for users of regional data to make themselves heard in the setting of Commonwealth budget priorities.

- **Confidentiality**. While it was accepted that privacy must be respected, it was claimed that administrative agencies were suppressing data on bogus confidentiality grounds, or were adulterating it beyond the extent required to maintain privacy.

- **Currency**. Tight data collection budgets reduce not only the range of data collected, but the frequency of collection. While much can be done by projection techniques, there is no substitute for current values.

1.3 The definition of regions

The discussion paper stated that the project was concentrating on the development of a set of indicators valid at the regional level, and was not concerned with the definition of regions. The intention was stated as the development of a set of indicators which could be calculated for any region forming an aggregation of LGAs. This implies that values should be prepared and should be significant at LGA level.

The LGA was selected as the basic geographic unit for several reasons.

- LGA Councils are themselves local development authorities, with an increasing interest in local economic development planning.

- Even when regions larger than LGAs are used for planning purposes, they often involve local government participation, and are frequently defined as aggregations of LGAs. The main case where aggregation is on a different basis is for environmental planning, where areas such as watersheds or forests do not always respect LGA boundaries. However, even here there are often ways to estimate values for the environmental region by pro-rating LGA data.

- At the practical level, LGAs are an important unit in the ABS Australian Standard Geographic Classification. This means that many of the data series relevant to economic development are available by LGA. Some series are also available by smaller areas (SLAs and Collectors' Districts), but many series are not. This is partly because administrative data is often collected on a postcode basis, and in most parts of the country the LGA is the smallest unit in the Standard Geographic Classification to which postcode data can readily be converted.

Granted that the data will be maintained at LGA level, there will still be a need to summarise at regional level, where a region is larger than a single LGA (except perhaps for very large LGAs such as Brisbane) but smaller than a state or territory (except for small territories such as the ACT). Participants in the consultations insisted in airing strong views on the formation of regions. The strongest and most widespread of these views was that regions should not be imposed by the Commonwealth. Local councils could usually see the appropriateness of joint action, but wished to form their own partnerships. According to the common interests involved, regional groups could be informal or formal, and could be of different size. A particular Council would typically be involved in different groupings for different purposes: in particular, environmental units such as catchments often cross-cut economic units such as the hinterlands of provincial cities. Where regional groupings were not already formed (either general purpose or for specific functions), the local government associations offered their good offices and local knowledge to ensure that the process of regional grouping by local alliance did not result in leftover councils.

In recent Australian discussions the word 'regional' has sometimes been used as a synonym for 'non-metropolitan'. However, at consultations (even in states such as WA where the official system of regions excludes the metropolitan area) the view was expressed that metropolitan areas can be divided into regions on the basis of common interest and sense of regional identity. Accordingly the present study is based on the principle that regions can be recognised within metropolitan areas as well as outside them. It is, however, granted that there will be systematic differences between the two types of region, if only because metropolitan regions have higher densities and are much more intimately interconnected by commuting.

For illustrative purposes, *State of the Regions 2001 and 2002* divides Australia into 64 regions. In most but not all states these regions reflected State planning region boundaries. Regions were defined without crossing state and territory boundaries. All regions were contiguous and comprised groups of local government areas (and unincorporated areas in states and territories with such areas).

1.4 International precedents

Since there have been nations, there have been censuses – census results from two and a half millennia ago are recorded in the Bible. A great deal of data-collection experience has been built up all over the world. Not surprisingly, there are numerous precedents and partial precedents for national regional benchmarking systems. The following is a selection.

1.4.1 Canada

The province of Alberta provides a precedent for the use of poverty measures as indicators of regional prosperity. The province uses a poverty line based on the variation with income of the proportion of income spent on basic necessities. It also uses a low-income cut off line set at half median income adjusted for family size and composition. These measures are further adjusted by a regional cost of living index, based on the familiar consumer price index.

The Canada Information Office has carried out attitudinal surveys related to various population groups. Its survey of youth included questions on optimism (both for the country as a whole and personally) and views on government priorities. Important indicators of the socioeconomic position of young people included youth unemployment, youth literacy, school attendance, political participation and volunteer activity. A similar survey for women identified slightly different socioeconomic indicators: female unemployment, female workforce participation, female literacy and education, female usage of the media, male to female comparative incomes and the age composition of the female population compared to the male population.

1.4.2 United States of America

The government of the USA provides numerous programs of economic development assistance to regions within the country, and the typical state supplements this with a further range. At the local level, cities, counties and various regional associations of local governments develop and implement strategy plans. All this activity both generates and relies on a sophisticated range of statistical indicators.

Some of the indicator sets bear the imprimatur of the financial sector. For example, the Federal Reserve Bank of Kansas City publishes sectoral employment measures on a regional basis. Government, high-tech, service, telecommunications, manufacturing, energy-related and construction employment are emphasised.

The Delaware Valley Regional Planning Commission may be taken as an example of an authority which plans to establish a region with ‘a strong economy and seamless transportation system with a healthy environment and vibrant communities’. This rather broad aim is served by a system of 26 headline indicators, selected as being outcome based, regionally available, measurable over the long term and using publicly available data. The indicator set covers physical form, traffic, freight movement, mobility, waste generation, water quality, energy consumption, air quality, employment, income and housing affordability. This selection is interesting for the prominence given to transport and accessibility.

The State of Maryland provides an example of a somewhat more traditional indicator list, covering population and households, school enrolments, construction, the labour force and employment and business conditions. The set also includes indicators of transport and commuting.

1.4.3 Europe

In the UK, the Department of the Environment, Transport and the Regions has developed an Urban Exchange Initiative which aims to improve the design of settlements. This program distinguishes between indicators used to select target regions and indicators for which targets are set in program development. Selection indicators include unemployment, low incomes, low educational attainment, poor housing, poor physical environment, high levels of ill health, high levels of ethnic and refugee concentration, a high proportion of single-parent families, high crime levels and weakness of economic base. The targets include increased private investment, increased pedestrian flows, reduced vehicle flows, greater diversity of shops and services, reduced crime, greater perceived safety, reduced commercial vacancy rates and increased commercial rentals, increased employment, increased retail turnover and an improved public image. The distinction between selection and target indicators is instructive, and reflects the needs of the particular program and the current circumstances of the UK.

The same UK Department has also developed an interim evaluation and monitoring framework for regional development agencies, which is expected to double as input to strategy development. Indicators include gross value added (GVA) per head, GVA per worker per hour, the proportion of the population with above average general living conditions, business formation and survival rates, the unemployment rate and three skills measures. An indicator which reflects specifically European policy priorities is the proportion of new homes built without encroaching on the countryside. Process indicators are also used: the number of jobs created, the redevelopment rate for derelict land, the value of private finance attracted and an assessment of business activity in skills development. The list is more general than that used for the Urban Exchange Initiative, but does not pretend to be a national regional benchmarking system.

The UK Department of the Environment, Transport and the Regions has also been active in developing indicators to assist in the allocation of public capital investment. These include an assessment of the balance sheet position of borrowing authorities, assessment of their capacity to finance further debt, and indicators of the quality of the proposed investments.

The UK Department of Trade and Industry maintains a compendium of regional competitiveness indicators in consultation with the office for national statistics and other government departments. The list of indicators covers GVA, employment and unemployment, education and skills upgrading, earnings, investment, research and development, export generation, infrastructure (particularly transport) and productivity. This list includes many, perhaps most, of the indicators which are commonly discussed in talking about regional economic development strategies, though it has its idiosyncrasies. For example, export performance is listed, whereas it is conspicuously lacking from American lists – the USA is such a self-sufficient country that exports don't matter. On the other hand, the UK lists reflect the European faith in pedestrianisation as the cure for transport congestion, whereas the US lists tend to favour indicators which are likely to improve with road construction.

By contrast, the European Union uses a very limited range of measures (chiefly GVA per capita supplemented by indicators of structural change) to target areas eligible for the very substantial assistance available from its Structural Funds. Beyond this point, investment assessment is carried out on a project by project basis. The EU does not 'benchmark', and investments from the structural funds are assessed by criteria related to each project. Regional description by complex indicators is left to the member-state level. Presumably the construction of fully comparable sets of indicators raises too many difficult questions to be attempted in a weak, multicultural federation such as the EU.

1.4.4 Cecilia Wong on Local Economic Development Indicators

In a recent English study, Wong (2002) develops indicators from a review of current literature. She defines eleven groups of factors which may influence local economic development. Wong's work is too recent to have been taken into account in the body of the present study, but is of considerable interest since its coverage is similar coverage but differently organised. The two studies differ in that Wong employs a distinction between 'intangible' and 'traditional' factors influencing local economic development, whereas in the present study a broadly similar list of factors is grouped into the areas of population, production, employment and services, with environment as a fifth area. When Wong's intangible factors are translated into indicators, they become concrete. Business culture is represented by the birth and death rates of small firms, community identity becomes the proportion of the workforce who work locally, and quality of life becomes a series of indicators such as home contents insurance premiums (as proxy for the probability of burglary).

Given that Wong derives indicators specifically from current economic development literature, a concordance with the present study may be helpful.

Among Wong's 'traditional' factors:

- location is covered in the present study by business infrastructure;
- physical resources (mainly floorspace) is not covered, though additions to commercial floorspace are reported in *State of the Regions*. It is understood that the ABS intends to drop floorspace data collections;
- infrastructure is also covered in the present study by business infrastructure;
- Wong covers human resources with four series, whereas the present study provides much more detail, including dividing this area into a number of headline groups;
- Wong argues that, in England, access to finance and capital does not vary by region save for access to venture capital firms. The present study does not cover this area, partly because there is as yet little data on geographic variation in the availability of finance across Australia;
- knowledge and technology is covered in the present study by series on regional labour force quality. Wong also includes a series on accessibility to science and engineering research, whereas the present study uses R&D expenditure per region; and
- industrial structure is covered by similar series, though Wong summarises more drastically.

Among Wong's 'intangible' factors:

- business culture is covered in very similar terms under business growth;
- in Wong's set of indicators, community identity reduces to the proportion of the workforce working locally. This is covered in the present study under employment;
- Wong could not find any suitable indicator for institutional capacity, and the same is true of the present study;
- Wong includes quality of life as an intangible input to economic development, and uses a variety of indicators. The present study also includes a variety of indicators which also bear on quality of life; and
- Wong's only indicator of environmental quality – the percentage of the local area designated as an Area of Outstanding Natural Beauty – is very English. Even if an Australian counterpart existed, it would be completely inadequate to reflect the environmental concerns impinging on economic development in Australia.

Some of the differences between the indicators used by Wong and those discussed here reflect differences between England and Australia in data availability and developmental concerns. However, Wong also points to a number of areas where data developmental work would be rewarding in Australia.

1.5 Australian precedents

In Australia, regional socio-economic indicators were pioneered by Coghlan and other colonial statisticians in the nineteenth and early twentieth centuries. Since then, a great many indicators have been prepared and compared on a regional basis. Some of these indicators are familiar, and there is no need to reinvent them. However, social and economic change is requiring changes to regional development strategies, and hence to the range of useful indicators, and to the relative importance of indicators. The study is thus an update; and the major issues are those of indicator revision to support changes in strategy.

Over the past decade, a great deal of work has been carried out on socio-economic indicators at the national level. Work carried out to 1997 is summarised in Eckersley*: Measuring Progress* (CSIRO, Melbourne, 1998), which provides many ideas for indicators which may be useful at the regional level. A more recent, important study with a revealingly similar title is the ABS*: Measuring Australia's Progress* (cat 1370.0). This identifies nine socio-economic and seven environmental 'headline dimensions', and suggests 'headline indicators' in fourteen of the areas, plus supplementary indicators in a number of them. It also identifies a further nine economic, and four environmental, 'supplementary dimensions', for which supplementary indicators are suggested. In many cases the text provides commentary on differences within Australia, though many of the indicators derive from surveys and are not available at sub-state level.

A major difference between the indicators considered in the discussion paper and those covered in *Measuring Australia's Progress* is the prominence of environmental indicators in the ABS publication (which was issued after the discussion paper for the present project was prepared). A broad conclusion from *Measuring Australia's Progress* is that, over the 1990s, economic growth took place at the cost of environmental degradation. Incomes increased with little change in unemployment and the income distribution. This raises the question as to whether it is any longer permissible to speak of rising incomes without making allowance for environmental losses. If not, it will be necessary to include a range of environmental indicators in the regional indicator set, preferably specified in such terms as to facilitate comparison with the economic indicators. Indeed, some analysts, such as the Australia Institute with its Genuine Progress Indicator, go so far as to adjust economic gains for environmental costs. This raises the question of economic/environmental trade-offs, one answer to which is to retain separate indicators so that different interpreters can impose their relative economic and environmental priorities.

A second group of precedents arises from the work of the state governments. Several state governments, notably Victoria and the Northern Territory, have recently prepared economic strategy plans which imply assessment by indicator. Two other state projects are even more closely aligned to indicator development. The Department of Local Government and Regional Development in WA has a project under way on regional development indicators. The aims of this project are believed to be very similar to the present project. In Tasmania, the *Tasmania Together* project conducted community consultations as a result of which it set around 200 targets, each relating to an indicator which is at least in theory measurable. The targets are listed in around 25 groups covering community, culture, democracy, the economy and environment. Many of the indicators relate to detailed aspects of state government services, but even when these are excluded there remains an impressive list of indicators of community well-being.

An important specialised use of indicators at the LGA level over the past thirty years has been the distribution of horizontal equalisation grants to local government. This has been carried out by the states' grants commissions, and, partly from theory and partly by trial and error, has resulted in the construction of useful regional indicator sets relating to local government revenue opportunities and service demands. However, the data sets are constructed under the assumption of 'effort neutrality', and accordingly differ from the indicators relevant to economic development in that there is no intention to recommend or evaluate any particular policy. Unfortunately the crucial indicators of rateable capacity are not comparable across state borders.

The Commonwealth has also been active in the development of indicators, not only through the all-important background work of the ABS, but in policy specification. An important recent example is 'Invest Australia' which provides for regional diversity in indicators regarded as critical.

1.6 The present project: discussion with State Local Government associations and academics

The discussion paper provided a list of possible indicators, grouped by general subject area. The paper was circulated to all State local government associations and to the Northern Territory, and to academics working in the field. A list of the discussions held is included at Appendix 1.

This discussion paper drew considerable comment. The list of potential indicators was already long, but most of the comment concerned omissions. The list was accordingly expanded, taking the results of the discussion into account. The report is concerned with this expanded list.

In the final phase of the project, the list of 73 indicators was circulated to Area Consultative Committees for assessment of priority. Their assessments will serve both to conclude this general discussion and to introduce the list of indicators. The remainder of the report discusses individual indicators.

1.7 Consultation with Area Consultative Committees

On 29 July 2002 the chairs and executive officers of all ACCs were invited to comment on the draft report. Their attention was directed towards the draft executive summary, and their response was sought as to usefulness and importance of the 73 indicators considered in the draft report. By the first week of September nine replies had been received, of which one was general statement of support for the process. Table 1 summarises the eight detailed replies.

ACCs were asked to classify indicators as of headline status, support status or third rank. The 73 indicators were placed in 17 groups. Though this was not in the instructions, it was expected that the ACCs would pick one or two headline indicators for each group, relegating the others to support status. The reaction was rather different, in that the ACCs tended to give headline status to multiple indicators in some groups, and to few or no indicators in others. They thus identified major areas of concern. Judging by the number of indicators given headline status, and the degree of unanimity in doing so, the following areas have high priority with ACCs:

- infrastructure quality;
- unemployment;
- employment levels;
- population (particularly population growth); and
- household income.

Areas which did not rank strongly with the ACCs were:

- labour force quality;
- income generation;
- community services;
- environment;
- industry structure; and
- household wealth.

The remaining areas, including:

- population structure;
- income distribution;
- gross value added (GRP);
- education and training; and
- health

were of medium priority.

The individual indicators with the highest scores for headline status were:

- index of energy availability, quality and cost;
- regional job total; and
- the ABS unemployment rate.

(ACCs showed strong preference for the ABS unemployment rate over ‘excess take-up of social security from the full-employment standard’. This may be because the word ‘unemployment’ was not in the description of the social security indicator, and perhaps also because they had not read the full text on the relative accuracy of the two measures at the regional level.)

Several other individual indicators also scored highly:

- household incomes per capita;
- index of water availability, quality and cost;
- index of telecommunications availability, quality and cost;
- employment of residents;
- growth rate of jobs in the region; and
- long-term unemployment.

These also highlight ACC’s concerns with infrastructure and employment.

ACCs were also asked to indicate whether each indicator was considered useful for

- description;
- assessment of policy success;
- identification of distressed regions; and
- specification of regional targets.

A great many indicators, particularly the headline indicators, were considered useful for all four purposes. Indicators were more often considered useful for description than for the other purposes.

The ACCs were unanimous in regarding the following indicators as useful for description:

- rate of growth of resident population;
- rate of growth of GVA;
- index of economic diversification;
- all business infrastructure indices;
- the youth transition rate from education to employment;
- the apparent retention rate to year 12; and
- an index or indices of social capital.

They were unanimous in regarding the following as indicators of policy success:

- growth in household income per capita;
- net business start-ups;
- resident employment, and the rate of growth of resident employment; and
- job growth.

The following were unanimously identified as indicators of distressed regions:

- population decline;
- the unemployment rate;
- long-term unemployment; and
- youth transition from education to employment.

The indicators unanimously considered useful as regional targets were:

- retained retail expenditure;
- net business start-ups;
- the education participation rate of persons aged 15-19; and
- the apparent retention rate to year 12.

ACCs are not the only users of regional and local statistics, and other agencies would doubtless have highlighted other areas. Even so, the results provide useful guidance, particularly as regards the potential importance of indicators which have yet to be developed, most notably in the area of infrastructure quality.

Table 1 Candidate indicators – responses from the ACC survey

	Indicator usefulness				Indicator status		
	Useful for description	Indicates successful policy	Identifies distressed regions	Useful regional target	Headline	Support	Third rate
1 Population							
1.1a Resident population (number)	7	4	4	3	5	1	–
1.1b rate of growth of resident pop'n	8	7	8	7	5	2	–
1.2 Population structure							
1.2a proportion of children	7	5	6	4	4	4	–
1.2b proportion of young adults	7	5	7	4	4	4	–
1.2c proportion above retirement age	6	4	5	3	2	5	1
1.3 Household incomes							
1.3a household incomes per capita	7	6	7	6	6	1	–
1.3b growth in household income p c	6	8	7	7	5	2	–
1.3c wages and salaries per employee	5	6	6	5	3	3	1
1.3d interest, dividends, rent and small business incomes per capita	7	4	7	5	2	5	–
1.3e social benefit incomes p c	7	5	7	5	3	3	1
1.3f interest paid p c	4	1	3	–	1	3	2
1.3g taxes paid p c	5	1	5	1	1	3	3
1.4 Income distribution and household costs							
1.4a Spread between av. disposable income of households in the 2nd/3rd deciles and av. for the 5th and 6th deciles (ABS measure of income dispersion)	6	4	6	3	4	1	1
1.4b per cent high income households	5	3	5	2	3	3	2
1.4c per cent low income households	6	4	7	4	4	2	1
1.4d rental cost index for standard family housing (to be developed)	4	3	4	1	–	2	3
1.5 Household wealth							
1.5a household assets/income	4	5	4	3	1	4	2
1.5b household debt/income	5	6	7	5	2	4	1
1.5c proportion of home owners/purchasers	5	5	6	5	4	3	1
1.5d index of household vulnerability to interest rate rises and income falls	3	3	4	2	1	3	2
2.1 Gross Value Added (GVA aka Gross Regional Product)							
2.1a GVA per capita	8	7	6	7	3	4	–
2.1b rate of growth of GVA	8	7	6	7	3	4	–
2.2 Income generation							
2.2a household disp income/GVA	6	6	5	5	2	3	2
2.2b employment/GVA	7	6	6	6	2	4	1

Table 1 Candidate indicators – responses from the ACC survey (continued)

	Indicator usefulness				Indicator status		
	Useful for description	Indicates successful policy	Identifies distressed regions	Useful regional target	Headline	Support	Third rate
2.3 Industry structure							
2.3a per cent GVA from advanced manufacturing and high value business services	6	5	6	5	3	4	1
2.3b per cent GVA from other manufacturing	6	5	6	5	3	4	1
2.3c per cent GVA from agriculture	6	4	5	5	3	4	1
2.3d per cent GVA from tourism	6	4	5	6	3	4	1
2.3e per cent GVA by other broad industry category	4	4	4	3	2	2	1
2.3f retail expenditure retained in local area	7	7	6	8	3	4	–
2.3g index of economic diversification	8	7	6	7	3	4	–
2.3h index of trade specialisation	6	4	4	4	1	5	1
2.4 Business growth							
2.4a net business start-ups	7	8	5	8	5	2	–
2.4b exports/GVA	5	7	4	6	3	3	1
2.4c patent applications/employment	5	5	3	2	1	5	2
2.4d R&D expenditure in region	6	5	5	5	4	3	1
2.4e business scale (SME activity)	7	5	5	3	3	4	1
2.4f vulnerability to greenhouse gas abatement policies	3	3	2	2	–	2	4
2.5 Business infrastructure (all indices in this group yet to be developed)							
2.5a index of accessibility and transport infrastructure	8	5	6	6	5	3	–
2.5b index of water availability, quality and cost	8	5	5	7	6	2	–
2.5c index of energy availability, quality and cost	8	5	6	7	7	1	–
2.5d index of telecommunications availability, quality and cost	8	5	6	7	6	2	–
3.1 Employment							
3.1a jobs located in region	7	7	7	6	7	–	–
3.1b residents with jobs	7	8	7	6	6	1	–
3.1c rate of growth of jobs in region	7	8	6	7	6	1	–
3.1d rate of growth of resident employment	7	8	6	7	4	3	–
3.1e above indices in hours, not jobs	6	5	5	3	1	4	2
3.1f above indices counting only full time jobs (excluding long-hours jobs)	4	4	5	4	2	3	3
3.1g labour utilisation (hours worked/available hours)	4	4	5	5	2	5	1
3.1h regional employment self-containment	6	4	5	5	4	3	1
3.2 Unemployment							
3.2a unemployment rate – ABS	7	7	8	7	7	–	–
3.2b labour force under-utilisation – ABS definition	5	5	7	6	3	4	–

Table 1 Candidate indicators – responses from the ACC survey (continued)

	Indicator usefulness				Indicator status		
	Useful for description	Indicates successful policy	Identifies distressed regions	Useful regional target	Headline	Support	Third rate
3.2c excess take-up of social security from full-employment standard	4	4	7	4	1	4	2
3.2d long-term unemployment	7	6	8	6	6	1	–
3.2e youth transition rate from education to employment	8	6	8	6	5	2	–
3.3 Regional labour force quality							
3.3a per cent workforce in occupations with high knowledge content	5	4	4	5	1	4	2
3.3b per cent advanced business service workers	5	4	3	5	1	4	2
3.3c per cent routine task workers	4	3	3	2	1	4	2
4.1 Education and training							
4.1a persons with a vocational or higher education qualification/persons of workforce age	7	5	6	6	2	5	–
4.1b education participation rate, persons aged 15-19	7	7	6	8	2	5	–
4.1c apparent retention rate, year 7/8 to year 12	8	7	6	8	3	4	–
4.1d index of accessibility to education services yet to be developed	7	6	6	5	2	5	1
4.2 Health (indices yet to be developed)							
4.2a regional health status	7	4	5	6	4	4	–
4.2b accessibility to health services	7	5	5	6	4	4	–
4.3 Other community services and social capital							
4.3a health, education and community welfare sector workers/thousand pop'n	6	5	6	4	1	3	3
4.3b square metres of under-cover entertainment, cultural and recreational facilities/population	6	3	3	5	2	3	2
4.3c index of sports and recreation participation yet to be developed	7	3	3	2	2	2	3
4.3d index or indices of social capital yet to be developed	8	5	5	5	2	2	4
4.3e index or indices of public administrative and planning capacity yet to be developed	7	4	4	3	3	1	3
4.4 Environment							
4.4a vegetation coverage	6	3	3	4	2	4	2
4.4b land clearing activity	6	3	3	4	2	4	2
4.4c index of water quality yet to be developed	6	3	5	6	3	5	–
4.4d index of bio-diversity yet to be developed	6	3	5	6	2	5	1

Note: Table 1 gives the number of ACCs indicating that the indicator is regarded as useful or has headline or other status.

2. Indicators for consideration

Potential indicators are grouped in concept areas, and are assessed according to a standard template. The template includes:

- concept: what is the aspect of development covered?
- data availability: how does the process of data collection limit the indicators which could be developed?
- proposed measures: what existing indicators are available? Have others been suggested?
- capacity to summarise: are the indicators headline or subordinate?
- moral status: where targets are to be set, does the indicator have an unambiguously good/bad direction?
- robustness: is each indicator an accurate quantification of the underlying concept? Is it liable to administrative manipulation?
- suitability for identification of distressed regions;
- suitability as an economic development target: can targets usefully be set in terms of the indicator? This includes whether the indicator would make a useful contribution to a benchmarking approach; and
- treatment in State of the Regions 2001. An important aspect of the present project was the development of indicators for presentation to the ALGA conference in 2001, and the assessment includes critical mention of the indicators chosen for presentation at this conference.

2.1 Population and households

2.1.1 Population

Concept

Population is a basic attribute of a region, so basic that it is often used as the denominator of more complex indicators. There are two main measures of population:

- the head-count; and
- the number of households (which equals the number of occupied dwellings).

There has been a tendency to use resident population as the major indicator of regional human resources, but to resort to number of households for indicators relevant to decisions which are likely to be made on a household basis, especially decisions concerning dwellings and expenditures. The relationship between the two measures is the average size of households (institutional population apart). Both measures are calculated by simple count. Note, however, that ambiguities can arise: de facto and de jure populations differ, and for resort areas holiday-time and off-season de facto populations differ considerably. In urban areas there are frequently differences between day and night populations.

Data availability

Census every five years, plus official inter-censal estimates which are not as accurate as the Census itself. In consultation in the NT it was pointed out that the 'typical population' of places with small and highly mobile populations may not be accurately recorded at the Census.

Proposed measures

It is noticeable that the ABS does not include either population or its rate of growth in *Measuring Australia's Progress*. This is presumably because it is an underlying indicator, and can be taken for granted. However, exclusion represents a major change of attitude from most of Australia's history since 1788. Up until the post-war period population growth was a major target of national policy, and an important aspect of national progress. It would be cavalier to leave population and its growth out of a series of indicators intended to document growth on a regional basis. Suggested indicators are:

- resident de jure population count;
- rate of population growth;
- household population count;
- average size of households; and
- possibly, rate of change in average size of households.

Capacity to summarise

Where two regions are compared, one with a large and the other with a small population, we expect the larger to have the greater level of economic activity, and the greater diversity.

The average size of households and its rate of change are informative measures which allow data users to switch from indicators denominated by head count to indicators denominated by household number.

Population growth in any region is due to natural increase (which may be affected by the age/sex and ethnic composition of the population) and net migration. Both may be affected by national policy: natural increase is influenced by policies on child care, maternity leave etc., while net migration is affected by immigration policy. Population growth has a two-way relationship to economic growth: economic growth attracts migrants, and also increases demand for housing and infrastructure. Accordingly it is expected that areas with rapid population growth will be prosperous, but uncertain as to what is cause and what is consequence.

Moral status

There are sometimes discussions of 'optimal' populations for regions, but it is more likely that targets, if any, will be set in terms of population growth rates rather than population as such. 'Deep green' environmentalists sometimes deplore population growth, while at the other extreme it is welcomed by the housing construction industry. Regions may wish to set targets, but may alternatively wish to allow other targets to set the population growth rate.

It seems inevitable that minimum population sizes will be set for most kinds of policy response. These range from the minimum population required to support an outlet for a particular service to the population required to constitute a planning region. The identification of minimum populations for service provision raises difficult questions of accessibility, service standards and costs, while the question of populations required for planning regions raises the argument that required populations should be much less where population densities are low.

Robustness

Provided the definition is kept constant, this group of indicators is not subject to manipulation. However, inter-Censal estimates are not always reliable.

Suitability for identification of distressed regions

There is US precedent for taking population loss as an indicator of distress. This is perhaps as proxy for such more direct indicators as emergence of under-utilised infrastructure, loss of services due to falling below threshold populations and lack of employment opportunities due to negative multiplier effects.

Suitability as an economic development target

Successful development attracts migrants, and immigration creates demands which foster development. Regions may wish to include a population growth rate among their target set, but there are also arguments for setting targets primarily in economic terms.

State of the Regions 2001

Population and number of households, both with growth rates. Neither indicator proved controversial.

2.1.2 Population structure

Concept

Three main age groups are often distinguished:

- people of less than workforce age (with the proviso that the age of entry into the workforce has been rising);
- people of workforce age; and
- people above workforce age (which raises difficult questions as to what really is the upper limit on workforce age).

Both the demands and the economic contributions of any population will depend on its distribution across these three groups.

At consultations other age classifications were suggested, including a concentration on young adults rather than the broader definition of workforce age. The concern here came from rural regions which feared that they were failing to retain or attract people in this age group, with a consequent lack of flexibility in their labour force. Since young adults are the most mobile age group, trends in the young adult population can prefigure trends in population growth as a whole.

A related concern was ethnic mix. Though regions of high immigration risk the development of tensions between ethnic groups, in the Australian experience immigrants have contributed strongly to economic growth. They have been a source of hard work, enterprise and overseas contacts. As one rural informant put it: 'If we don't keep up with Sydney's ethnic mix, we'll be regarded as a bunch of hopeless rednecks.' Thus the capacity to attract immigrants is seen as an indicator of economic success. A low immigrant population may reflect policy failure, such as misinformation among immigrants as to the locations of economic opportunity.

On a different limb of ethnicity, a great many studies have documented the disadvantages suffered indigenous people. Rather fewer studies have emphasised their potential for positive contribution to a region, such as their extraordinary artistic creativity and distinctive environmental knowledge. Both ways, the proportion of indigenous population is helpful in interpreting regional statistics based on averages and totals.

Data sources

Census and inter-censal estimates.

Proposed indicators

- The proportions of the population of working age, and above and below working age.
- Proportion of young adults in the population, and the growth rate of this population.
- Proportion overseas born (a variant of this could weight the country of origin with its importance in Australian non-bulk exports, so emphasising the importance of overseas contacts for exports).
- Proportion indigenous.

Capacity to summarise

A high proportion of children may be due to rapid natural increase (usually associated with prosperity) or with emigration of children as soon as they reach workforce age (usually associated with depression – hence the suggestion to concentrate on the young adult population). A high proportion of old people may be due to emigration of younger people (usually associated with depression) or immigration of retirees (associated with prosperity of a sort, though retirees are not attracted to regions where population growth is increasing house prices). A high proportion of people of working age is likely to be associated with prosperity, both as cause and effect. In other words, the meaning of population structure indicators depends on other indicators of the general economic position.

Moral status

Though normative status may perhaps be claimed for the national average, population age groups have no moral status. There is a danger that regions will adopt incompatible targets; e.g. if all regions want their populations to become more youthful than the national average they are setting themselves up for non-achievement. This relegates population structure indicators to support status. The same is true for the indigenous proportion, which tends to reflect indigenous peoples' attachment to their land relative to the economic resources of that land, so that regions lacking in resources useful for Western-style economic development have high proportion of indigenous people. Normative status may, however, be claimed for at least a minimum level of ethnic mix.

Robustness

The indicators are not subject to manipulation.

Suitability for identification of distressed regions

Not suitable.

Suitability as economic development targets

Not suitable, except for regions which may set targets for ethnic diversification.

State of the Regions 2001

No indicators.

2.1.3 Household incomes

Concept

At core, income is a well-understood concept, though (as the income tax proves) precise definition is elusive. There are two main reasons for being interested in household incomes:

- income determines household command over marketed goods and services, and is accordingly an indicator of a major aspect of standard of living; and

- from a business point of view, income is a major determinant of household demand for goods and services, and hence activity in dwelling construction and retail.

These interests mean that the relevant concept is household disposable income.

Insight into the regional economy is provided by the composition of household income (the proportion from each of wages and salaries, interest, dividends and rents, self-employment business income and social benefits and the proportional deductions from income taxes and (perhaps) GST).

Data

There are no direct sources at the regional level. National Economics estimates regional incomes from:

- census;
- estimates of regional production (see below);
- national household expenditure and income surveys (by microsimulation);
- Centrelink data;
- income tax data; and
- construction industry activity indicators.

Proposed indicators

- In *Measuring Australia's Progress* the ABS proposes real net national disposable income per capita as a major headline indicator.
- It is possible to go further with household flow of funds = wages + benefits + business income + interest + dividends + property income – income tax paid – interest paid (and some versions would now also subtract GST paid).
- Rate of growth of household disposable income (total and/or per capita).

These two measures are at the interface between population and household dynamics and indicator group 2, economic dynamics. Derivative indicators include:

- household income per capita;
- household income per household;
- household income per capita growth p.a.;
- household income per household growth p.a.

Here we have two pairs of indicators differentiated by denominator. The two candidate denominators reflect an underlying problem: the standard of living which can be extracted from a given household income depends on household size. Some costs of living increase more or less in proportion to household size, but others do not. Selection of individuals as the denominator implies that costs increase with the number of people; selection of households implies that costs are constant per household. The truth is somewhere in between.

There is no difference in the regional comparisons generated by the two sets of indicators if average household size is the same across all regions, but if it differs:

- in regions with high household size, measures with the number of households as the denominator will tend to give a higher estimate of relative standard of living than measures with population as the denominator; and
- in regions with low household size, the reverse.

There is no particular ideal in this – the search for the ideal has led to the invention of 'equivalence scales', which provide different weights for different household sizes. It would be possible to resort to equivalent income, but at this point simplicity is easily lost and users become confused. These more complex indicators are thus suggested for use at a more detailed level of description – see below. If it were possible to rely on users understanding the effects of average household size in converting from household-denominated to population-denominated indicators, it would be possible to drop one pair of indicators from this set.

A further group of indicators covers the composition of household income: wages and salaries plus interest, dividends and rents plus self-employment income plus social benefits less income tax less GST less interest on consumer debt.

Capacity to summarise

Household income is a major determinant of consumption, and an indicator of standard of living. It therefore summarises a wide range of more detailed indicators.

When inter-regional comparisons are made, it should be remembered that the value of incomes to households depend on prices and the availability of goods and services on which to spend incomes. All of these may vary regionally, as indeed may people's tastes. This potential problem is generally disregarded, save for housing costs, for which see below. However, at consultations it was suggested that regional incomes should be deflated by a regional cost of living index. The WA government prepares such an index. The main objection to such indices is that people adjust to the opportunities available in each region so that there is no such thing as a constant set of ingredients of 'standard of living' valid for all regions. This is particularly the case for such purchases as recreation and transport.

Moral status

The general attitude is the more the better, and the faster the rate of growth the better. However, doubts are sometimes expressed, the two chief of which are

- income growth may be bought at the expense of unrecorded environmental cost; and
- growth may involve unrecorded social cost (particularly limited leisure and possibly poor parenting and low birth rates).

These doubts apart, income growth is usually a desired target, particularly for regions where income is lagging the country as a whole.

Indicators of the composition of income have less moral status, though high levels of reliance on social benefits and high levels of consumer interest in relation to income are both regarded as danger signs.

Robustness

At the conceptual level, income is not broad enough to suffice as an indicator of the 'good things of life'. Making it a target can cause concentration on income growth at the expense of other ends of human existence.

More practically, income is subject to various problems of definition and estimation, particularly for business incomes.

Suitability for identification of distressed regions

There are ample North American and European precedents for using low incomes per capita in the identification of distressed regions. The main disadvantages are:

- there may be geographic bias in the accuracy of income estimation (it is notoriously difficult to estimate incomes for small businesses, particularly those like farms which have substantial capital inputs and maintenance requirements, which means that incomes in regions with a high proportion of small businesses may be mis-estimated vis-à-vis other regions); and
- as noted above, it may be desirable to adjust for price levels especially housing costs. However, since regions with low housing costs tend to be depressed, this adjustment will reduce the differential between prosperous and depressed areas, and may reduce the accuracy of targeting.

From a public finance point of view, a high level of reliance on social benefits may indicate opportunities for development expenditures which help to reduce public expenditure.

Suitability as economic development targets

Eminently suitable.

State of the Regions 2001

State of the Regions 2001 did not provide a conventional estimate of household disposable income, but rather an extended estimate, subtracting GST and interest on consumer debt as well as the more conventional subtraction of income taxes paid. Titled ‘net flow of (household) funds per capita’, this measure exhibited a surprisingly large level of regional variation, from a minimum of $9900 to a maximum of $24100. The geographic pattern is displayed in Map 1.

Measures of the composition of household disposable income included:

- wages and salaries per employee, which is both a crude measure of wage costs and a measure of the contribution of wages to household incomes (Map 2);
- interest, dividends, rent and business incomes per capita, excluding earnings on superannuation which do not contribute to current disposable income whatever their contribution to wealth accumulation (Map 3 gives the interest and dividends component, highlighting the location of asset holders: note that the distribution is very skewed, with the wealthiest regions having more than ten times the flow of interest and dividends per capita of the poorest regions);
- interest paid per capita (Map 4 gives estimated payments, which in nearly all regions considerably exceed interest and dividend receipts, and Map 5 gives the balance);
- social benefits (Income from job generation schemes was classified under wages and salaries, though arguably it should be included here. Even so, Map 6 shows very considerable differences between regions in benefits per capita, while Map 7 shows that the contribution of benefits to household flow of funds varied from 5 per cent in the most favoured to over 33 per cent in the least favoured regions); and
- taxes paid (Map 8 shows income taxes per capita, while Map 9 shows income taxes plus GST paid less social benefits received per capita).

In discussion, it was agreed that these indicators of the composition of household incomes assist in the identification of prosperous and mendicant regions. In particular, they allow identification of wealthy regions (regions with high inflows of interest and dividends) and, at the other extreme, regions where growth is based on social security and the inflow of retirees who have cashed in on capital gains in metropolitan housing.

2.1.4 Income distribution

Concept

For many purposes, what counts is not the average income of a region, but the distribution of income, particularly the incidence of low incomes. Income distribution is conventionally calculated on a household basis, which means that the question of equivalence again arises. A crude definition of low-income families as those with incomes below a specified cut-off will over-estimate the number of households with low standards of living in regions with many small households, and under-estimate in regions where households are large.

Data sources

The sources are the same as for income (above). Housing cost data is also available from the sources mentioned.

Proposed indicators

- In *Measuring Australia's Progress* the ABS proposes the ratio of the average equivalised weekly disposable income of households in the 2nd and 3rd declines to that of households in the 5th and 6th deciles. This is a measure of dispersion in the middle of the distribution, and is not affected by either very high or very low incomes. The ABS favours the measure because it is suspicious of the accuracy which high and low incomes are reported—both contain a high proportion of self-employment incomes which by their nature are hard to calculate. On the other hand, this measure ignores matters which are of some community concern: for example, it is not affected by the recent runaway growth of executive salaries.

- An alternative is the percentage of households in the region with high incomes (presumably the high income cut-off will be indexed for comparison over time; high income households may also be recognised after allowance for household size). Complementing this is the percentage of households in the region with low equivalent incomes, say less than 150 per cent of a poverty line (this implies specification of a line, including equivalence, and also implies indexing). A third indicator is implied, namely the proportion of households between these two thresholds.

- Percentage of households mainly dependent on social security and allied income sources.

- Summary indices of income distribution are also available, such as the Gini and Shorrocks indices.

It is also common practice to supplement information on income distribution with information on housing costs, since these vary by region. In the poverty research tradition the indicator would be:

- proportion of households in the region with equivalent income less than 150 per cent of a poverty line, with housing costs subtracted from income and standard housing costs subtracted from the poverty line.

However, a simpler alternative might be:

- residents spending more than 30 per cent of their disposable income on rent or mortgage payments. (This indicator is easier to understand than the poverty-line related indicator, but can be misleading. When high-income households spend high proportions of their income on housing it is of less concern than when low-income households do, since the low-income households may not have enough left over for other necessities). In *Measuring Australia's Progress* the ABS proposes a variant of this, calculating an index of households with housing affordability problems. However, the Bureau does not grant this indicator 'headline' status, since it does not take housing quality into account. The ABS suggests several supplementary indicators of housing quality, but none of the readily available indicators are particularly satisfactory.

Considering housing as a cost (and hence as a component in a regional cost of living index as discussed in section 3 above) the relevant indicator is a dollar estimate of typical housing costs. House rentals and mortgage payments are published regionally by the ABS. In discussion there was considerable interest in this figure as a determinant of regional migration flows, particularly the flow of low-income people from high-cost locations to locations where they can afford housing and the supply of low-cost housing as an incentive to industry location.

Capacity to summarise

At the household level, many socio-economic variables correlate with the proportions of high and low income households. High housing costs are usually related to prosperity.

Moral status

A reduction in the proportion of low-income households is generally regarded as good. In discussions it was found that some regions would also like to target an increase in the proportion of high-income households, partly for its own sake and partly as an indicator of regional opportunities.

Excessive housing costs may be regarded as a summary measure of the failure of housing policy; alternatively of the failure of industry location policy, or may simply be regarded as part of the efficient working of the housing market. Similarly the associated capital gains can be regarded as totally undeserved, or a reward to astute investment.

High housing costs tend to be of concern in prosperous regions where they can seriously reduce the capacity of many households to access the prosperity. In discussions it was also found that low housing costs were a cause of concern, particularly where very low rents meant that the housing stock was deteriorating. Low housing costs were considered an attraction, in that real incomes could be relatively high for a given wage cost; the Local Government Association of Queensland considered this as one of the attractions for shifting production to SE Queensland. However, it was remarked that low housing costs also attract persons dependent on social security. In some regions this was accepted as a way of

keeping the town going in the absence of anything better, but was not regarded as a desirable economic base.

Robustness

Indicators of income distribution are only moderately robust, both because there are many ways of describing income distributions, as well as difficulties in estimating the distribution at the regional level. (Reasonably accurate estimates are available at the national and state levels, and indicators are collected directly at the Census.) Social security data can be accurate and up to date, provided the administrative system is organised to generate the data, though questions arise as to the treatment of allied payments (veteran's affairs, work for the dole, community development employment projects). However, if used as an indicator of low income households the data is liable to manipulation through changes in administrative practice and entitlements.

Suitability for identification of distressed regions

In the US, poverty-count indicators similar to the proposed proportion of low-income households are important determinants of distressed status. The indicator has obvious merit if the targeting of development assistance is intended mainly as a means of reducing poverty. Unlike their US counterparts, Australian governments have never recognised the concept of poverty, and they may not be attracted to a concept which is related to poverty measures. However, the proposed low-income measure is closely related to the low-income measures which Australian governments have long used to target social security and other benefits.

The high-income measure has not been suggested as suitable for identifying distressed regions.

Suitability as economic development targets

A reduction in the proportion of low-income households makes eminent sense as an economic development target, if the proportion is above national average; otherwise the indicator may be the subject of a watching brief, with alarm if it increases. Conversely, an increase in the proportion of high-income households may be desired.

State of the Regions 2001

Only one indicator was included: the proportion of high-income families (Map 10). This was confined to households with dependent children, with the income cut-off set at $80 000 a household. The range was considerable, from 1 per cent to over 50 per cent of households with children. There is obvious scope for the development of further indicators of this type at the regional level.

Housing cost indicators were not included in State of the Regions because direct ABS measures are available.

2.1.5 Household wealth

Concept

Household assets contribute to welfare by the generation of income (or saving on rent in the case of owner-occupied houses); debts are similarly incurred to change the time-pattern of consumption or to acquire assets. Household asset positions are also of some interest for economic development in that asset-rich households may be able to invest locally, and households which are not debt-saturated have the capacity to incur debt in order to support consumption, which should improve the resilience of the region to outside shocks. Household assets are also the major source of securitisation for small businesses.

Ownership of wealth yields not only a capital return but exposure to capital gains and losses. There is a case for trying to track capital gains on a regional basis, since these can have a major influence on regional economies. An important current instance is the exodus of households which have received capital gains in metropolitan areas into rural regions with low house prices.

Household wealth can be considerably supplemented by community assets – see 4.3 below.

Data sources

Data sources are patchy. Home ownership rates are available from the Census and, along with other Census variables, can be used to dimension national housing survey data to the regional level. Dwelling values can be derived from local government (rating) and from market survey sources. Financial wealth and debt can only be estimated indirectly from national surveys of income and expenditure, by assuming rates of return/interest and adjusting to local benchmarks. Similarly for the value of unincorporated businesses: this last is very uncertain, though market values are recorded for sales of at least some classes of local business.

To the extent that household wealth data is derived by calculation from income data (dividends, interest etc) it may be better to rely on source data rather than indicators which involve additional assumptions.

Capital gains declared for income tax purposes are available on a regional basis, and capital gains on owner-occupied housing can be inferred from house price data.

Proposed indicators

In *Measuring Australia's Progress* the ABS uses real national net worth per capita as a headline indicator, supported by real national assets and liabilities per capita, real capital net stock per capita, economically demonstrated natural resources per capita and real net foreign debt. Unfortunately most of these indicators are only estimated at the national level. At the regional level the following may be possible.

- Household wealth (limited to financial assets except superannuation, housing and unincorporated business enterprises) as a ratio to household incomes (or other ratio?).
- Household debt as a percentage of household disposable income (or possibly percentage of households where the debt/income ratio exceeds a defined level).
- Home ownership: proportion of households owning outright or purchasing their own home.

- Household income vulnerability: a composite indicator which estimates the exposure of households in a region to interest rate increases and earned income decreases. The higher the household debt service ratio, the lower the estimated savings ratio and the lower the estimated financial assets coverage ratio, the greater the vulnerability.

Measures of capital gains in residential property can be calculated from real estate statistics.

Capacity to summarise

These indicators add detail to the distribution of income, allowing differentiation (e.g.) between regions with old wealth and those with high labour incomes but little financial backing.

Moral status

A conservative view would be that a relatively high level of household wealth, a low level of debt, home ownership and low vulnerability are all desirable. However, not all subscribe to these conservative views. For example, home ownership is not desirable for people who value high mobility, and wealth accumulation requires limiting consumption, which is not always regarded as desirable. Investment in small business financed by a housing mortgage is generally regarded as good.

Robustness

Apart from home ownership, which is collected at the Census and surveyed between censuses, these indicators all require a great deal of estimation and may not be highly reliable. They are not, however, particularly vulnerable to manipulation.

House sales and price data is reasonably robust, though the houses sold in any region are not always representative of the housing stock as a whole. A check is available on this in states where improved values are collected for local rating purposes.

Suitability for identification of distressed regions

Apart from home ownership and low housing prices, there are probably too many measurement difficulties to use these indicators in region identification.

Suitability as targets of regional performance

Probably again best treated on an alarm basis rather than as targets in themselves. However, some regions may still wish to set targets for home ownership.

State of the Regions 2001

No direct measures were included, though the interest received and paid measures provide indirect indicators. The YourPlace data set includes estimates of household wealth.

2.1.6 Possible additional measures at the household level

A possible additional measure of household vulnerability to economic shocks is income spent on gambling as a proportion of household disposable income. High levels of gambling correlate with low savings and vulnerability to financial shocks. This indicator would supplement the other vulnerability indicators, and is also of policy interest in its own right. Regional strategy may therefore target a reduction. National Economics has estimated this indicator at the regional level in the course of work for the Victorian Casino and Gambling Authority.

Some of the international indicator sets include measures of household mobility and transport costs. It is a moot point whether they should be included at this point or as an aspect of regional infrastructure. We postpone consideration to Section 2.5.

2.2 Economic dynamics

2.2.1 Gross value added

Concept

Gross value added (GVA) is the conventional measure of the total value of market output plus government and organised non-profit services in a year, less the cost of goods and services used up in their production. (We use GVA rather than the conventional gross regional product since the OECD has recently recommended that this term be used.) The measure has various faults (for example, exclusion of production of household services and the exclusion of environmental costs), but these are fairly well understood.

In *Measuring Australia's Progress* the ABS relegates GVA to supplementary indicator status, the headline indicator being income. However, the indicator is so established as a measure of the size of a regional economy that for current purposes it will be difficult to relegate it to subordinate status.

Data

There are no official estimates of GVA below the state level. National Economics prepares estimates taking into account official estimates at the state level and data on production at regional level.

Proposed measures

- GVA.
- Rate of growth of GVA (possibly in relation to the national rate).
- GVA per person employed.
- GVA (excluding mining) per person employed. The rationale for excluding mining is that mining yields a very low rate of regional income capture (it is highly capital intensive and most of the value added accrues to capital owners outside the region of operations). It also tends to come and go as mines open and close. Because of the low rate of income capture, the opening and closing of mines tends to affect GVA disproportionately to its effect on regional income.

- GVA plus estimated value of household production. This measure has an impeccable theoretical pedigree, but in the absence of regional surveys it is very difficult to estimate the value of household production.

For comparison between regions of different size, GVA is conventionally deflated by an indicator of region size: population, or, as suggested here, employment. Dividing by employment creates an indicator known as 'labour productivity'. Because output reflects the contribution of equipment and resources as well as labour, labour productivity tends to be high in regions which employ lots of capital in relation to labour. It will also be high in regions which employ highly-skilled labour efficiently.

Capacity to summarise

GVA is a conventional headline indicator summarising the level of economic activity.

Moral status

The moral status of GVA derives from that of the incomes which it generates. GVA is frequently criticised for not making sufficient allowance for environmental costs, leading to attempts at adjustment (one such, calculated on a national basis by the Australia Institute, is called the genuine progress indicator). GVA is also criticised for its deficiencies as an indicator of incomes generated and the distribution of incomes generated. This criticism is less fair, in that alternative direct measures of these aspects exist, and should be used where income and its distribution are of interest.

A target to increase incomes (other than from transfer sources) implies a target to increase GVA.

Robustness

The indirect process of calculation means that the indicator is somewhat uncertain at the regional level.

There have been various criticisms that targeting GVA growth leads to neglect of environmental and income-generation consequences, with governments manipulating programs to yield high GVA growth at relatively low real-income benefit.

Suitability for identification of distressed regions

The European Union uses this indicator as its sole criterion for the identification of lagging regions within its structural adjustment program. However, the regions concerned are large and inaccuracy of estimation at the regional level is not a major concern. In Australia the definition is probably not robust enough to be useful in region identification.

Suitability as targets for regional performance

GVA has its merits as a target for overall regional business performance. However, from an ethical point of view it is subsidiary to income generation, and should be adjusted for environmental costs (or supplementary indicators applied).

State of the Regions 2001

Map 11 shows GVA (GRP) per person employed, excluding mining output. Though mining output is excluded, some of the remote mining regions report high values, due to mineral processing.

2.2.2 Income generation

Concept

The purpose of production is to generate employment and income; hence link indicators are of interest to relate economic dynamics to population and household dynamics, and to the labour market and skills.

Data availability

These are derived indicators from data used elsewhere in the system.

Proposed measures

- Net household disposable income per capita (net household flow of funds) as a percentage of GVA (with or without mining).
- Business income/net household disposable income (to serve as an indicator of the contribution of small business to regional incomes).
- Regional employment/GVA (the inverse of the labour productivity index above).
- Regional employment growth/GVA growth.

Capacity to summarise

Link measures are secondary in nature, but even so are useful in making the transition between major areas of interest.

Moral status

Derived entirely from the moral status of the indicators they link.

Robustness

No better than their weakest link.

Suitability for identification of distressed regions

Not suitable.

Suitability as targets for regional performance

When a region sets an income target, it may prefer to set an income capture target rather than a GVA target (when setting any two implies the third).

State of the Regions 2001

These indicators may be calculated from the data presented.

2.2.3 Industry structure

Concept

An important virtue of GVA is that it can be decomposed into the outputs of various industries, so yielding indicators of activity in each industry. There is scope for regional differentiation here, in that regions depend on different industries as the basis of their prosperity. However, a minimum national data set should include data on the major industries in each region, particularly those which are of policy interest at the national level. As with the composition of household income, industry composition is primarily a way of describing the regional economy.

Data availability

As for GVA.

Rather than estimate retail activity as a component of GVA, it is possible to make use of available estimates of commercial floor space. At consultations it was suggested that the measure should be confined to occupied commercial floor space, with vacant space measured separately.

Regional exports and their composition and direction of flow (to markets both within and outside Australia) are estimated by National Economics, from regional economic structure and estimated regional input-output tables. This assists in identifying the regional economic base.

Proposed measures

- High value-added industry output (advanced manufacturing + business services)/GVA.
- Manufacturing output/GVA (or alternatively regional share of national manufacturing output/regional share of national GVA [otherwise known as GDP]).
- Agricultural output/GVA (or alternatively regional share of national agricultural output/regional share of GDP).
- Tourism output/GVA (or alternatively regional share of national tourism output/regional share of GDP). Tourism is not identified as a major industry in the ABS industry codes, and it is necessary to cobble it together from a series of low-level activities which may include various entertainments and hospitality services which serve local rather than tourist markets.

There is scope to vary these classifications, and perhaps to identify other industry groups of national interest.

- Commercial floor space per capita.

The rationale for using population as the denominator here is that commercial activity tends to reflect the number of customers. Alternative denominators would be households or (even) total regional household disposable income (household flow of funds). This indicator is subject to the threat that the data collections on which it is based will be discontinued.

- Retained retail expenditure.

When people spend their incomes in their own region, income generation leads to employment generation within the region. This indicator is important in the estimation of regional multiplier effects.

- Economic diversification.

This is a compound indicator intended to identify regions with a diversified economic base, and hence limited exposure to the fortunes of any one particular industry.

- Trade specialisation: the percentage of regional exports going to the three most major markets.

This is a derived indicator. It is obviously sensitive to the tightness of definition of 'export market', which could be defined on a regional/national or on an industry basis. Possible market definitions are limited by data availability, and at best considerable estimation is involved. The main purpose of this indicator is as a measure of vulnerability to shocks originating overseas. When a high proportion of regional exports goes to particular markets the region is vulnerable to what happens in those markets.

Capacity to summarise

These indicators operate at the second and third levels of detail. Combined with views as to the likely growth of particular industries, they lead to assessments of regional specialisation as an opportunity for, or hindrance to, economic development.

Moral status

These indicators have no inherent moral status, save that it is preferable to specialise in industries which are believed to have growth potential, and is preferable to be diversified rather than mono-industrial.

Robustness

As robust as the GVA of which they are mainly components.

Suitability for identification of distressed regions

Not suitable, unless the Commonwealth/state wishes to place a regional aspect on industry restructuring plans.

Suitability as targets for regional performance

Regional strategies may involve targeting changes in industry structure, but these can only be determined at the regional level, and are likely to be subsidiary to broader targets.

State of the Regions 2001

Map 12 shows the increment to commercial floor space 1998-2000. The regional patterns of this indicator can change rapidly. Map 13 shows building approvals.

2.2.4 Business growth

Concept

Developments in the theory of regional economic development have highlighted a number of factors important for generating development in most regions.

Data sources

Some of the sources are as for GRP, but there are specific data sets as well.

Proposed indicators

In *Measuring Australia's Progress* the ABS suggests a number of supplementary indicators, including saving/GVA, real gross fixed capital formation/GVA, R&D expenditure/GVA, investment in software/GVA and proportion of businesses with a website or home page. Unfortunately few if any of these measures are available on a regional basis. The following are suggested.

- Net business start-ups (new business commencements in a region less businesses exits) – an indicator which was once available from the ABS and may become available in future from GST data.
- Export orientation (regional exports/GVA). This could be extended to trade exposure, by including import-competing industries as well. In consultations, representatives of some rural regions wanted further broadening to an index of contribution to the national economy, the presupposition being that exports are somehow worth more to the economy than domestic sales. This proposition runs counter to received economic theory, which means that any indicators based on it would not be accepted by the majority of Australian economists. Even those who believe that the Australian economy is balance of payments constrained may not agree on the details of indicator development. Accordingly it seems better to stick to simple indicators of export orientation and trade exposure, which if nothing else have the virtue of pointing to exposure to exchange rates. This indicator is available from trade data.
- Patent applications deflated by a suitable denominator such as employment. This is intended to give an indication of R&D activity to supplement the supply indicator, below.
- Demand for R&D. This is an experimental National Economics indicator, derived from industry structure and an assessment of the research intensity of each industry. The indicator thus attempts to assess the R&D which industry in the region should be doing

if it is to keep up with industry norms. It is not certain whether this process has been correctly specified: it is probable, for example that the need for research inputs into public administration and defence has been under-estimated.

- Supply of R&D. This is also an experimental National Economics indicator, derived from ABS estimates of outputs of business units engaged in R&D. It is vulnerable to correct identification of these units, and excludes R&D carried out elsewhere, e.g. in universities. An alternative indicator used by Wong (2002) in England is ease of access to research institutes.
- Balance of supply and demand for R&D – a derivative of the above two indicators, showing that many regions depend on importing R&D. However, since the balance is calculated at the gross level, the level of trade is underestimated, since no allowance is made for specialisation. The indicator is also sensitive to the inaccuracies of definition of its two components.
- Venture capital investments: venture capital funds invested in the region deflated by a suitable denominator (population? GVA?). Though the finance sector generates a considerable flow of data, it is uncertain whether it would be feasible to construct this indicator at regional level. Wong (2002) observed that there are differences across England in ease of access to venture capital, and, using data from a recent special-purpose government survey, constructed an indicator to measure the differences. There is scope for similar work in Australia.
- Business profitability. In so far as the aim of business is to make profits, this would provide an accurate measure of business success. The measure was suggested in consultations relating to the agricultural sector, where it is available in some regions from surveys – the general result being that a minority of businesses are reasonably profitable while most make poor returns. However there will be formidable technical problems in extending the agricultural surveys to construct an indicator valid for all business in all regions.
- Business scale – the proportion of GVA produced by SME's, alternatively the proportion of GVA produced by the smallest 50 or 60 per cent of producers. The latter measure was suggested in consultations in an agricultural context, and makes sense when considering any particular agricultural industry. At the regional level the measure is likely to be influenced by industry mix, and it might be useful to adjust for this by relating business scale to a standard broad industry profile – though this would make it difficult to compare rural and urban regions.
- Greenhouse emissions: CO_2 emissions per resident (estimated from car ownership and from industry composition). This could be classified as an environmental indicator, but is included here since it is not a measure of the costs imposed by the enhanced greenhouse effect (rising sea levels, changed weather patterns etc), but rather a measure of the vulnerability of a region to abatement costs. In the event of a national plan being developed on greenhouse emission abatement, this indicator could become important as a local target.

Capacity to summarise

These indicators provide detail, and point to areas which should be covered in regional strategy.

Moral status

Derived from the desirability of income growth and employment generation. Given this derivation, for most of these indicators the desirable direction is upward. However, this does not apply to the balance of supply and demand for R&D or to greenhouse gas emissions.

Robustness

These indicators are mainly experimental. Some of them may be subject to manipulation if they are used as targets. The indicators have been defined to make use of existing data, and it may be possible to define better indicators which require data collection.

Suitability for identification of distressed regions

Not suitable

Suitability as targets for regional performance

Expected to be very useful in directing regional attention to policies required to foster the knowledge economy at the regional level, but suitable only as subsidiary targets.

State of the Regions 2001

Several of the above indices were calculated for the 2001 report. Map 14 shows patent applications from 1990 to 2000 divided by population (as a rough measure of region size). The pattern does not fully correspond to the supply of R&D (Map 15), which in turn has a completely different geographic pattern from the demand for R&D (Map 16). Map 17 differences Maps 15 and 16, showing that the demand for R&D exceeds the supply in nearly all regions. However, supply is way ahead of demand in the ACT.

2.2.5 Infrastructure

Concept

At consultations it was pointed out that business will only be attracted to regions if infrastructure is available. Though this applies most directly to business infrastructure, it also applies to residential infrastructure in that businesses are attracted to regions which provide a good life for employees.

Data sources

Data sources tend to be administrative. In the days when most infrastructure was provided by public agencies, data was fairly readily available, but corporatisation and privatisation have resulted in much data becoming confidential.

Proposed indicators

At consultations it was suggested that the following items of infrastructure are a minimum set:

- freight transport services;
- roads and other infrastructure for private passenger vehicles;
- public transport/walking/cycling;
- air transport;

- water supply;
- electricity;
- gas; and
- telecommunications.

The transport group of indicators raises the more general question of accessibility. Transport is not in general demanded for its own sake, but as a means of accessing services, workplaces and other destinations. From a business point of view requirements can be quite specific: the requirements of bulk exporters (commodities in trainload lots to ports) are very different from dealers in high technology (frequent air services to world capitals). It is doubtful whether a general index could be defined to cover these diverse interests.

Turning to transport as community infrastructure, accessibility mainly relates to services delivered by the public and private sectors at particular places, typically shops, schools, hospitals, sports grounds and the like. As pointed out by Dr Dennis Griffith at the consultation in Darwin, the notion of service accessibility only makes sense in relation to particular services for particular people. It can be improved by:

- moving service outlets closer to the people;
- moving the people closer to the outlets;
- investing in transport infrastructure so that the people can travel faster; or
- increasing the people's incomes, so that they can afford faster transport.

Dr Griffith has proposed an accessibility index which is sensitive to all these possibilities, but which has to be separately calculated for each service, and for each income level. If such indices were calculated for a wide variety of services it would, however, be possible to summarise the results through an index of the detailed indices.

An index of this nature would be far more general than the indices of transport service quality sometimes put forward. For example, road congestion is often proposed as an indicator of transport service adequacy, the implication being that if there is congestion more roads should be built – neglecting the alternative possibilities that accessibility may be improved by changing locational patterns, or investing in footpaths or public transport.

Water supply raises questions of environmental sustainability, and is frequently included as an environmental indicator. However, it can also be treated as a business input, and as an input to household's standard of living. Much remains to be done to develop indicators of sustainable water yield coupled with quality, and to convert these into a common metric. However, the trade in water rights which is taking place under the COAG water agreements may begin to yield a monetary estimate of the costs of sustainable water supply.

In electricity, gas and telecommunications the concerns expressed at consultations covered availability, capacity and price.

Prices of infrastructure services, as well as prices of other business inputs and tax rates, are a major concern in the Competitiveness Index constructed by the Tasmanian Treasury. Though this index is prepared at the state level, it provides a precedent for an index of business costs at regional level. Data requirements are, however, quite daunting.

A general concern expressed at consultations was for the maintenance of infrastructure. Most items of infrastructure have long technical lives, and there is a temptation to under-provide for maintenance and replacement. However, it is difficult to see how this concern can be translated into a generalised rating of the quality of infrastructure maintenance.

Capacity to summarise

Most infrastructure measures are specific to particular services. The possible exceptions are a generalised accessibility index, which would say a great deal about service availability, and a generalised water cost index, which has potential to summarise many of the environmental impacts of business.

Moral status

Generally speaking, the greater the capacity and the higher the accessibility the better. High water costs indicate high environmental impact, but can also be interpreted as a resource rent.

Though indices in this group are designed to reflect infrastructure quality, they are necessarily affected by geographic factors which are outside human control. Water supply will always be easier to arrange in high-rainfall districts than in deserts. If the indicators are to be used to judge the performance of infrastructure providers, such factors need to be taken into account.

Robustness

Technical measures such as the capacity of a gas supply, and simple prices such as the price of gas, are reasonably robust. However, there is insufficient experience with more sophisticated measures such as accessibility indicators to assess their robustness.

Suitability for identification of distressed regions

The simpler infrastructure indicators lend themselves to the setting of standards. However, they are unsuited to expressing cost/benefit trade-offs.

Suitability as targets for regional performance

Infrastructure indicators are more likely to be suitable as targets for the performance of particular authorities within regions rather than targets for regional performance as a whole.

State of the Regions 2001

No indicators.

2.2.6 Remoteness

Concept

It has been argued that people living in remote areas should receive assistance to compensate for high costs of living and/or the limited range of services locally available. Less contentiously, it is argued that business development in remote areas is hindered by high transport costs and poor infrastructure availability.

Proposed Indicators

The ABS has constructed an indicator of remoteness which depends on the distance from the locality assessed to the nearest small town, the nearest large town and the nearest city. From a business cost point of view, this may serve to summarise some of the costs of operation in remote areas, but it should be remembered that the transport requirements of different sorts of business are quite different and may not be satisfactorily covered by the indicator.

Dr Griffith (above) is very critical of the ABS remoteness indicator considered as a determinant of welfare, on two grounds.

- Remoteness should be assessed with regard to particular services. Town size is not necessarily a good proxy for the availability of these services.

- The barrier of distance varies with income. Those who can afford to fly are effectively much closer to services than those who can only afford to drive. The average high-income mining community suffers little from its remoteness (though the mining company has to pay high salaries) but the average Top End or Cape Yorke Aboriginal community has very poor service accessibility due to remoteness.

Dr Griffith proposes a series of service-specific, income-specific accessibility indices which would be much more difficult to calculate than the ABS index. A modification of his approach would include the accessibility not only of the nearest, but of several alternative service locations, in deference to the importance of consumer choice.

Capacity to summarise

The ABS indicator provides a quick summary of regional urban geography but its further significance is uncertain.

Moral status

From a free-market point of view high transport costs in remote areas are merely the market at work. However, from a social welfare point of view, these high costs are of significance mainly if people cannot afford to pay them.

Suitability for identification of distressed regions

The ABS index of remoteness is not suitable, but indices along Griffith lines have considerable merit.

Suitability as targets for regional performance

Not suitable, save that Griffith indices may be targets for delivery of particular services.

2.3 Labour market and skills

2.3.1 Employment

Concept

Employment is important both for the income it yields (it is the chief means of conversion of GVA into household incomes) and for the contribution employed persons make to economic activity. It stands, therefore, as a fundamental attribute of a market economy.

This said, the economy is changing in ways which reduce the information content of the traditional unit of account for employment: a job. Jobs may now be standard-hours, or involve long hours, or be part-time right down to very low levels of hours a week. Jobs may be permanent or casual. Again, there is no one-to-one relationship between the number of jobs and the number of people with jobs, since multiple jobholding is common. With this in mind, it is perhaps better to develop indicators in terms of employed persons rather than in terms of jobs.

Data sources

At the regional level, jobs are included in the Census (though in regions for which journey to work tables are not prepared the jobs may not be accurately coded to region of location, as distinct from region of worker residence). Jobs are also the subject of various surveys, some of which produce results which are significant at regional level.

Proposed measures

In *Measuring Australia's Progress*, the ABS does not include any indicators of employment, concentrating instead on unemployment. However, employment is likely to be a central focus of economic development strategies. When data is prepared on a regional basis, and even more on a LGA basis, it is important to take commuting into account: people do not necessarily work in their home LGA. Measures include the following.

- Employment (no. of jobs located in the region).
- Employment (no. of residents employed).
- Rate of growth of employment (by location of job).
- Rate of growth of employment (on a residential basis).
- Employment (no. of hours worked) (by location of job).
- Employment (no. of hours worked) (on a residential basis).
- Rate of growth of hours worked (by location of job).
- Rate of growth of hours worked (on a residential basis).
- Number of 'ordinary' jobs (i.e. permanent jobs working 35-40 hours a week)/total employment). This measure is most meaningful on a location of job basis. A substitute might be 'family friendly jobs', if the sociological research can be used to identify the characteristics of such jobs, such as reasonable hours, maternity leave etc.
- Employment rate (no. of persons with jobs/total of workforce age) (this has to be residence-based).

- Labour utilisation (no. of hours worked/available hours) where available hours could be calculated in various ways: perhaps as total persons of workforce age x 37.5 hours each, or a reduced number, such as total employed persons plus persons seeking work on the conventional ABS definition of unemployment, x 37.5). (This likewise has to be residence based.)
- Employment self-containment (no of resident jobs/resident employed persons). This could also be specified in terms of hours, etc. It would be desirable to include not only daily but fly-in fly-out commuters and seasonal workers in the resident workforce. It would also be possible to calculate a gross measure (no. of jobs in the region/resident employed persons).

It is also useful to break down employment by industry; this provides a link between employment and the composition of GVA (2.3 above).

Capacity to summarise

Employment is a dimensioning indicator, similar to population; it may be included in the indicator set not for purposes of direct regional comparison but to assist in the interpretation of other indicators.

The rate of growth of hours worked provides an indication of job generation within a region, and the ordinary jobs proportion may give an increasingly useful indication of the 'quality' of the jobs generated.

The employment rate and labour utilisation ratio tend to be important targets, but note that when a region is not self-sufficient in jobs (i.e. it depends on commuting) this ratio makes sense only on a residential basis, and may be affected by development policies in the regions where residents work.

Since there is a considerable list of possible indicators in this section, it may be possible to summarise them further. Much of the problem is generated by commuting which crosses regional boundaries, and could be eliminated by defining regions with little cross-boundary commuting. However, this is becoming increasingly difficult as the cities expand and receive commuters from the neighbouring country towns and hobby farms, while in the remote areas fly-in fly-out is increasing in popularity, and seasonal movements of the workforce should also be taken into account. The alternative is to provide alternative sets of indicators: region of employment based when the focus is on output; region of residence based when the focus is on household welfare. The connection between the two sets of indicators is provided by the employment self-containment index.

Moral status

Against the current Australian background of widespread unemployment, employment generation is fairly unambiguously good. However, the same need not be said about all types of jobs. There is a demand for part-time work but at the moment in most regions part-time work is in excess supply compared to full-time. Similarly there are workers who wish to have long-hours jobs for the sake of the extra money, but some of these jobs involve undesired over-work by people who work the extra hours for fear of unemployment.

Employment self-containment has no particular moral value, except in so far as containment reduces commuting costs. However, low levels of containment may indicate that a region has opportunities to develop local service industries. As Wong (2002) points out, high levels of self-containment may be associated with high levels of community identity and integration.

Robustness

There has been considerable work done in this area and the indicators have precise and in general unambiguous meaning. However, if policies target particular indicators, there is a tendency to fulfil these indicators rather than the others. Thus targeting total employment is most easily fulfilled by generating part-time jobs; this may lead to a shortage of 'ordinary time' jobs.

Suitability for identification of distressed regions

Since distress is a welfare matter, the relevant indicators are likely to be on a residential basis. The most useful in this set is likely to be the employment rate and labour utilisation rate. Low rates by either of these measures have the advantage over conventional unemployment rates in that they do not involve estimation of the difficult concept of willingness to work. However, in other respects they have similar attributes to unemployment rates, which will be further discussed below.

Suitability as targets for regional performance

A regional economic development strategy worth its salt will include at least one target in terms of these indicators, but the indicator(s) chosen may depend on regional circumstances and views as to how income generation and income distribution are related to employment generation.

State of the Regions 2001

Total employment by region was included, but was not mapped.

2.3.2 Unemployment

Concept

Unemployed people are those who do not have paid work but want it at going rates. The problem in measuring unemployment lies in the term 'want'. There is a conventional survey instrument which assesses this in terms of job-search effort, but the resulting estimates have been criticised for not including the 'hidden' unemployed; i.e. those who want work but, due to a realistic assessment of their local labour market, are not currently searching for it. The unemployment measure also reflects the definition of employment: the broader this definition (e.g. by including small amounts of part-time work) the lower the estimate of unemployment. Recorded unemployment rates may also be reduced by stretching the time period of assessment. The long-term unemployment rate is less than the single-week unemployment rate.

Data availability

There are three main sources:

- ABS/DEWRSB data employs a consistent but narrow definition, and is available on a regional basis from sample surveys (though the surveys restrict the size of region for which satisfactory estimates can be given). The ABS also records unemployment, on a

self-assessed definition, at Censuses. This measure is selected *in Measuring Australia's Progress* as the headline measure of work;

- the ABS has recently developed a broader indicator to include persons under-employed, discouraged workers etc. If this indicator gains public acceptance, the Bureau may perhaps be persuaded to conduct the surveys required to measure it at the regional level. This 'extended labour force under-utilisation rate' is included in *Measuring Australia's Progress* as a supplementary indicator; and

- Administrative data generated by the social security system and its offshoots.

Proposed measures

Unlike employment measures, all proposed measures are on a residential basis, since unemployed people have no job location.

- The standard ABS/DEWRSB unemployment rate is available for regions defined by DEWRSB, but being essentially a sample survey measure is not available for LGAs and hence is not available for regions other than the DEWRSB regions. However, Census unemployment estimates are available for all geographic units down to CDs.

- In the process of calculating the ABS unemployment rate it is necessary to measure the workforce (i.e. people in work plus the unemployed on ABS definition). The workforce so calculated can be expressed as a percentage of the total population of workforce age. This measure provides indirect evidence on the extent of hidden unemployment (the underlying assumption being that all areas would reach high rates of workforce participation if the jobs were available). A more sophisticated version adjusts for age composition within the population of workforce age.

- The ABS extended labour force under-utilisation rate is calculated from similar surveys as the standard rate by relaxing the 'looking for work' questions and also by including those who would like to work more hours. It is available for states and for large regions within states. Making it available for all regions would require much larger samples and/or imputation.

- The 'social security' unemployment rate can be defined as persons receiving government benefits who would be likely to be at work were full employment attained in their region. Conceptually this should include persons on Centrelink and Veterans' Affairs benefits plus work for the dole and CDEP participants. National Economics has developed a measure of this kind, but due to data availability it excludes non-Centrelink recipients, and may also have been affected by recent administrative transfers from wife's pension to disability allowances. This rate assumes (a) that people whose unemployment is of concern are receiving social security and (b) that 'full employment' rates of social security uptake can be defined. The first assumption would be challenged by those who argue that many unemployed people are not receiving social security, but would be supported by those who believe that there are many social security recipients in all categories who would not be receiving social security were the labour market more favourable. The second assumption can be calibrated by observing social security uptake rates (by age, sex and marital status) in regions currently or recently experiencing full employment – such as Sydney in 2000.

- A second estimate of the workforce can be obtained by adding unemployment as calculated from social security sources to the total number employed.

- Structural unemployment. As with the overall unemployment rate, this can be calculated from survey or social security sources. The survey method involves asking people how long they have been unemployed and is suggested by the ABS in *Measuring Australia's Progress* as a supplementary indicator. This is not available for LGAs. The social security method involves deriving estimates of long-term unemployment from administrative sources.

- Indigenous unemployment can be calculated from the Census, though this excludes people with CDEP jobs. The sample size in general surveys is too small to calculate indigenous unemployment by region, and administrative data may not identify all indigenous people, though it does provide estimates for CDEP.

- Youth transition: this indicator is proposed in lieu of the youth unemployment rate, which can be difficult to compare with other unemployment rates since so many young people are engaged in education. The proposed indicator is young persons not in full-time education and/or work as a percentage of total young persons.

- Other supplementary indicators put forward by the ABS in *Measuring Australia's Progress* are the retrenchment rate, the proportion of the workforce in casual and/or part-time employment, the proportion of jobs requiring work for than 50 hours a week and average hours per week of full-time workers.

- A traditional complement to the unemployment rate is the job vacancy rate. At consultations particular concern was expressed about hard-to-fill jobs, though no measure was proposed. Hard-to-fill vacancies tended too arise for jobs requiring skills in short supply, particularly where the working conditions and pay were relatively unattractive. In other words, regions with a poor supply of skilled labour were likely to find skilled jobs hard to fill. This draws attention to the relationship between unemployment and skills (section 4.1 below).

Capacity to summarise

The basic ABS/DEWRSB measure excludes hidden unemployment, and the extended labour force under-utilisation rate is weak at the regional level and doubtful as to coverage (mainly because many of those who would take a job were one available are not in a position to say whether they would). There is no guarantee that hidden unemployment is proportional to recorded unemployment.

In many regions the social security unemployment rate exceeds the ABS rate. Again, the one does not predict the other. The social security rate has a certain validity in its own right as an indicator of how much the government stands to save were full employment to be created. It includes a significant number of the hidden unemployed, but not all of them (especially not married women, and increasingly not those who have been denied social security payments due to breach of administrative conditions).

The other rates (structural, indigenous, youth) provide detail for groups which have been of general concern.

Moral status

Unemployment is bad at the personal level, in that it reduces income and self-esteem. It is bad in that it wastes resources. However, among employers there are many who support a slack labour market since it limits wage demands, and ensures employee flexibility. A certain amount of unemployment may also be tolerable from a worker point of view, in that it permits

changes of job. Full employment is accordingly defined as a rate of unemployment, generally estimated in the 2-5 per cent range by the ABS measure. High unemployment, above this rate, can then be considered unambiguously bad.

Robustness

The ABS/DEWRSB measure is accepted as reasonably constant in definition and method of calculation. However, its adoption as a target at national level has encouraged macroeconomic manipulation by the implementation of measures which decrease measured unemployment at the expense of increases in hidden unemployment. These has also happened for the structural, indigenous and youth rates which are calculated from similar sources.

The social security measure is even more susceptible to manipulation (e.g. increasing the 'breach rate' so as to keep people off benefits) and both changes in administrative practice and data suppression policies can militate against its calculation on a constant definition.

Regional comparison may be affected by differences in labour market structure. For example, a region with high work seasonality may record a higher year-average unemployment rate than a region with low seasonality, even though the incomes generated and hours worked are the same.

Suitability for identification of distressed regions

Unemployment is of considerable political concern. This, added to its inherent undesirability, makes it a candidate indicator for the selection of distressed regions. It is certainly frequently so used in the USA. However, there are two objections to its use:

- the ABS and administrative measures diverge considerably at regional level. This raises the question as to which to use: a question which has no easy answer; and

- at consultations it was pointed out that the regional pattern of unemployment is affected by the migration of unemployed people. Unemployed people tend to move away from metropolitan areas with high housing costs, and also, except for indigenous people with a strong attachment to the land, tend to move away from inland regions. They tend to migrate towards coastal and hilly areas with low-cost housing. It can still be argued that jobs should be created where people want to live; but the counter argument is that jobs should be created where the economic returns are greatest. This raises further questions: it may be easiest to create jobs in the cities, but very difficult to supply low-cost housing. On the other hand, low-cost housing is often available inland, with job creation relatively difficult. There are opportunities for careful optimisation of job creation and housing provision.

Given these objections, it is difficult to recommend unemployment as an unambiguous indicator of regional distress.

The more detailed group rates are less likely to be used in identification for general programs, but are obviously useful for programs targeted on the groups concerned.

Suitability as targets for regional performance

Since high unemployment is unambiguously bad, a target for unemployment reduction to the 'full employment' rate is eminently sensible. However, past experience with finessing the rate should be borne in mind. It is not desirable to set unemployment targets which are met by data manipulation.

State of the Regions 2001

Map 18 shows the regional distribution of unemployment on the ABS definition, and Map 19 the distribution of unemployment according to the social security definition as interpreted by National Economics. The two patterns are similar, but there are two major differences:

- the range for the social security definition is much larger (2 per cent to 26 per cent, as compared with 3 per cent to 12 per cent); and

- there are particularly interesting divergences between the two measures in NT Lingiari and Far and North Western NSW. These divergences probably reflect the high proportion of the Aboriginal population receiving social security while not officially recorded as unemployed.

Map 20 shows the differences between the ABS and social security definitions; Map 21 shows the pattern of workforce participation based on administrative sources and Map 22 gives estimates of structural employment from administrative sources.

2.3.3 Regional labour force quality

Concept

Recent contributions to the theory of regional economic development have highlighted a number of workforce characteristics important for generating development in most regions. At consultations worker availability was reported as an important factor in employer location decisions. In rural areas availability was a compound of the people currently resident (through change of job and absorption of the unemployed) and the capacity to attract people from elsewhere. To the extent that a region relies on immigration to meet its labour needs, the attractiveness of its workforce cannot be assessed solely from the quality of the current resident workforce, but requires assessment of the attractiveness of the region. Indicators of attractiveness include housing costs and many of the measures covered under section 4 below.

Data sources

Measurement of worker capability almost inevitably resorts to occupation and/or formal qualifications, for which Census, various survey and sundry administrative sources are available. The inadequacy of these sources was pointed out at consultations. Because of differences in industry mix, some regions depend more than others on people with on-the-job qualifications, many of which have no formal recognition. Again, formal qualifications do not cover entrepreneurship, and cover the social skills valuable in many occupations very imperfectly. The difficulty in obtaining data which distinguishes between formal skills and labour force quality means that this area tends to be measured by proxy using measures here included in area 4.1.

Proposed measures

It is usual to measure labour force quality on a residential basis, but indicators on a place-of-work basis may be useful as measures of the human capital employed by local business. Proposed measures include

- workers with skills and/or occupations with a high knowledge content as a proportion of the total workforce;
- advanced business service workers (legal + financial + accounting + ICT + management workers as a proportion of the total workforce or service sector workforce);
- workers engaged in (qualified for no more than?) routine tasks as a proportion of the total workforce (as a negative indicator); and
- structural employment dynamism (a compound indicator, derived from industry and skill mix, estimating the number of jobs in a region threatened by structural change).

Capacity to summarise

The first three of the suggested indicators provide alternative estimates of the one fundamental concept; multiple indicators are suggested because no one of them summarises the information reliably. The fourth indicator suggested is also a measure of vulnerability, but from a different angle.

Moral status

The moral status of these indicators is subsidiary to the general aim of increasing incomes and employment. From this point of view, high proportions of the first two, a low proportion of the third, and low vulnerability are desirable.

Robustness

In themselves the indicators are reasonably robust (i.e. not subject to miscalculation), but they are only indirect indicators of the underlying concept of readiness for the opportunities offered by the knowledge economy. If chosen as targets they may be subject to manipulative response.

Suitability for identification of distressed regions

They may have a role to play as subsidiary indicators, especially for programs designed to rectify the shortcomings they indicate.

Suitability as targets for regional performance

These indicators may be considered as targets, though they should not be put under such stress that manipulation occurs. It might be better to treat them as warning lights.

State of the Regions 2001

Map 23 shows the proportion of workers employed in information technology and related activities, including the interpretation of information, while Map 24 shows the proportion 'symbolic analysts' in the workforce. The two concepts are similar, one being derived from the industry classification and the other from the occupational classification.

2.4 Education, training and other community infrastructure

2.4.1 Education and training

Concept

This area is closely allied to 3.3 above, regional labour force quality. Education has value in its own right, and it is arguable that the proposed indicators emphasise its instrumental aspects excessively.

Data sources

Mainly administrative sources and special surveys, though the Census provides basic data.

Proposed measures

All measures would ideally be calculated on a residential basis, though some administrative data is available only on a place-of-education basis which may differ from place of residence due to commuting. In some cases such as university enrolments place of permanent residence may be uncertain.

In *Measuring Australia's Progress* the ABS uses people aged 25-64 with a vocational or higher education qualification as the headline indicator for education. Supporting indicators include the education participation rate for those aged 15-19, the year 7/8 to year 12 apparent retention rate, expenditure on education/GVA and managers and professionals/total employment. Measures available mainly through the education system include the following.

- Adult literacy: residents aged 15 and over assessed as literate/total population aged 15 and over (this presupposes a literacy test which is equally valid across all regions and population groups). A similar measure might be proposed for numeracy.
- Number of households which own a computer/have internet access/total households (again detailed definitions are important – do households reliant on neighbourhood centres count? Do all computers count? It may be that the competency is more important than the physical ownership – should we switch to a competency indicator? If so, what should be the adjustment for age-group differences in competency?)
- Number of year 10-12 students who have undertaken structured workplace learning/number of year 10-12 students.
- Year 11/12 apparent retention rate (number of students in years 11+12/number in year 10 – an indicator which is vulnerable to students who change place of schooling/residence between years 10 and 11).

- Year 12 completion rate (number of students who started year 11 completing year 12).
- Number of residents aged 15 and over engaged in education and training initiatives/total number of residents aged 15 and over.
- Residents with tertiary qualifications/total regional population aged 15 and over (or perhaps aged 18 and over) [This measure can be refined by weighting tertiary qualifications by the number of years of full-time study typically required to gain the qualification.]
- University enrolments/population aged 15 and over [If defined as enrolments within the region as a proportion of resident population this measure is strongly influenced by the regional supply of tertiary education. From the point of view of development of the region's human resources, a preferred indicator might be permanent residents engaged in tertiary study as a proportion of permanent residents aged 15 and over; but the problem is that many tertiary students are of undefined permanent residence.]
- An alternative supply indicator is the number of square metres of tertiary teaching space (or number of tertiary teachers, perhaps weighted by qualification) per resident aged 15 and over. Various other education accessibility measures were discussed at consultations. These measures attempt to get away from using actual enrolments as an indicator of educational quality and accessibility.
- Persons enrolled as apprentices and trainees/population aged 15-25 (or other appropriate age group) This measure is subject to some of the same qualifications as the university enrolments measure, and indeed the two could be combined with suitable weighting. These measure could also be calculated on an expenditure rather than an enrolment basis.

Capacity to summarise

The qualification rate is probably the most general summary indicator, and is so used by the ABS. Unfortunately it is subject to age bias. Skills which were not tertiary-certificated a couple of decades ago now are, and therefore a region with an older population is likely to be under-rated. More generally the methodology emphasises formal rather than informal skills, and among formal skills does not differentiate between those which are in demand in the region and those which are not.

Other measures in the list are detailed in nature, and some measure particular concerns and programs which may be of no more than passing interest.

Moral status

More education is generally regarded as preferable to less, but there is considerable dispute as to the desirable content of education.

Robustness

The indicators are not particularly robust, in that they are different partial measures of an underlying concept – the education of the population, especially in relation to economic development – on which there is a divergence of views. An important view is that education in this sense is not wholly quantifiable, hence the profusion of partial indicators. It may be that more indicators are needed to round off the picture.

Some of the more detailed indicators may not be regionally comparable in that similar outcomes may be delivered in different ways.

Suitability for identification of distressed regions

Because of the uncertainties, these indicators are not generally suitable for such identification save for programs with a high educational component.

Suitability as targets for regional performance

Regional development strategies should include an educational component, and hence indicators drawn from this family are required as measures of the implementation of the educational part of the strategy. However, the precise indicators targeted may be regionally distinctive and, according to the programs adopted, may not be drawn from the above set.

State of the Regions 2001

Map 25 shows an index of post-school education, in which higher degrees are weighted more than vocational qualifications. Map 26 shows the pattern of university enrolments. Despite the extension of distance learning opportunities and country campuses, enrolments still reflect the location of universities. Many students attend university outside their region of origin, but this still represents a disadvantage for the region since it is reported to be hard to attract graduates to regions with poor education facilities even when they originally hail from the region.

2.4.2 Health

Concept

Good health is fundamental both to enjoyment of life and to the ability to contribute to society and to production. Accordingly health indicators are prominent in international comparisons of levels of prosperity, to the extent that agencies such as UNICEF dispense with economic indicators of national well-being and substitute health-based indicators such as the infant mortality rate.

Data sources

The Census, registries of births and deaths and administrative data generated by the health system provide data accurate at the regional level. There has been a tendency at national level to rely on surveys for quantification of concepts such as the incidence of disability. There has been some work to extend these data to regional level.

Proposed measures

Traditional summary measures of health status, such as the infant mortality rate and life expectancy, do not discriminate very well between OECD countries or between regions or groups in those countries, so there has been a tendency to substitute such measures as health-adjusted life expectancy and self-reported health status. Even so, in *Measuring Australia's Progress* the ABS relies on life expectancy at birth as the headline indicator of health, supported by the proportions of people surviving to 50 and 70, the infant mortality rate and a measure of the cost of disease. Life expectancy/survival measures are problematic at the regional level, due to inter-regional migration. This also applies to measures which adjust life expectancy, such as life expectancy adjusted for disability (so-called disability adjusted

life years). The infant mortality rate can be calculated at regional level, but is not robust due to small numbers of deaths. A lot of work remains to be done, therefore, on measures of health which are valid at regional level.

Potential demand for health services can be estimated from the age/sex distribution. The Australian Institute of Health and Welfare is pursuing research into measures which relate the potential and actual demands.

A much narrower concern is the equitable distribution of health service facilities between regions. A simple summary indictor here is:

- access to health facilities, quantified as hospital beds/resident. Allowance may need to be made for access to specialist facilities in other regions. More sophisticated versions could be developed in the form of service accessibility indices. For discussion of such indices see 2.5 above.

Capacity to summarise

If a general health status measure could be developed at regional level, it may be expected to summarise a considerable range of data on health status, and be closely related to (and in some respects superior to) economic measures of well-being.

Service provision indicators are of less broad application but help to document areas of concern which are under public-sector management and hence potential targets in development strategies.

Moral status

Good health is unambiguously good, and an improvement desirable.

Health services are generally considered desirable, though there may be arguments over optimal service configuration and effectiveness which service provision indicators do not necessarily capture.

Robustness

Indicators such as life expectancy are generally considered robust, hence their prominence in international comparison. However, their health-status-adjusted derivatives may not be so robust as to data sources and comparability.

Service provision indicators are sensitive to administrative definitions and outcomes are liable to manipulation.

Suitability for identification of distressed regions

In principle, a robust indicator of health status would have considerable potential for identification of distressed regions. However, there has been insufficient experience with the effect of inter-regional migration on these indicators. Such migration has potential to negate the effectiveness of the indicator.

Service provision indicators are useful only to the extent that national targets may be set for minimum standards of service provision. However, health service availability is an important concern in many regions, as indeed is the cost of health services.

Suitability as targets for regional performance

As a supplement to other indicators of well-being, a general health status indicator is potentially useful as a target.

Specific health service provision indices are obvious targets if the strategy plan includes the achievement of particular standards of service provision. However, the targets are likely to vary from region to region and from time to time as concerns change.

State of the Regions 2001

No indicators.

2.4.3 Other community services, liveability and social capital

Concept

In some areas of life private wealth is no substitute for community wealth, and in others community wealth considerably supplements private wealth. Many types of activity are impossible without community assets, networks and trust. The education system is considered above, but various other types of community wealth are important both for the real income they yield and more indirectly for the social capital they foster. In a negative sense, crime may also be taken as an indicator of social well-being, and as a cost of living in each region. The most negative of all indicators of well-being is the suicide rate.

Many aspects of community wealth are important in their own right, and not merely for their contribution to economic development. However, in a data set concentrating on socio-economic development it is proposed that only summary measures be included.

Proposed measures

The ABS in *Measuring Australia's Progress* proposes a headline indicator from the crime area (victimisation rates for unlawful entry with intent and assault). Unfortunately this indicator is not available on a regional basis, since the ABS victimisation survey is designed to provide data at the state and national levels only. The ABS also proposes the homicide rate and imprisonment rates as supplementary crime indicators. Its approach to social capital is 'social attachment', for which it can find no headline indicator but proposes a raft of supplementary indicators. These include attendance at live performances, participation in organised sports, voluntary work, marriage and divorce rates, persons living alone, waking time spent alone, homelessness and suicide and drug-related death rates. The Bureau also recognises two further dimensions of the standard of living:

- culture and leisure; and
- governance, democracy and citizenship.

It argues that these should in principle be measured, but does not propose any indicators for either of them. The problems are similar to those encountered by Wong (2002) in measuring institutional capacity.

At consultations a number of other potential measures were proposed.

- Community welfare services: health, education and community welfare sector workers per thousand residents. Measures such as this could be supplanted by accessibility measures as discussed under infrastructure, above, but not until further work has been done on the underlying concept.

- 'Under-cover' lifestyle options: square metres of entertainment, educational and cultural facilities per resident.

- 'Open air' lifestyle options, such as participation in organised sports and availability of non-organised recreation.

- Social capital was commended as an important regional resource, closely related to economic development opportunities. Unfortunately it tends to be a slippery concept, but various surveys are assessing the ground to be covered. Possible indicators include the feeling of safety from crime, confidence in the future (as asked in some of the Canadian surveys mentioned above) and indicators drawn from psychology on strength of identity.

- The capacity to plan was also mentioned as an area in which indicators might be developed. A proxy indicator might be government expenditure on regional planning, though this is subject to doubts about the efficiency with which money is applied. 'Institutional thickness' was mentioned as a concept related to the capacity to plan, especially on an informal basis, as was the count of community organisations. These in turn relate to availability of volunteers.

- It was suggested that the 'liveability' indices which chart the competition between world cities might be extended to cover regions.

Capacity to summarise

As for educational and health service measures.

Moral status

These are measures in which balance is desirable. An increase is desirable up to a point, but there can also be over-provision, especially in relation to other targets.

Robustness

Probably reasonably robust as descriptive measures, but may not be robust as targets, due to opportunities for manipulation.

Suitability for identification of distressed regions

Not in general suitable, but may be useful for particular specialist programs.

Suitability as targets for regional performance

Regions may target improvements in these areas, in which case targets drawn from this range will be adopted. Quite possibly regions will define specific targets more closely in relation to their particular programs.

2.4.4 Environment

It was noted above that changes in GVA are misleading if not corrected for environmental costs. By implication, income requires similar correction, while measures of wealth and infrastructure are incomplete without allowance for environmental wealth. The importance of these adjustments can be seen in *Measuring Australia's Progress.* A bald summary of the trends shown in this publication is that, over the 1990s, income growth took place at environmental cost. It is therefore an open question as to whether Australia experienced economic growth, broadly defined, or not.

It is also relevant that considerable work is being put into the development of environmental indicators. This work is likely to result in a considerable number of indicators, which arguably should be included in a different data set. However, it is also arguable that no account of economic development is complete without environmental indicators. The question is, which indicators? In *Measuring Australia's Progress*, the ABS nominates the following as headline environmental indicators:

- extinct, endangered and vulnerable species of birds and mammals;
- the annual area of land cleared;
- salinity (assets at risk in areas affected by, or with high potential to develop, salinity);
- the proportion of water management areas where use exceeds 70 per cent of sustainable yield;
- fine particle concentrations in the air (days on which health standards are exceeded in the capital cities); and
- net greenhouse gas emissions. (In the present report this indicator is included in Section 2.4, business growth, on the grounds that regions with high emissions are vulnerable to costs as emissions are curtailed.)

In addition, numerous supplementary indicators are proposed.

These indicators are proposed at the national level, and the question arises as to their applicability across regions. In urban areas the chief concerns are often various forms of pollution (water, air, noise) which may not be a problem in rural areas. Coastal and inland country regions also typically have different environmental problems. Given these differences, it is likely that relevant environmental indicators will form part of the target indicator set in most regions, but also likely that the targeted indicators will differ considerably between regions.

A few suggestions were received as to indicators which are expected to be available and relevant across regions. These include:

- changes in vegetation coverage (available from satellite imagery);
- changes in water pollution; and
- biodiversity indices.

For want of expertise, the present study did not subject any of these proposals to detailed examination. However, the importance of environmental indicators is underlined, including the importance of expressing them in a metric which enables the negotiation of trade-offs against economic indicators. It is also expected that experimental environmental indicators will be included in *State of the Regions 2002.* A substantial literature is also developing on environmental indicators, including work supported by the ALGA (Alexandra et al, 1998).

References

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Appendix 1: Consultations: brief notes

Hobart 22 April

Local Government Association of Tasmania (LGAT), Alan Garcia

Discussion covered various aspects of regional development policy, particularly in Tasmania

Other relevant work:

- the LGAT conducts an annual survey of council performance; and
- there are currently no academic researchers specialising in regional development in Tas.

Tasmanian Department of State Development: Rod Bleathman, Fae Robinson and Rod Stolorz

Drew attention to:

- indicators in the TasmaniaTogether project; and
- the Tas Treasury index of state competitiveness.

Cowra 30 April

G Apthorpe, Cowra Shire Council

Suggested various indicators relevant to rural-based regions.

Sydney 2 May

Lgov (formerly Local Government & Shires Association of New South Wales), S McBride

Suggested a range of indicators particularly re social capital, infrastructure etc

Other relevant groups:

- NSW Dept of State and Regional Development: Paul Collits;
- University of Western Sydney: Urban Frontiers (Bill Randolph) re urban areas, also Australian Expert Group on Industry Studies (Christine Martinez); and
- Charles Sturt Univ, Bathurst (Tom Murphy).

Armidale, 6 May

University of New England, Angus Witherby

Gave a staff seminar to the various University of New England groups interested in regional development, and received comments on the proposed indicators.

Gatton, Qld, 13 May

University of Queensland, Bob Beeton

Discussion covered measures relevant to rural areas

Brisbane, 14 May

Local Government Association of Queensland (LGAQ), Greg Hoffman and Richard Senescall

Discussion covered a range of indicators, particularly those which account for the attractiveness of SE Queensland.

Other relevant work:

- the LGAQ conducts a survey on local government performance; and
- the state OESR provides regional analysis.

Other relevant groups:

- U of Q Gatton, also Imswich Community Service and Research Centre (G Woolcock), also Bob Stimson, also statistical modelling by Docwra;
- QUT; and
- Babcock Brown and others, in the Infrastructure Assn of Qld (John Hoffman).

Adelaide 22 May

Local Government Association of South Australia (LGA of SA), Chris Russell and Stewart Mathews

A seminar was organised by the LGA of SA, with representatives from the LGA of SA, ABS, Flinders University (Geography), University of SA (Whyalla), Centre for SA Economic Studies, and state government (Employment, Planning, State Grants Commission, Regional Development) and the Murray Mallee regional board.

Following a presentation of indicators from *State of the Regions*, the group made numerous suggestions as to indicator definitions and concepts. They were also concerned that regional definitions might become ossified.

Other relevant groups: all relevant groups in SA were represented.

Darwin, 23 May

Dr D Griffith, Service Access Solutions Pty Ltd

Discussed the Griffith Service Access Frame (a measure of service accessibility) with Dr Griffith.

Darwin 24 May

Local Government Association of Northern Territory (LGANT), Tony Tapsell and Peter McLinden

Discussed various indicators, particularly in relation to remote areas.

Perth 28 May

Edith Cowan University, Joondalup, Irene Froyland and Timothy Houwelling

Discussed the approach to indicator identification, and also a number of indicator areas. This group has particular expertise in indicators of public safety and crime.

Perth 29 May

Western Australian Local Government Association (WALGA), Wayne Scheggia

Discussed regional definition, household indicators, venture capital and infrastructure.

Other relevant work:

- the WA Dept of Local Government and Regional Development (Steven Yuill) has commissioned major work on regional development indicators.

Hamilton, Vic, 7 June 99

RMIT, Dr John Martin

Presented a seminar to a group of academics and local economic development practitioners, receiving comments on the indicators.

Appendix 2: Maps of selected indicators

This appendix comprises stylised cartograms for the 64 regions employed in the *2001 State of the Regions* report. These are used to display values for 26 of the indicators published in the 2001 report.

The background cartogram was drawn so that:

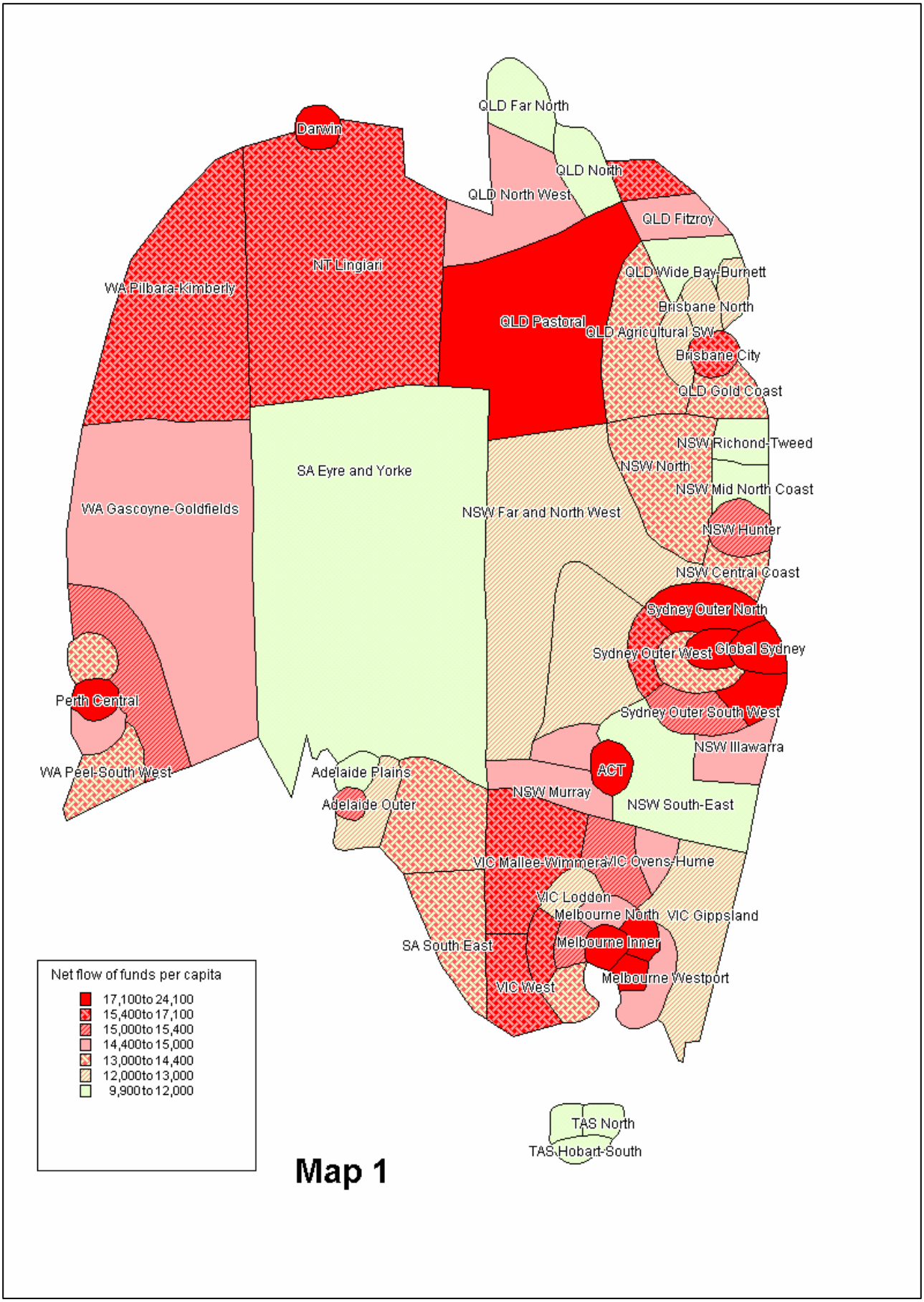
- each region is of sufficient area for its value shading to show up (as compared with maps drawn to scale, where urban regions are too small for their shading to show up on an all-Australia map); yet

- boundary relations between regions are maintained (i.e. if a region has a boundary with another region, that will be shown on the cartogram).

The result is considerable distortion of shape for some regions, but it is possible to compare the values for both neighboring and distant regions without having to flip from map to map, as would be necessary if the regions were drawn to scale.

Cartograms

1 household flow of funds p c
2 wages
3 dividends interest etc
4 interest paid p c
5 balance of dividends interest received and interest paid
6 social benefits p c
7 benefits/household cash flow
8 income tax p c
9 income and GST p c
10 high income families
11 GVA per person employed
12 additional commercial floorspace
13 building approvals
14 patent applications
15 supply of R&D
16 demand for R&D
17 net R&D balance
18 unemployment (ABS)
19 unemployment (YourPlace)
20 difference between 18 and 19
21 workforce participation
22 structural unemployment
23 workers in IT
24 symbolic analysts
25 post-school education
26 university enrolments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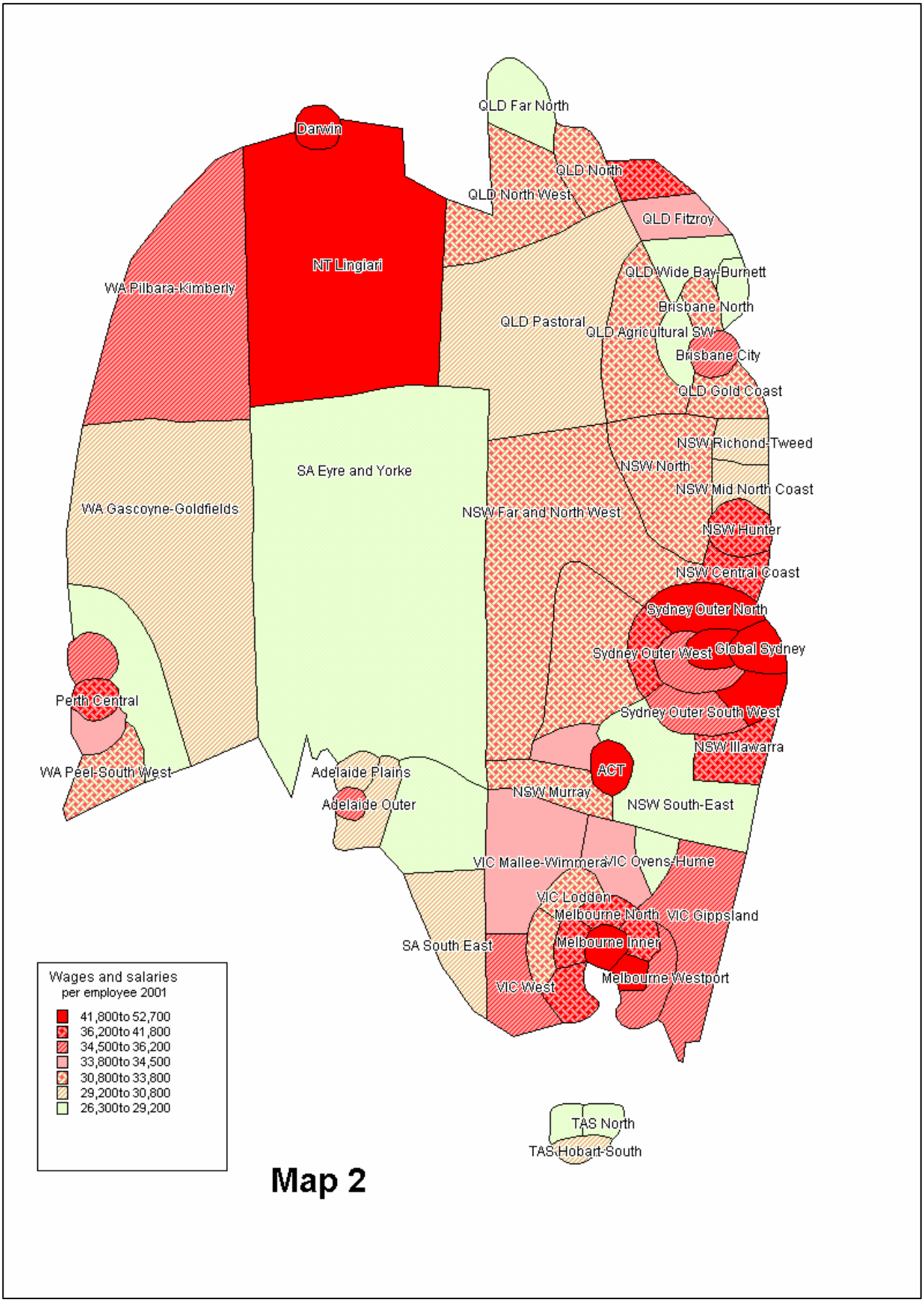
Darwin
QLD North
QLD North West
QLD Fitzroy
NT Lingiari
QLD Wide Bay-Burnett
WA Pilbara-Kimberly
Brisbane North
QLD Pastoral
QLD Agricultural SW
Brisbane City
QLD Gold Coast
NSW Richond-Tweed
SA Eyre and Yorke
NSW North
NSW Mid North Coast
WA Gascoyne-Goldfields
NSW Far and North West
NSW Hunter
NSW Central Coast
Sydney Outer North
Sydney Outer West
Global Sydney
Perth Central
Sydney Outer South West
NSW Illawarra
ACT
WA Peel-South West
Adelaide Plains
NSW Murray
Adelaide Outer
NSW South-East
VIC Mallee-Wimmera
VIC Ovens-Hume
VIC Loddon
Melbourne North
VIC Gippsland
SA South-East
Melbourne Inner
Melbourne Westport
VIC West
Net flow of funds per capita
17,100 to 24,100
15,400 to 17,100
15,000 to 15,400
14,400 to 15,000
13,000 to 14,400
12,000 to 13,000
9,900 to 12,000
TAS North
TAS Hobart-South
Map 1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Sydney Outer West
Global Sydney
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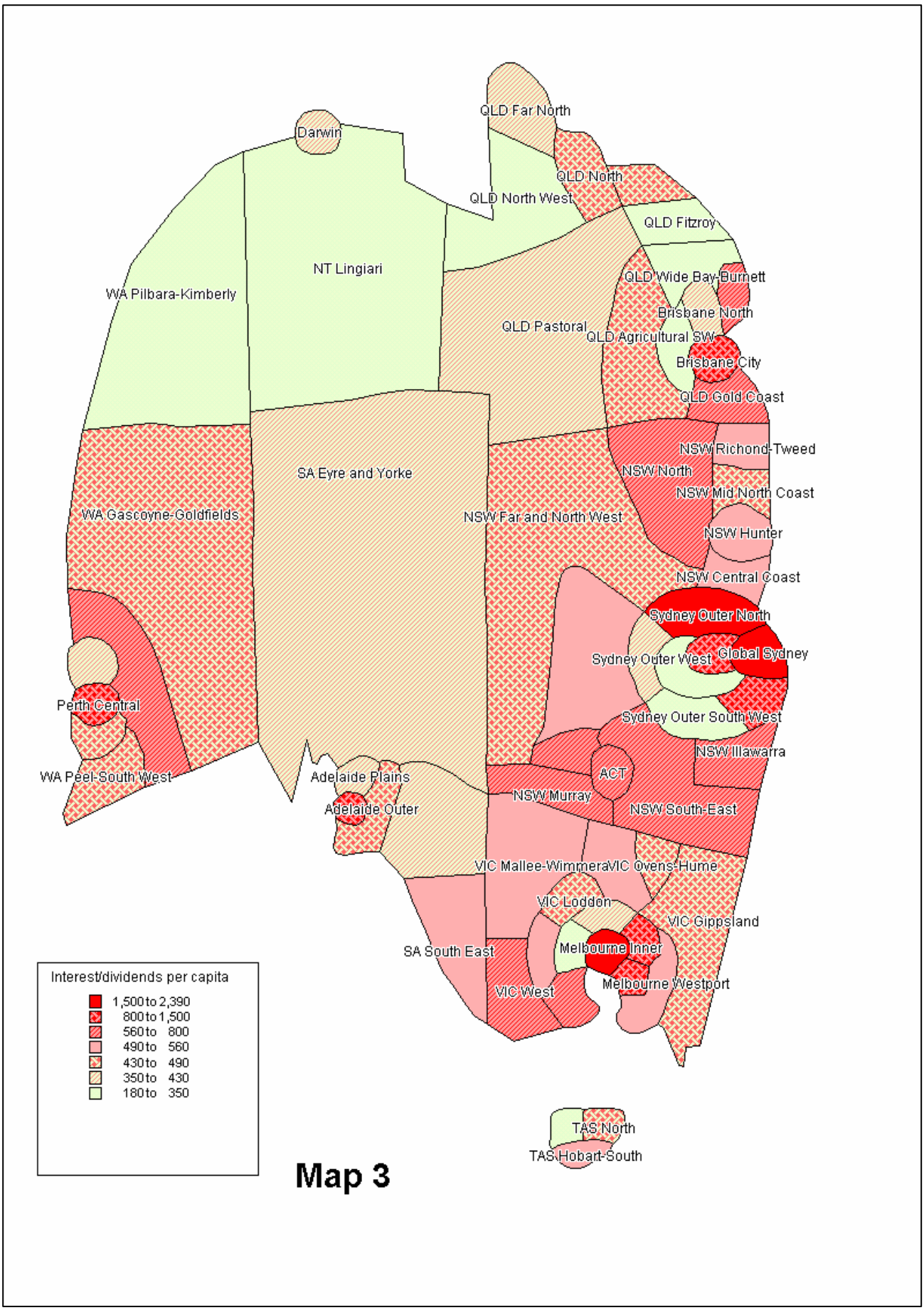
Adelaide Plains
NSW Murray
NSW South-East
Adelaide Outer
VIC Mallee-Wimmera
VIC Ovens-Hume
VIC Loddon
Melbourne North
VIC Gippsland
SA South East
Melbourne Inner
Melbourne Westport
VIC West
Wages and salaries
per employee 2001
41,800to 52,700
36,200to 41,800
34,500to 36,200
33,800to 34,500
30,800to 33,800
29,200to 30,800
26,300to 29,200
TAS North
TAS Hobart-South

Map 2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Sydney Outer West
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Sydney Outer South West
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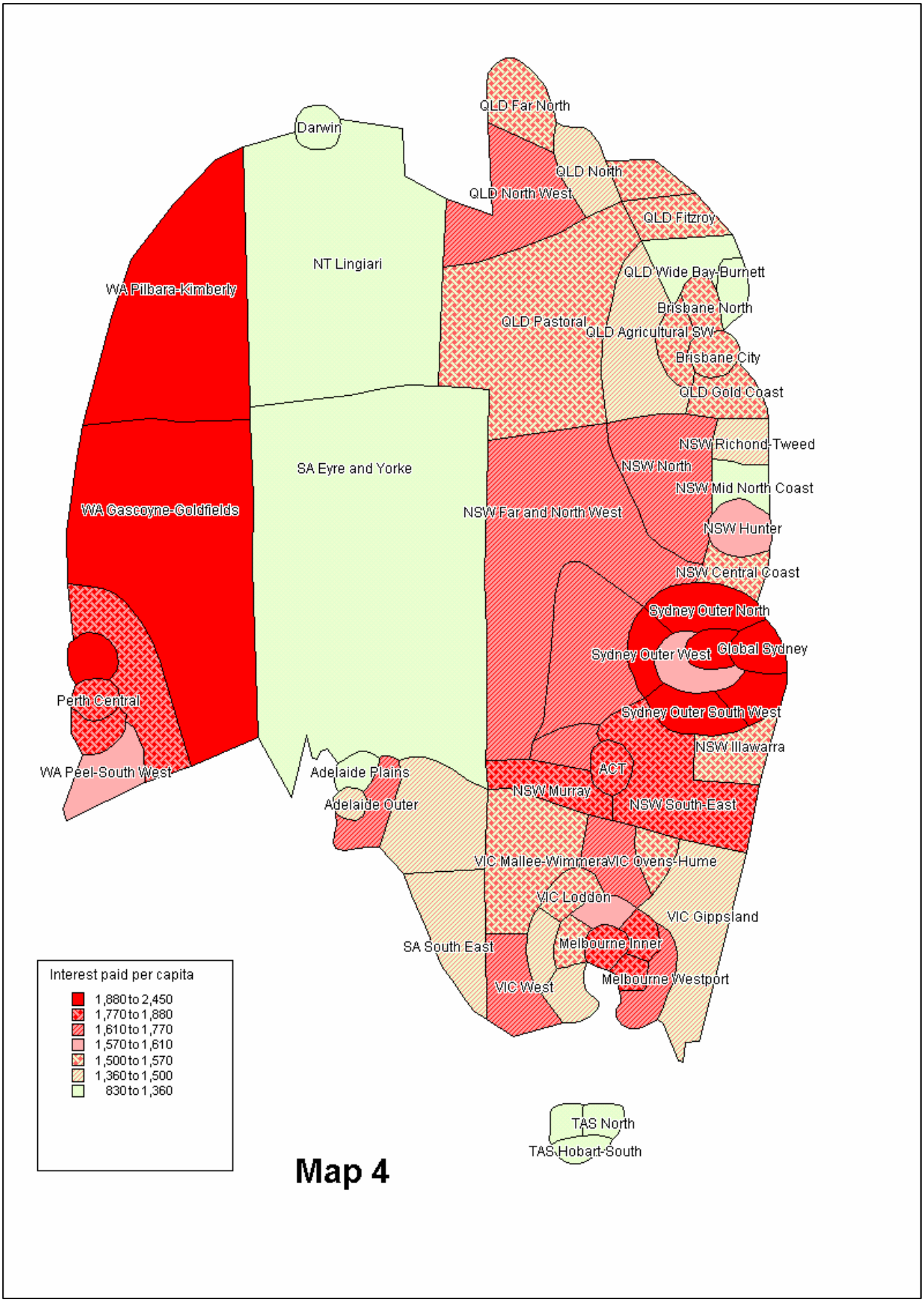
WA Peel-South West
Adelaide Plains
NSW Murray
NSW South-East
Adelaide Outer
VIC Mallee-Wimmera
VIC Ovens-Hume
VIC Loddon
VIC Gippsland
SA South East
Melbourne Inner
Melbourne Westport
VIC West
TAS North
TAS Hobart-South
Interest/dividends per capita
1,500 to 2,390
800 to 1,500
560 to 800
490 to 560
430 to 490
350 to 430
180 to 350
Map 3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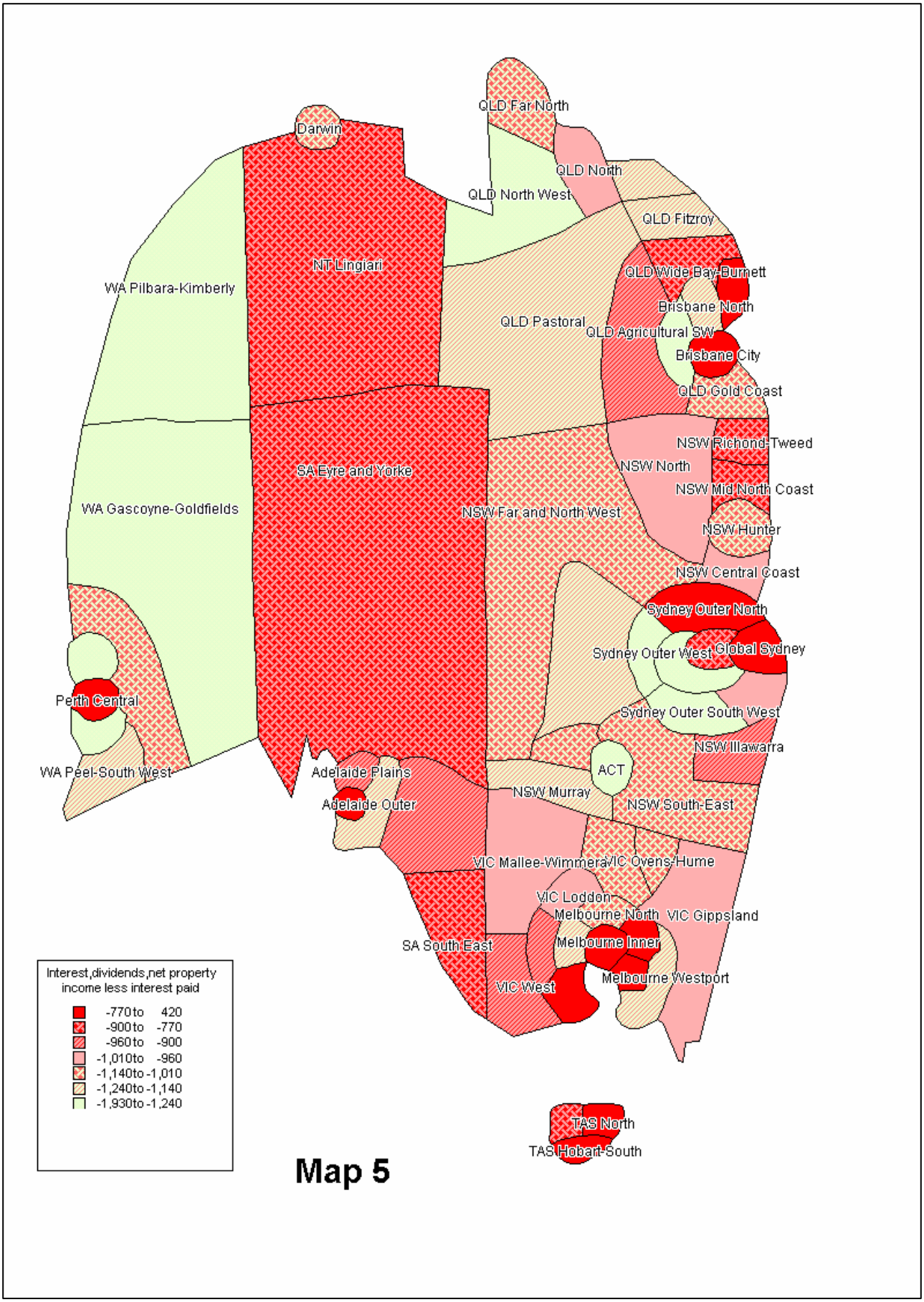
ACT
NSW Murray
Adelaide Outer
NSW South-East
VIC Mallee-Wimmera
VIC Ovens-Hume
VIC Loddon
VIC Gippsland
SA South East
Melbourne Inner
Melbourne Westport
VIC West
Interest paid per capita
1,880 to 2,450
1,770 to 1,880
1,610 to 1,770
1,570 to 1,610
1,500 to 1,570
1,360 to 1,500
830 to 1,360
TAS North
TAS Hobart-South

Map 4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Adelaide Outer
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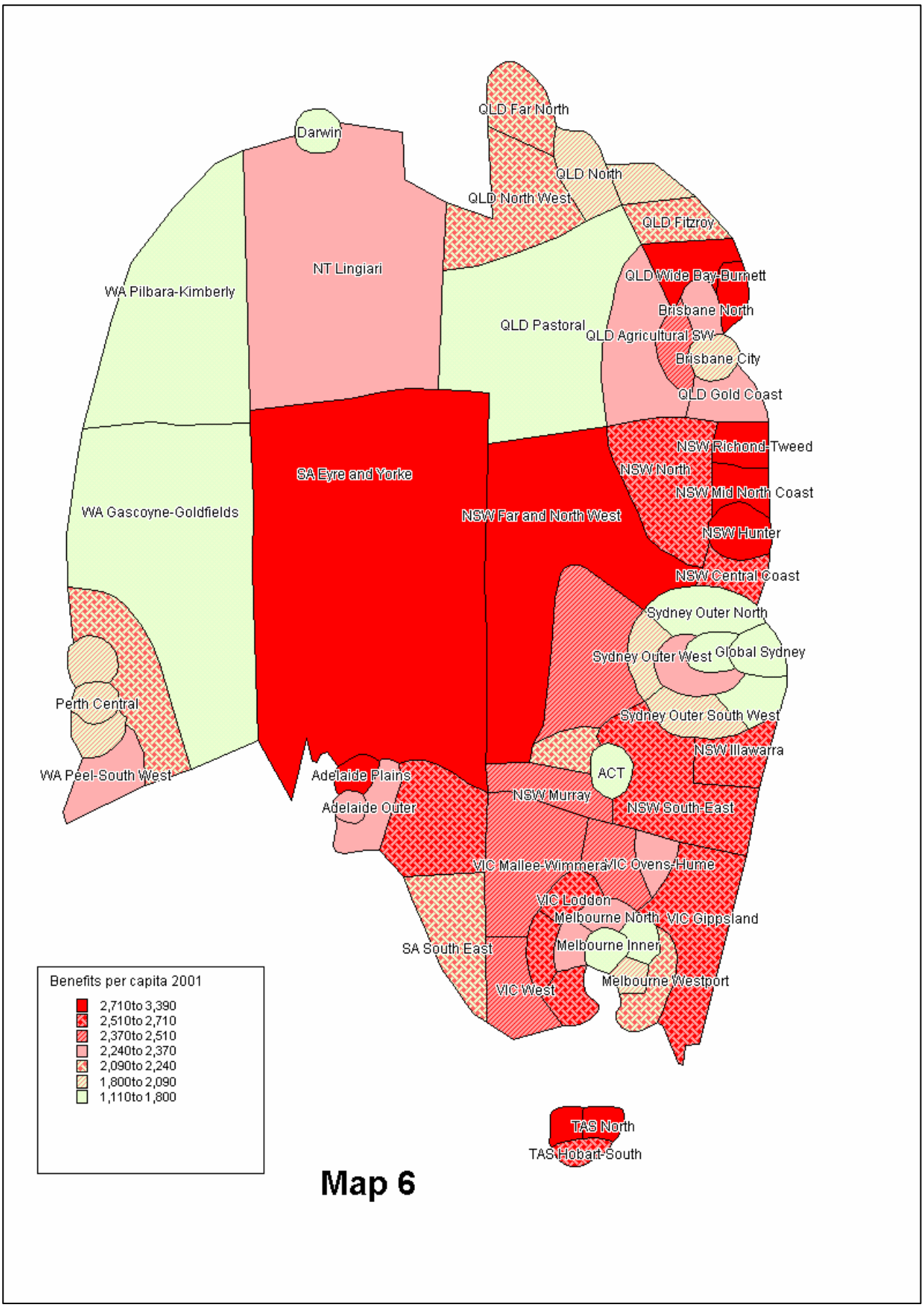
VIC Mallee-Wimmera
VIC Ovens-Hume
VIC Loddon
Melbourne North
VIC Gippsland
SA South East
Melbourne Inner
Melbourne Westport
VIC West
TAS North
TAS Hobart-South
Interest,dividends,net property income less interest paid
-770 to 420
-900 to -770
-960 to -900
-1,010 to -960
-1,140 to -1,010
-1,240 to -1,140
-1,930 to -1,240
Map 5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NSW South-East
VIC Mallee-Wimmera
VIC Ovens-Hume
VIC Loddon
Melbourne North
VIC Gippsland
SA South East
Melbourne Inner
VIC West
Melbourne Westport
TAS North
TAS Hobart-South
Benefits per capita 2001
2,710to 3,390
2,510to 2,710
2,370to 2,510
2,240to 2,370
2,090to 2,240
1,800to 2,090
1,110to 1,800

Map 6