
Assessing the importance of national economic reform — Australian Productivity Commission experience*

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Productivity Commission

The Australian Productivity Commission is the Australian government's principal review and advisory body on microeconomic policy reform and regulation. Under its Act of Parliament, the Commission provides objective advice to inform policy decisions. It undertakes public inquiries and supporting research, and publishes its advice. An important part of the Commission's work has been to report on the potential economic benefits of national reform programs in Australia. The Commission's investigations are supported by economic modelling of reforms. This modelling adopts an economy-wide approach and demonstrates that well structured reform can deliver substantial economic benefits, including higher incomes to regions and across household groups. To achieve the productivity potential, the market needs to be flexible so that labour and capital can choose to move to areas of greatest opportunity.

Introduction

It is a privilege to have been invited to this conference to share Australia's experience in assessing the importance of national economic reform and the role of the Productivity Commission in this process.

*Paper presented to the Conference on the Micro Foundations of Economic Policy Performance in Asia, New Delhi, 3-4 April 2008. This paper draws on inquiry and research material prepared by the Productivity Commission. More detailed treatments of the topics covered in the paper can be found in the cited Commission publications.

The paper and the views expressed should be attributed to the author and not to the Productivity Commission.

These assessments are part of the Productivity Commission's contribution to the public policy formation process in Australia. This contribution is exercised through the Commission's statutory reporting functions and its public inquiry processes.

The assessments cover a wide range of national reforms including in the areas of competition policy, infrastructure industries, and human capital formation. The assessments are wide ranging and are supported by information received from government agencies, businesses, industry experts and the community more generally. The assessments are also supported by quantitative economic modelling. The main analytical tool used for the assessments is applied general equilibrium models based on detailed information about the input-output structure of the Australian economy. The general equilibrium analysis provides information of the potential impacts of reform on national production, consumption and trade. Information on the potential effects on Australian regions and households by income group — the distributional effects of change — is also provided. The quantitative analysis is an important contribution to the overall consideration by the Productivity Commission of the effects of reform.

This paper first provides an overview of the Productivity Commission and key features of its broader inquiry and public reporting processes. The paper then provides some background to national reform in Australia and draws on three major Commission assessments of the potential impacts of national reform to illustrate how it analyses and reports on the regional and distributional effects of change, and on the impacts of human capital reform that seek to raise workforce participation and productivity.

About the Australian Productivity Commission

The Australian Productivity Commission is an independent Commonwealth agency established by an Act of the Australian Parliament (*Productivity Commission Act 1998*).

It is the Government's principal review and advisory body on microeconomic policy reform and regulation. As its name implies, the Commission's focus is on ways of achieving a more productive and efficient economy — the key to higher living standards (Productivity Commission 2007a). The Productivity Commission evolved from the Industry Commission and before that the Industries Assistance Commission which was established in 1973. In turn, the Industries Assistance Commission was created from the Australian Tariff Board which was founded in 1921. The remit of the successive commissions was progressively broadened from a focus on taxes, subsidies and other trade barriers in the case of the Tariff Board to the current broad economy-wide focus of the Productivity Commission. (The evolution of the Productivity Commission and the role of its predecessors is detailed in Productivity Commission 2003).

The Productivity Commission is an advisory body, as were its predecessors. It does not administer government programs or exercise executive power. Under its Act, the role of the Commission is to:

- provide objective analysis for better informed policy decisions; and
- support community awareness and policy debate.

The Commission carries out this function primarily by conducting public inquiries at the request of the Australian Government. The Commission also advises and informs in various other ways, including through regulation review, performance monitoring and benchmarking and self-initiated research.

The Commission's structure and operations are based on three important principles:

- independence
- transparency
- community-wide perspective.

The Commission's *independence* is exercised through the Chairman and Commissioners, who are statutory officers appointed for fixed terms by the Governor-General (effectively Australia's head of state), and cannot be easily removed.

The Commission currently has eight Commissioners in addition to the Chairman, and around 200 staff. The Commission's legislation allows it to have between four and eleven Commissioners, who can be appointed for renewable terms of up to five years. The Commission is fully government funded with a budget of about 30 million Australian dollars. It imposes no user charges and receives no commercial funding.

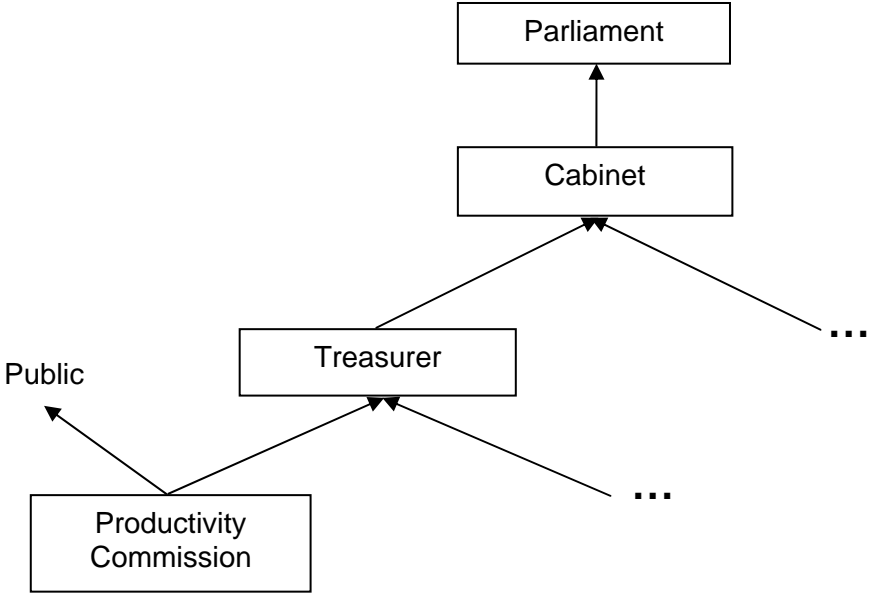
The Commission reports formally through the Treasurer to the Australian Parliament (figure 1). However, a requirement in the Commission's legislation to promote public understanding of policy issues in improving Australia's living standards means its reports are also directed at the wider community.

The Commission's advice to government and the information on which it is based are *transparent* and open to public scrutiny. This is supported by public hearings, workshops and other consultative forums, and through the release of draft reports containing preliminary recommendations. This allows anyone with an interest to have a say, to respond to the views of others, and to comment on the Commission's preliminary findings before it submits its final report and recommendations to government.

The Commission's final reports to Government and analysis are also published and open to public scrutiny. The Commission's transparent inquiry and reporting processes contribute to public understanding of opportunities for reform and the establishment of public

consensus favouring well-based reform. It also helps government assess and address requests for preferment by sectional interests.

Figure 1 **How the Productivity Commission ‘fits’ within government**



The Commission is required under its Act to take a *community-wide* perspective, encompassing the interests of the economy and community as a whole, rather than particular industries or groups. The Commission is also required to have regard to a range of more specific considerations, including the facilitation of adjustment to change, the need to promote employment and regional development, and the social and environmental implications of its recommendations.

Main elements of the Commission’s inquiry process

There are a number of distinct steps that are normally followed in a Productivity Commission inquiry. These are summarised in figure 2. (A more extended treatment of the Commission’s inquiry process is provided in Banks 2007.)

Within the Australian Government, the Treasurer is responsible for directing the Productivity Commission to undertake inquiries. In carrying out this responsibility, **the Treasurer** typically consults with other Government Ministers and may also consult with regional governments and community groups, depending on the issue.

Once the focus and scope of an inquiry has been decided, the Treasurer sends ‘terms of reference’ to the Commission. These outline in writing what the inquiry must cover and how long the Commission has to report. In order to allow participants time to prepare submissions and respond to a draft report, terms of reference typically specify that the inquiry will have a duration of 9 to 12 months.

Inquiries conducted by the Commission can cover any sector of the economy; focus on a particular industry or cut across industry boundaries; or involve wider social or environmental issues. For example, in addition to assessments of national reform, the Commission has conducted inquiries into assistance to motor vehicle and textile and clothing industries, Australia’s gambling industry, impacts of native vegetation and biodiversity, access arrangements for essential infrastructure, consumer policy framework and retail tenancies. An overview of Commission reports and analyses that have contributed to public policy formulation is provided in Productivity Commission 2008. (All reports prepared by the Commission are posted on its web page at www.pc.gov.au).

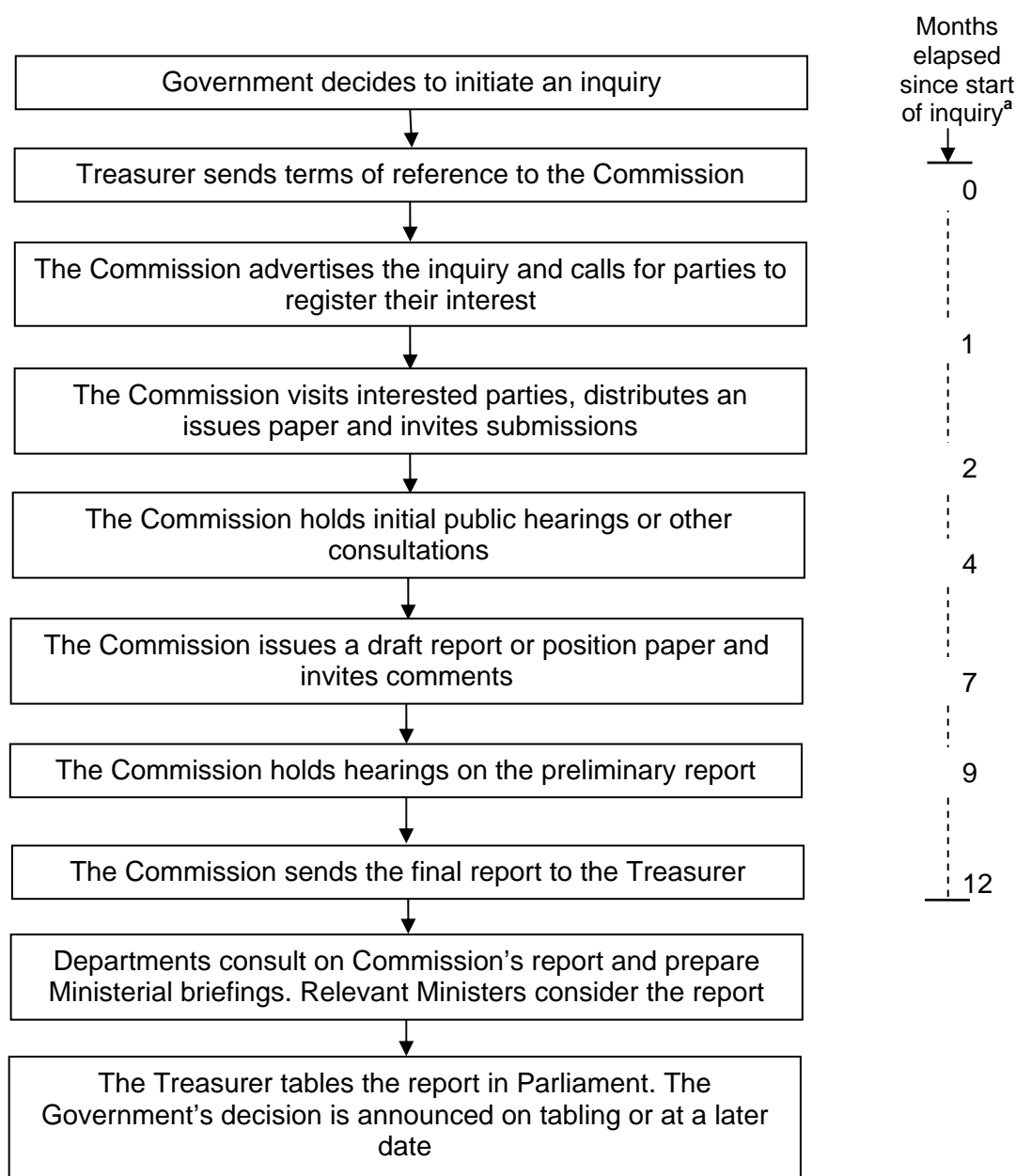
Up to three Commissioners are appointed by the Chairman to oversee an inquiry. One (the ‘Presiding Commissioner’) is nominated to take the leading role. ‘Associate Commissioners’ from outside the Productivity Commission can also be appointed in order to access specialist expertise. (Such appointments lapse at the conclusion of the inquiry.)

In addition to inquiries, the Commission also undertakes policy-oriented research and other reporting functions. These are conducted according to the same principles as Commissioned inquiries although the formal processes can vary. The Commission’s assessments of national reform have been conducted both as formal inquiries for which a terms of reference has been received from the Australian Treasurer and as Commission research undertaken to support government policy processes.

National Competition Policy reform

The emergence of national economic reform was a gradual process in Australia. High trade barriers, and various regulatory and institutional impediments culminated during the 1970s and 1980s in poor economic performance relative to Australia’s international peers (Banks 2005). In recognition of these inhibitors of growth, Australian governments embarked on reforms to liberalise Australian capital markets, abolish imports quotas and reduce tariff and other assistance to industry. These measures increased competitive pressures in the economy which led to greater flexibility in Australia’s previously rigid and highly centralized labour market arrangements and institutional and regulatory reforms to promote more efficient delivery of infrastructure services (for example, electricity and communications).

Figure 2 Stages in the Commission’s public inquiry process



^a Indicative timing for a 12 month inquiry. Actual timing is set by the government in the terms of reference, and depends on factors such as complexity of the topic examined, number of interested parties, and their geographic dispersion.

As reforms progressed, it became widely recognised that aspects of Australia’s wider competition policy and regulatory framework were impeding performance and constraining the scope to create a national market for infrastructure and other services. In April 1995, the Australian, State and Territory governments committed to the implementation of a wide ranging National Competition Policy (NCP). The policy drew heavily on a blueprint established by an earlier independent inquiry, the so called ‘Hilmer

Review’ (Independent Committee of Inquiry into National Competition Policy in Australia, 1993). In effect, NCP represented the consolidation and extension of reforms of the previous decade. Broadly, the policy: extended competition law to unincorporated and government business enterprises, embraced reforms to the operations of state owned enterprises (for example in the areas of energy, transport and communications); introduced a national access regime to provide third party access to infrastructure (such as pipeline and other transmission services); and introduced the review of anti-competitive regulation (such as statutory marketing arrangements and other restrictive practices).

The Productivity Commission assessed that by the early 2000s most agreed reforms under NCP had been, or were being, implemented (Productivity Commission 2005a). Key factors attributed to the success of NCP in Australia include:

- wide recognition of the need for national reform across the community;
- agreement to a reform agenda by the Council of Australian Governments (COAG);¹
- a presumption in favour of competition;
- effective implementation mechanisms agreed by the Australian, State and Territory governments;
- common principles for the assessment of implementation options;
- the establishment of independent oversight and monitoring bodies, particularly the Australian Competition and Consumer Commission (ACCC) and the National Competition Council (NCC); and
- Australian government payments to the states (called competition payments) to provide a fiscal dividend from their implementation of agreed reforms.

The economic benefits of NCP have been assessed to be considerable. Model-based projections by the Industry Commission (the Productivity Commission’s predecessor) suggested that the major elements of NCP could generate a net benefit equivalent to 5.5 per cent of GDP, at the ‘outer envelope’ (Industry Commission 1995). In 1999, the Commission undertook a similar outer envelope exercise of selected NCP reforms of particular relevance to rural and regional Australia, projecting a boost in the level of GDP of 2.5 per cent (Productivity Commission 1999a).

In 2004, the Commission was asked to report on the impacts of NCP reforms to that time. Such impacts are very difficult to separate from the many other factors influencing

¹ The Council of Australian Governments (COAG) is the peak intergovernmental forum in Australia. COAG comprises the Prime Minister, State Premiers, Territory Chief Ministers and the President of the Australian Local Government Association (ALGA). The role of COAG is to initiate, develop and monitor the implementation of policy reforms that are of national significance and which require cooperative action by Australian governments.

economic outcomes. To provide a partial indication, the Commission quantified the economy-wide gains from observed productivity and price changes in key infrastructure sectors — to which NCP and related reforms have contributed. The modelling indicated that the observed productivity and price changes are likely to have increased Australia's GDP by 2.5 per cent above levels that would otherwise prevail (Productivity Commission 2005).

Modelling the impacts of reform

The Commission has used computable general equilibrium models to quantify the potential impacts of NCP. The models have evolved over time and the latest model used by the Commission is a variant of the Monash Multi-Regional Forecasting (MMRF) model developed by the Centre of Policy Studies at Monash University. This model (and its predecessors) is underpinned by an input-output data base which captures the linkages between factors of production (labour, capital and land), industries and final demand categories (consumption, investment and trade), and government finances. Important structural elements of the models include:

- productivity improvements reduce resource costs;
- producers change their use of primary factors in response to changes in relative factor prices;
- producers respond to changes in competitiveness of Australian industry;
- households change consumption patterns in response to changes in household income and the relative price of consumer goods; and
- demand for Australian exports depends on the price of those exports.

An important innovation of the MMRF model is the modelling of each Australian state (or province) as a separate economy linked by interstate trade flows. Prior to the availability of this framework, Australia was modelled as a single economy and (in broad terms) state results were estimated by assuming that output and employment of each regional industry moved in line with the national industry (that is, a tops-down method was used). The example of regional analysis provided below draws on modelling using the earlier (tops-down) framework.

Before being included in a Commission report for submission to government, it is a requirement of the Commission's Act that model results be subject to professional scrutiny. This requirement is normally satisfied through the Commission seeking formal comments by referees on draft analysis, including the policy scenarios (or model shocks), model framework and the Commission's application of the framework (including model 'closure'). In addition to the formal refereeing process, results are normally included in the

Commission's draft report which, as indicated above, is subject to public scrutiny before being finalised and submitted to government.

The Commission's Act also specifies that, if practicable, the Commission should report results estimated from at least two modelling frameworks. While possible in some applications, because of the very large overheads associated with the development and use of large scale computable general equilibrium models suited to the analysis of national reform policies, it is typical that only one suitable model is used.

Assessing regional effects

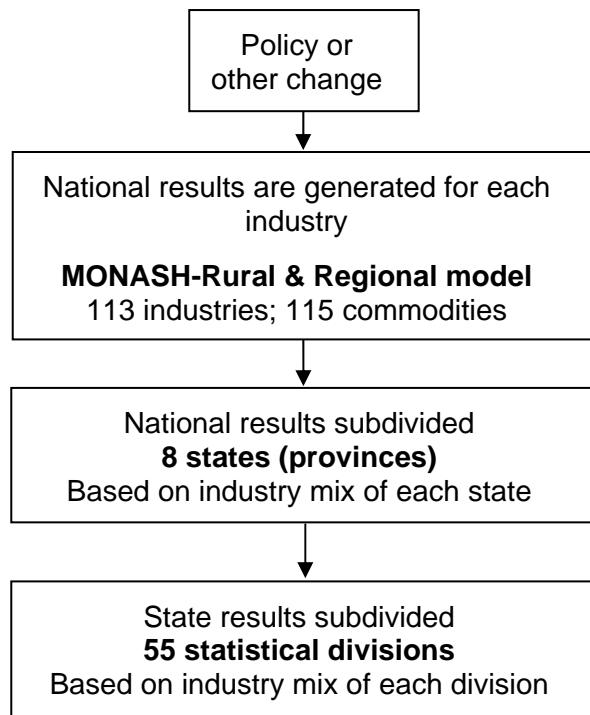
The introduction of NCP in Australia was widely perceived in the Australian community as being responsible for the withdrawal of government services and population declines in some parts of rural and regional Australia. In response to this concern, the Australian government asked the Commission to inquire into the impact of competition policy on rural and regional Australia. Amongst other things, the government asked the Commission to report on the:

- effects of competition policy reforms on the structure and competitiveness of rural and regional Australia; and
- other influences on rural and regional Australia, including international trade, investment and globalization.

The review was commenced in August 1998 and reported to government in September 1999 (Productivity Commission 1999a). To assist in addressing these issues, the Commission undertook a quantitative analysis of the effects of major NCP reforms and selected national economic forces — first examining their effects on the national economy and then disaggregating the effects through to eight States and Territories. The State results were further disaggregated to 55 sub-state regions (figure 1). This provided some indication of the likely contribution of each reform and economic force to ongoing changes at the regional level and contributed to the Commission's broader analysis of the impact of competition policy on rural and regional Australia.

The model used was referred to as 'MONASH-RR' (for Rural and Regional). In this model, which predated the MMRF model, a tops-down methodology was used under which the effects of NCP reforms on any one region depended on the activity mix of the region and the implications for each activity of the implementation of NCP. In the analysis, gross regional product either in total or on a per worker basis was used to indicate the potential regional income gains from NCP reforms. Estimated employment changes were used to indicate the scale of adjustment needed to achieve the estimated productivity gains. For the changes modelled, it needs to be stressed that the adjustment costs would be transitory while the income gains would be permanent.

Figure 1 Modelling of regions



Source: Based on Productivity Commission 1999b.

While the modelling captured the distribution of activity at the time and made its regional output and employment projections based on that information, it did not fully capture economic geography. To do so, it would need to capture factors (such as transport costs) that led to the dispersion of activities and factors such as economies of scale, scope or agglomeration that make it economic to concentrate production in a particular location. The modelling also did not capture changes in technology and the potential impact of reforms on technology, for example in the area of telecommunications. Finally, while the top-down approach was well suited to capturing regional implications of national reforms, it was less well suited to capturing the impacts of reforms that themselves had a regional dimension (for example, when the productivity potential of regional industries differed).

As noted, the NCP reforms examined were those most relevant to rural and regional Australia. They included reforms of major infrastructure — electricity and gas, telecommunications, road, rail and water supply — and reviews of Commonwealth and State statutory marketing arrangements (for example, in relation to sugar and dairying). The analysis adopted a longer-run perspective. The key assumption underpinning this perspective on change is that sufficient time has elapsed for capital and labour to have moved between activities and regions in response to reforms (or other changes). It was also assumed that: capital adjusts to equilibrate expected with actual returns; labour market

gains are taken in the form of real wage gains rather than higher aggregate employment and that reform does not affect national population ; and that revenue gains by government are ‘handed back’ to consumers in the form of lower income tax rates.

Of the reforms considered, those to **electricity** and gas were estimated to provide the largest potential gains (table 1). The main elements of these reforms were the establishment of an interstate transmission network and allowing the competitive sourcing of generation capacity. The main reform in the telecommunications sector, affording the second largest projected gain, related to the ending of a legislated duopoly.

Table 1: Potential longer-run effects of selected NCP reforms on gross domestic product

Percentage change

<i>Electricity and gas</i>	<i>Rail</i>	<i>Road</i>	<i>Tele-communications</i>	<i>Water supply</i>	<i>Statutory marketing arrangements</i>	<i>All NCP reforms assessed</i>
1.1	0.2	0.2	0.8	0.04	0.1	2.5

Source: Productivity Commission 1999b.

Broadly, while all states were projected to achieve higher output — measured as gross regional product — the more export oriented states of Queensland, Western Australia and the Northern Territory were projected to benefit the most (table 2). After a relocation of labour between states to achieve higher productivity and output, potential real gross regional product per person employed was projected to increase in all states.

Table 2: Potential longer-run effects on states of selected NCP reforms

Percentage change

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>SA</i>	<i>WA</i>	<i>Tas</i>	<i>NT</i>	<i>ACT</i>
Gross regional product	2.6	1.9	2.9	2.3	3.3	2.2	3.3	1.8
Employment	0.1	-0.5	0.2	-0.2	0.8	-0.7	0.6	-0.7
GRP per person	2.5	2.4	2.6	2.5	2.5	2.9	2.8	2.6

Abbreviations: NSW – New South Wales; Vic – Victoria; Qld – Queensland; SA – South Australia; WA – Western Australia; Tas – Tasmania; NT – Northern Territory; ACT – Australian Capital Territory.

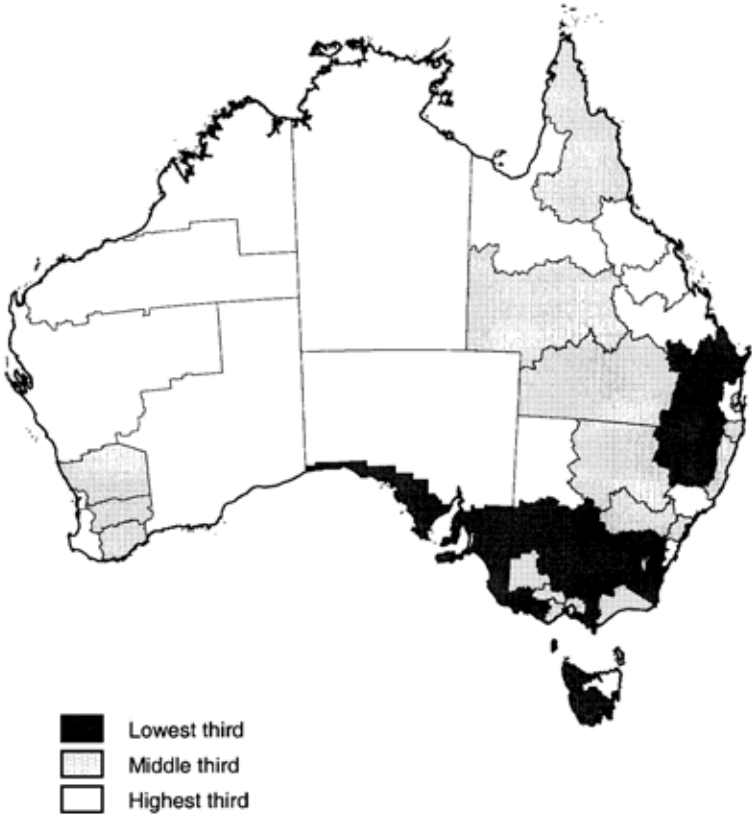
Source: Productivity Commission 1999b.

A feature of the modelling framework adopted was the capacity to estimate results for 55 sub-state regions. At the regional level, there was sufficient regional economic diversity for nearly all regions to benefit from NCP reforms — rather than be dominated by one or a few adversely affected industries. The Gippsland division in eastern Victoria, which was

estimated to contract due to a substantial rationalization of the electricity and dairying sectors located in that region, was the one exception.

After account was taken of all changes in industry activity levels and the activity mix of regions, some rural and regional divisions were estimated to be among the largest potential beneficiaries of reform (figure 2, no shading). These regions tended to greater dependence on export oriented mining or rural activities. On the other hand, regions that had a concentration of agricultural activities, subject to fixed supply of agricultural land, and directly subject to water pricing reforms (through cost recovery) or dairying (through removal of statutory marketing arrangements) were estimated to benefit least.

Figure 2: Effects on regional output of selected NCP reforms differ
Regions ranked into three output change groups



Source: Productivity Commission 1999b.

At the national level, NCP was projected to raise real gross product per person employed by around 2.5 per cent. When the combined effects of projected changes in output and the relocation of employment to achieve those changes are taken into account, output per person employed was projected to increase in all 55 sub-state regions. Importantly, regions

with the largest projected employment declines due to the direct effects of labour saving NCP reforms, tended to have the highest potential increases in output generated per person employed. Because country areas tended to be tied to particular activities, there tended to be more variability of projected outcomes for employment and income per person employed in country areas than in metropolitan regions.

The study also compared the potential impacts of NCP on regions with the likely impacts of ongoing change arising from factors such as population growth, general productivity and border assistance, changing terms of trade and changes in government expenditure. Overall, it found that the effects on most, but not all regions, of NCP reforms were likely to be less significant than those resulting from broad economic forces that are continually reshaping economic and social conditions in Australia.

In sum, the study suggested:

- implementation of reform would raise national output;
- to achieve higher productivity and output, there would need to be some relocation of labour between industries/regions (and market flexibility to enable labour and capital to choose to move to areas of greatest opportunity);
- per capita incomes in all regions would be expected to rise, some more than others; and
- in the main, the effects of reform are likely to be less significant than ongoing economic change.

Assessing the distributional effects of reform

As noted above, by the early 2000s, most NCP reforms initially agreed to were in place. Pursuant with an agreement by COAG, the Productivity Commission was asked to undertake an independent review of the benefits NCP reform had delivered and an assessment of worthwhile reforms into the future. As part of this assessment, the Commission was asked to report on the ‘...impacts on significant economic indicators... to include significant distributional impacts, ...’

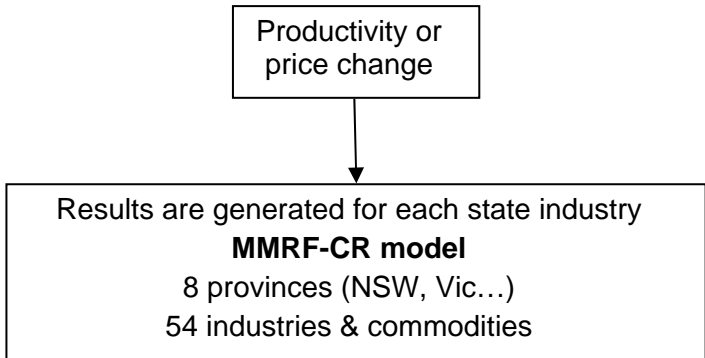
The review was commenced in April 2004 and reported to government in February 2005 (Productivity Commission 2005a). To assist the Commission in its assessment of the impact of NCP reforms to then, the Commission undertook economic modelling to quantify the economy-wide gains from productivity and price changes observed over the 1990s in the electricity, gas, urban water, telecommunications, urban transport, ports and rail freight sectors.

While it was recognised that the impacts of reform are very difficult to separate from other factors influencing economic outcomes, it was widely acknowledged that NCP and related

reforms were key (although not the only) influences on productivity improvements and ensuing price benefits to consumers, over the period under consideration.

The modelling used in this study contained a number of important innovations compared to the earlier 1999 study. The first innovation was the disaggregation of the production core of the MONASH model to model each state as a separate economy connected by interstate trade flows (figure 3). The disaggregated framework is referred to as the Monash Multi-regional Forecasting Model (MMRF). While each state was modelled as a separate economy, sub-state regions were modelled using the tops-down methodology described above. Under this method, sub-state regional results were obtained on the basis of changes in state-industry aggregates and the industry structure of each sub state region (statistical division, see figure 1).

Figure 3: Multi-regional modelling framework



MMRF-CR – Monash Multi-Regional Forecasting – Competition Review (model)

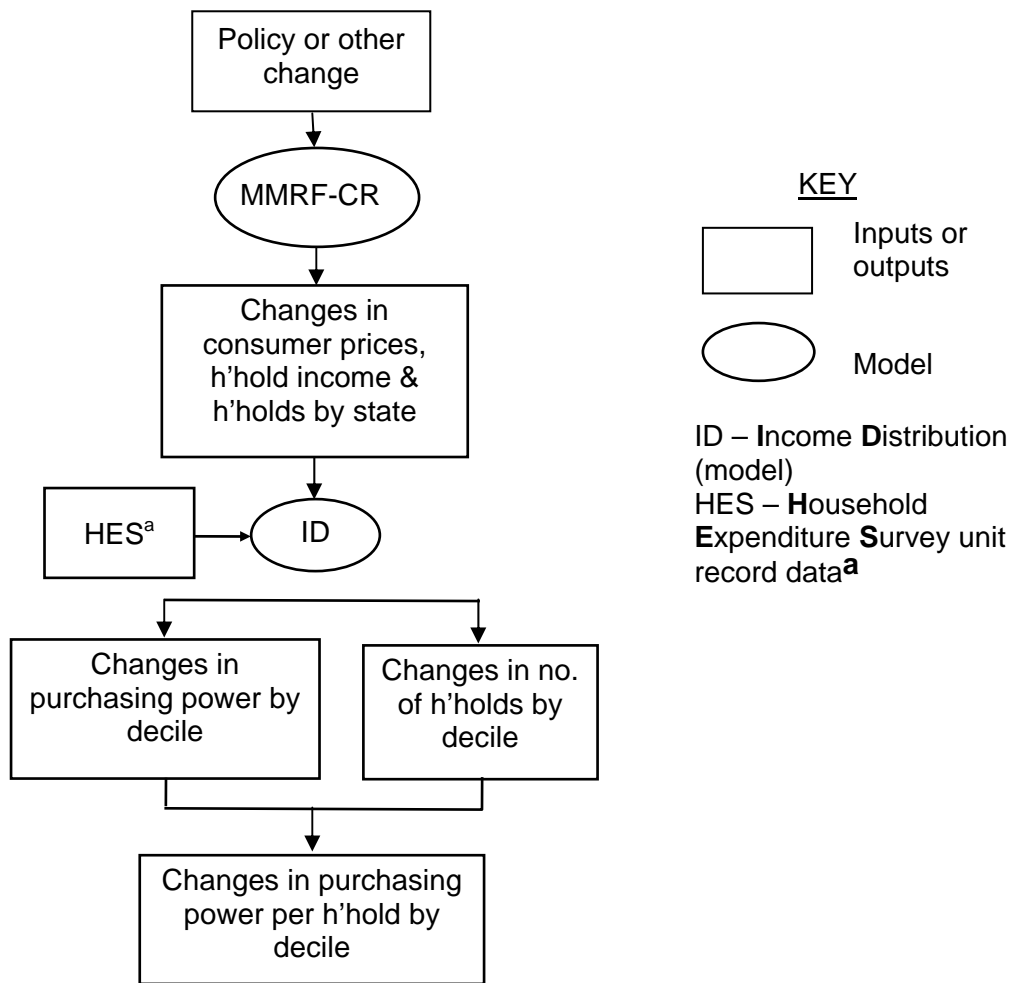
Source: Productivity Commission 2005b.

The major advantage of this framework is that it enabled the effects of observed productivity and price changes for each state activity to be separated — a limitation of the earlier framework. Modelling indicated that observed productivity and price changes in selected infrastructure activities is likely to have raised Australia’s GDP by around 2.5 percent. After a reallocation of labour to areas of greater opportunity, output and output per person was projected to increase in each state.

The second major innovation was the introduction of income distributional modelling which is the focus of the discussion in this section. The Commission’s modelling of the distributional effects of productivity and price changes in key infrastructure sectors incorporates the effects on wages, business income and subsequent changes operating through the tax and social security systems. It uses a tops-down framework, whereby the increased real purchasing power of households generated by the projected growth in state

output is disaggregated to household income groups using unit record household characteristics (classified by state) reported in the Australian Bureau of Statistics Household Expenditure Survey (figure 4).

Figure 4: Top down distributional modelling



^a Household Expenditure Survey 1993-94 (ABS Cat. no. 6627.0).

Source: Productivity Commission 2005b.

Linking of the MMRF and ID models involved first matching 13 MMRF-CR with the 34 HES items of household income and 54 MMRF-CR with 423 HES items of household expenditure. It then involved indexing changes in household income and expenditure estimated in the MMRF model with the linked items in the ID model and assuring changes in income and expenditure were in balance for each household. Key assumptions included:

- Change in real household purchasing power *equals* Change in nominal household income *less* Change in household-specific consumer prices

- national employment is fixed by occupational group;
- labour is mobile between regions and households move between regions in line with regional changes in the occupation of the designated ‘household head’ (normally the highest income earner); and
- labour income changes with the occupational-specific wage rate.

The aggregate modelling suggests that higher national production would increase real household purchasing power by around 1.2 per cent, mainly as a result of price and productivity changes in the electricity and telecommunications sectors (table 3). The projected increase in aggregate household disposable income is considerably less than the projected rise of 2.5 per cent for national production reported above. The difference mainly reflects a decline in the terms of trade as net exports increase, but also higher investment. Income from that investment is modelled as contributing to the income flowing to households.

Table 3: Projected longer-run effects of productivity and price changes over the 1990s in infrastructure industries on household real income

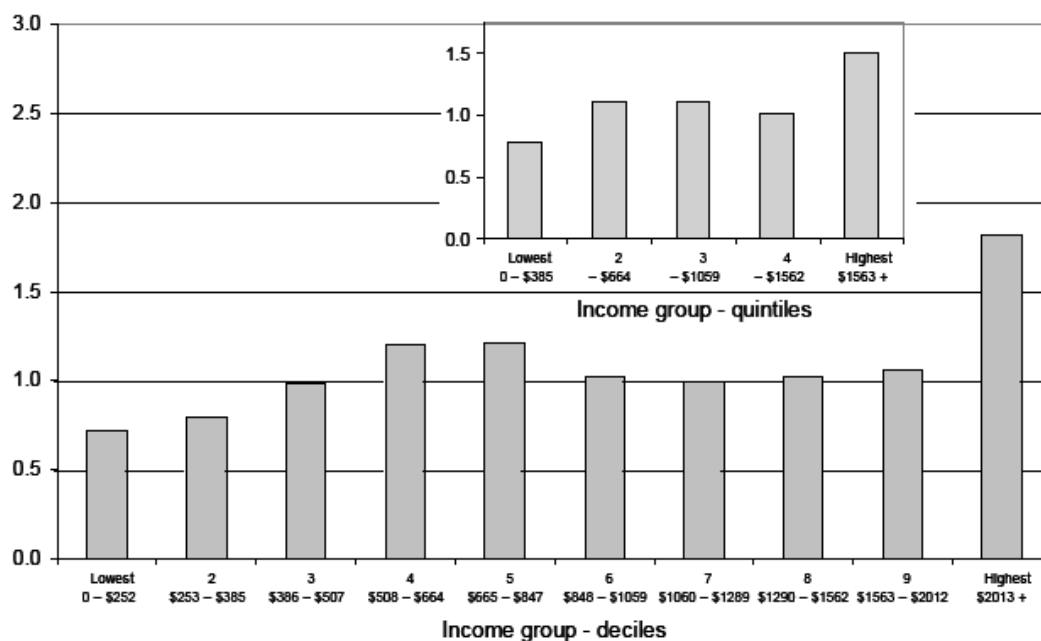
Percentage change

<i>Electricity</i>	<i>Gas</i>	<i>Urban water</i>	<i>Urban transport</i>	<i>Ports & rail transport</i>	<i>Communications</i>	<i>All sectors</i>
0.52	-0.01	0.10	-0.02	0.17	0.52	1.28

Source: Productivity Commission 2005b.

While the distributional modelling indicated that the projected increases in income at the household level are largest for higher income households, it also indicated that the purchasing power of households across the entire income spectrum is likely to have increased as a result of the modelled changes in the infrastructure industries (figure 4).

Figure 4: Effects on household groups differ
Percentage change



Source: Productivity Commission 2005b.

The larger projected increase for the higher income group mainly reflects the effects of observed productivity change in the telecommunications sector. For this sector, estimated changes predominantly reflect two labour market effects:

- higher productivity in telecommunications service provision that would reduce demand for workers concentrated in lower income groups, moderating the impact of the increase in real wages received by households in these groups relative to others; and
- lower telecommunications prices favoured activities intensive in the use of telecommunications services (for example, financial services), which are characteristically more intensive employers of higher-income professional labour, that would increase the overall demand for labour in these groups relative to other groups.

The modelling assumed that increased net revenues to government, resulting from the growth in national income, would be distributed to households in a ‘neutral’ fashion — that is, in proportion to net income of households before the price and productivity changes in infrastructure industries. (The government revenues are net of increased public spending in areas such as health and education, which is not distributed in the model). While this is the approach conventionally adopted in this sort of modelling, clearly governments could elect to distribute additional revenue in other ways. If, for example, additional revenue were to fund services mainly used by lower income households, or to increase social

security payments, the ultimate income benefits would be more evenly distributed than indicated in figure 4.

The modelling results also reflect distributional changes for households classified according to their actual 'gross incomes'. Sensitivity testing indicated that by classifying households according to their 'equivalent household income' (that is, with adjustments to take account of the varying make-up of households) resulted in the projected income gains being somewhat more evenly distributed than in figure 4. This is because high income households tend to have more members (parents and children).

Key messages from the analysis of the potential distributional effects of productivity and price changes during the 1990s for key infrastructure industries include:

- competition policy reform can benefit all household income groups;
- the impacts between groups can differ;
- the **employment** activity of households is important in determining the nature and level of differences; and
- government taxation and distribution policies would be important in determining the final outcomes.

A new Australian National Reform Agenda

With most of the NCP reforms initially agreed to by COAG in place, an ageing population, global competition and ongoing technological change mean that further reform is needed if Australia is to achieve its productive potential.

This imperative has been recognised by COAG, which announced in February 2006 an ambitious new National Reform Agenda (NRA) to address known impediments to further productivity improvement and to achieve higher workforce participation and productivity (box 1).

Box 1 The NRA at a glance

The National Reform Agenda comprises three streams — competition, regulatory reform and improvements to human capital.

- The *competition* stream involves reforms in the areas of energy, transport, infrastructure and planning, and climate change.
- The *regulatory reform* stream comprises two distinct sets of initiatives. The first is designed to promote best-practice regulation making and review. The second focuses on reducing the regulatory burden in 'hot spots' where overlapping and inconsistent regulatory regimes are impeding economic activity.
- The *human capital* stream covers three areas — health, education and training, and work incentives.
 - The health element comprises two distinct parts. The first seeks to improve the delivery of health services and to modify specific purpose health payments where they cause perverse outcomes. The second is aimed at improving workforce participation and productivity by reducing the incidence of illness, injury and disability and chronic disease in the population.
 - The education and training element seeks to equip more people with the skills needed to increase workforce participation and productivity. Four areas have been targeted: early childhood development; literacy and numeracy; transitions from school to further education or work; and adult learning.
 - The workforce incentives element is designed to increase workforce participation by improving incentives for those groups with the greatest potential to raise their participation rates: people on welfare, the mature aged, and women.

The Productivity Commission was requested in April 2006 to evaluate the benefits potentially available from the NRA. The main purpose of the investigation was to help governments better understand the scale and distribution (including State and Territory) of the anticipated broad economic and fiscal impacts of reform. Amongst other things, the Commission was asked to quantify the national and regional impacts and the implications for government revenues. However, the Commission's task was not to comment or advise on implementation of the NRA. Decisions on the implementation of reforms and funding are to be made by COAG and relevant governments on a case-by-case basis. (The Commission was also not asked to report on matters relating to climate change technology and adaptation.)

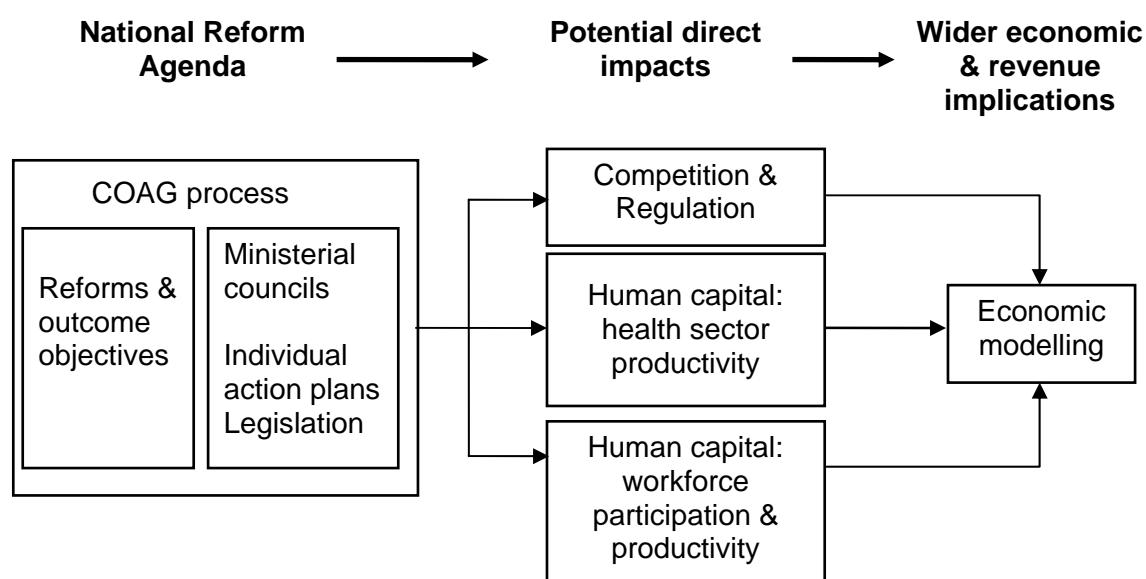
The Commission reported its assessment of the potential economic and fiscal impacts of the NRA to government in December 2006 (Productivity Commission 2007).

The Commission's approach

In responding to the request, the Commission's analysis emphasised the likely directions of potential change and broad magnitudes. However, it did not provide projections of the impacts of the NRA or of individual policy actions, which would be better handled in individual inquiries or studies concerned with implementation options and issues.

The NRA and what was known about its implementation plans and detailed reform objectives guided the quantification by the Commission of potential direct impacts — in other words, the policy scenarios (or 'shocks'). These shocks were then used to model the potential maximum — 'outer-envelope' — longer-run effects of the NRA, assuming full implementation of the NRA and complete adjustment to the effects of reform (figure 5). Because detailed reform objectives and implementation plans were either not available or still being worked out, inferences of reform potential had to be made from limited available information. Consequently, the results in all reform areas — and particularly the 'new' human capital reform stream — are exploratory and broadly indicative of the benefits potentially available from full implementation of the NRA.

Figure 5 Analytical framework



Source: Productivity Commission 2007b.

It became evident early in the study that the NRA reform streams developed by COAG differ in some important respects.

- The competition and regulatory reform streams can be regarded as falling broadly within the framework established by the previous NCP, with a focus on productivity and economic efficiency of activities and industries within product markets. Changes in

activity levels would characteristically pass the commercial test explicit in the Commission's economic modelling.

- The health service delivery component of the NRA's human capital stream also follows the traditional focus on productivity improvement. However, the health system is complex, with a myriad of market and non-market influences determining outcomes and options for achieving them, in ways distinct from the activities covered in the competition and regulatory reform streams.
- The human capital substreams — health promotion and disease prevention, education and training, and work incentives — all focus on individuals and their potential to contribute to workforce participation and productivity. In contrast, the competition and regulation streams focus on activities or industries.
- The achievement of workforce participation and productivity improvements would require significant additional discretionary outlays by government and households, which could not be included in the Commission's modelling.
- The lead-time between reform and the realisation of benefits from the health promotion and disease prevention and education and training substreams is likely to be protracted relative to other reform streams.

Because of these differences, estimates of the impacts of each reform stream are not comparable. In particular, they cannot be aggregated to provide a single meaningful estimate of the 'impact of the NRA'. For this reason, results for the:

- competition and regulatory reform streams;
- health service delivery area of the human capital stream; and
- workforce participation and productivity reform streams

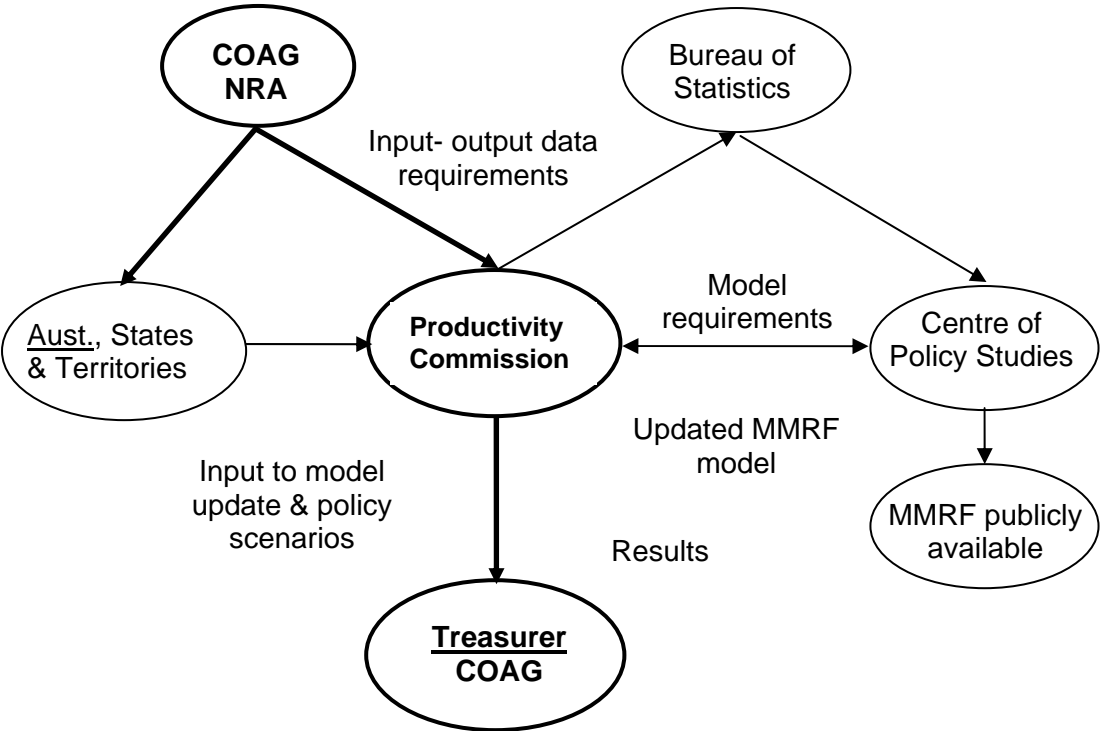
were presented, and need to be considered, separately.

Modelling framework and project coordination

The economic and fiscal results for each stream were estimated using the economy-wide general equilibrium MMRF model framework that had been updated for this study. The model — referred to as the Monash Multi-Regional Forecasting – National Reform Agenda (MMRF–NRA) model — treated each State and Territory as a separate economic region and was similar to that adopted in the 2005 exercise, discussed above. Updating for the NRA study included a more detailed treatment of government finances and the fiscal effects of the introduction of the Goods and Services Tax (GST) (introduced in Australia in July 2000), and a new input-output data base compiled by the Australian Bureau of Statistics specifically for the study.

The administration of the developmental and consultative process involved a number of aspects in which the Commission took a coordinating role (figure 6). Using input from the COAG processes, the Commission consulted with Australian, State and Territory government agencies to develop detailed guidelines for the conduct of the project and policy scenarios. To facilitate the updating of the modelling framework, the Commission liaised with the Australian Bureau of Statistics to obtain updated input-output tables which incorporated the GST and a revised treatment of transport. The Commission also contracted the Centre of Policy Studies, the MMRF model developers, to update the model theory and data base to meet the specific reporting requirements of the study. While some preparatory work was undertaken in advance of receipt of the study guidelines from COAG officials, most of the work, including modelling workshops, was undertaken according to very tight deadlines over the period April 2006, when the request was received, to the submission of the Commission’s report to the Treasurer and COAG officials in December 2006.

Figure 6: National Reform Agenda modelling and reporting process



Potential impacts of competition and regulatory, and health sector reforms

The Commission's modelling indicated that achievement of the productivity and price effects potentially available from the competition and regulatory reform streams of the NRA could add significantly to national output — around 1.7 per cent of GDP (table 5). With potentially higher activity levels, household disposable income and household consumption could increase by around one and a half per cent, supported mainly by higher real after-tax wages and salaries.

Given the pervasive reach of regulation, the estimated outer-envelope benefits of reductions in regulatory compliance costs are substantial and account for around three quarters of the total output gain. Reform in road and rail freight transport accounts for around one fifth of the total.

Table 5: Estimated potential longer-run macroeconomic effects of NRA competition and regulatory and health sector reforms
Percentage change, real government spending assumed fixed

Reform area	GDP % change	Net operating balance (2005-06)	
		States AUD billion	Aust. Gov't AUD billion
Competition & regulation streams			
Energy	0.05	0.02	0.12
Road and rail	0.36	0.22	0.54
Ports and ports handling	0.02	0.02	0.05
Reduction in regulatory compliance costs	1.31	1.78	2.67
Total competition & regulation streams	1.74	2.04	3.38
Health sector productivity	0.42	2.67	1.40

Source: Productivity Commission 2007b.

In addition to productivity improvements arising from the competition and regulatory reform streams, the NRA seeks to improve the effectiveness of health service provision. The Commission analysis suggested that there is scope to improve the productivity of health service delivery, and the achievement of this potential could raise the level of GDP by around 0.4 per cent.

To the extent that there are additional dynamic benefits from more competitive markets, such as the stronger incentives for service providers to continue to improve their productivity and service quality and to innovate in order to achieve a competitive advantage, there are also likely to be further additions to the potential benefits modelled.

Government revenue implications of the competition and regulatory reform streams were assessed on the basis that government spending, in real terms, would be determined by COAG and relevant jurisdictions on a case-by-case basis. Under this assumption, the fiscal benefits of reform are modelled as accruing to government, in the first instance, in the form of a higher ‘operating balance’ — the model’s estimate of government *net* revenue.

The projected outer envelope increase in Australia’s GDP and national income with the implementation of competition policy and regulatory reforms could raise Australian governments’ net revenue substantially — by around 5 billion Australian dollars (2005-06 basis). Of this amount Australian Government net revenue is projected to increase by around 3 billion Australian dollars while the net revenues of State, Territory and local governments collectively were projected to rise by around 2 billion Australian dollars. The main influence on Australian Government revenue is company and personal income tax collections, while the main influence on State, Territory and local government revenues is property tax and GST receipts.

The fiscal dividend from productivity improvements in health sector productivity was projected to accrue mainly to the states — reflecting the importance of this level of government in the public provision of hospital and other health services.

To indicate the implications of national reform across Australia, the Commission estimated the potential economic impacts of NRA at the State and Territory level. This modelling was supported by state-specific policy scenarios for the energy and ports sectors, and by the assumption of uniform changes across jurisdictions for road and rail transport and for reduced regulatory compliance costs.

Under these modelling scenarios, all jurisdictions were projected to achieve higher output levels from the new national reform agenda. After the relocation of labour needed to achieve higher output levels, output (measured by gross state product (GSP)) per person employed was projected to rise in all jurisdictions. Improved productivity would also raise real wages and household disposable incomes, in turn raising potential consumption levels per person in all jurisdictions (see figure 7 for the competition and regulatory reform stream). The variation between jurisdictions reflects, in the main, the differential impacts of NRA reforms on after-tax real wages — the main source of household income.

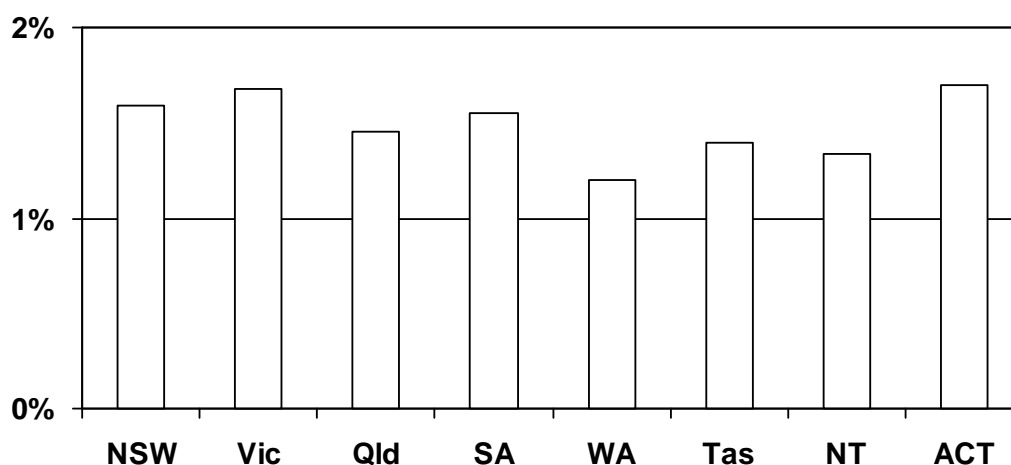
Potential impacts of human capital reform

The human capital stream of the NRA comprises three distinct substreams directed at improving workforce participation and productivity — health promotion and disease prevention, education and training, and work incentives. This reform stream focuses on individuals and their potential to contribute to:

- workforce participation — that is, whether a person is in employment or looking for work; and
- productivity — a person’s value adding contribution to output while at work.

Figure 7: Estimated potential longer-run household income effects of NRA competition and regulatory reform stream

Percentage change, real government spending assumed fixed



Abbreviations: NSW – New South Wales; Vic – Victoria; Qld – Queensland; SA – South Australia; WA – Western Australia; Tas – Tasmania; NT – Northern Territory; ACT – Australian Capital Territory.

Source: Productivity Commission 2007b.

International comparisons and Commission analysis indicated that there is scope to enhance Australia’s workforce participation and productivity. However, the time needed for benefits to materialise for some human capital reforms (particularly in the health and education areas) could involve generational change and extend over several decades. To take account of these factors and the changing demographic structure due to ageing and other influences on the Australian population, the Commission used a demographic model to quantify the potential impacts of the human capital stream on the workforce 25 years out. It then modelled the economy-wide effects of changes calculated in the demographic model, using the MMRF-NRA model.

Projected higher workforce participation and productivity could potentially raise effective labour inputs (quality-adjusted hours worked) substantially — by around 8 per cent from levels that would otherwise apply. The achievement of higher labour inputs and the employment of those inputs by industry would potentially raise national output, measured by GDP, substantially (table 7). With higher output from the more productive use of human resources, per capita household disposable income and consumption and government revenue could also increase — but, due to diminishing returns to the

employment of additional effective labour, real wages (the main component of household disposable income) and household per capita consumption are estimated to grow at a slower rate than GDP.

Table 7: Estimated potential economic and fiscal effects of human capital workforce participation and productivity reforms

Government spending assumed fixed

<i>Reform area</i>	<i>GDP per capita</i>	<i>H'hold consumption per capita</i>	<i>Net op. balance (2005-06)</i>	
			<i>States</i>	<i>Aust. Gov't</i>
	<i>% change</i>	<i>% change</i>	<i>\$billion</i>	<i>\$billion</i>
Workforce 'participation'	6.1	4.8	9.1 (40%)	13.2 (60%)
Workforce 'productivity'	2.7	2.2	4.1 (40%)	5.8 (60%)

Source: Productivity Commission 2007b.

Importantly, however, while potentially substantial both in absolute terms and relative to the projected changes for the competition, regulatory reform and health service reform areas, the 'gross' estimates reported do not take into account program and other implementation costs — which could be sizable. The estimates also do not take into account the unmeasured effects implicit in transfers between unpaid and paid effort associated with the workforce participation stream and the uncertainty of behavioural/choice changes associated with each stream.

The NRA study guidelines also requested the Commission, to the extent possible, to report on the impact of the NRA income groups, the separate potential impact of reforms implemented by Australian governments, the expected revenue benefits to each State and Territory government and indicative scenarios of the costs of the implementation of the full range of reforms. Because detailed information on implementation costs and any changes in Australian Government/State governments income sharing arrangements under NRA were not known, it was not possible to systematically identify the implementing agency or government or provide a meaningful disaggregation of fiscal effects by State and Territory. These information gaps and other factors also precluded estimation of the distributional affects of reform across household groups.

While acknowledging the caveats on the analysis and its experimental nature, the Commission's investigation of the potential benefits of the NRA indicated substantial economic gains are available from the continuance and development of national reform through each of the NRA reform streams.

Summing up

The Productivity Commission as part of its reporting responsibilities to government, has provided a number of assessments of the potential benefits of national economic reform programs initiated by the Australian Council of Australian Governments.

The initial pioneering study undertaken in 1995 was focused on quantifying the growth and revenue implications of National Competition Policy. This policy was directed at removing domestic impediments to growth and achievement of higher incomes. A second study in 1999 focused on the rural and regional implications of the National Competition Policy. It was undertaken in response to concerns that the Policy was disadvantaging country Australia. That study suggested that after some adjustment, the Policy would raise incomes in all regions across Australia. The study also indicated changes in general economic conditions were likely to have a more pervasive effect than National Competition Policy reforms.

The third study undertaken by the Commission was in 2005. It provided a major review of National Competition Policy reforms and a consideration of possible future reform directions. The Commission again used quantitative modelling to inform its assessment of the benefits of reform. An important feature of this modelling was the analysis of the distributional effects of reform. The analysis indicated that all household groups potentially benefited although the scale of benefits was influenced by the occupation of households and assumptions made about distributional policies of government.

The final, most recent, study undertaken by the Commission, involved an assessment of the new Australian Nation Reform Agenda initiated in February 2006. This reform agenda initiated new competition policy and regulatory reforms and introduced a new stream of human capital reforms focused on raising Australia's workforce participation and productivity. The Commission's assessment is that there are substantial economic benefits available from the implementation of this new reform agenda. Because of inherent differences between the competition and regulatory reform streams and the human capital reform stream, it is not possible to aggregate results into a single measure of the 'impact of the NRA'. In particular, the maturation periods and cost to government inherent in human capital reforms are likely to differ significantly from competition and regulatory reform.

References

- Banks, G. 2005, *Structural Reform Australian-Style: lessons for others?*, Presentation to the IMF, World Bank and OECD, May 2005, Productivity Commission, Canberra.
- Banks, 2007, 'Public inquiries in policy formulation: Australia's Productivity Commission', Address to the *International Workshop: Australia's Public Inquiry*

Experience and Economic System Reform in China, China-Australia Governance Program in Beijing, 3 September.

Independent Committee of Inquiry into National Competition Policy in Australia 1993, *National Competition Policy: Report by the Independent Committee of Inquiry into Competition Policy in Australia*, (Professor F. Hilmer Chairman), AGPS, Canberra.

Industry Commission 1995, *Growth and Revenue implications of National Competition Policy Reforms*, A Report by the Industry Commission to the Council of Australian Governments, AGPS, Canberra.

Productivity Commission 1999a, *Impacts of Competition Policy Reforms on Rural and Regional Australia*, Inquiry Report No. 8, Canberra, September.

Productivity Commission 1999b, *Modelling the Regional Impacts of National Competition Policy Reforms*, Supplement to Impacts of Competition Policy Reforms on Rural and Regional Australia, Inquiry Report No. 8, Canberra, September.

Productivity Commission 2003, *From industry assistance to productivity: 30 years of 'the Commission'*, Productivity Commission, Canberra, December.

Productivity Commission 2005a, *Review of National Competition Policy Reforms*, Inquiry Report No. 33, Canberra, February.

Productivity Commission 2005b, *Modelling Impacts of Infrastructure Industry Change over the 1990s*, Supplement to Review of National Competition Policy Reforms, Inquiry Report No. 33, Canberra, February.

— 2007a, *The Productivity Commission: A Quick Guide*,
www.pc.gov.au/commission/quickguide.pdf

Productivity Commission 2007b, *Potential Benefits of the National Reform Agenda*, Report to the Council of Australian Governments, Canberra, February.

— 2008, *PC update*, No. 40, April 2008, Canberra.

Legislation

Productivity Commission Act 1998 (Commonwealth)