# Australia's mining boom: what's the problem?*

Gary Banks
Chairman, Productivity Commission

Australia's past reform successes have generally been founded on a clear understanding of problems warranting policy solutions. Where policy initiatives have struggled or ended badly, this has often been due either to misdiagnosis, or a failure to achieve sufficient public understanding or acceptance of the problem at hand and what policy has to offer.

This is relevant to the session topic on which I have been asked to speak. At face value, 'managing the growth shock' can be taken to suggest that our recent mining-fuelled growth presents problems that governments will need actively to address. However there seems to be considerable confusion about the sorts of problems posed by the mining boom, particularly relative to 'shocks' of the past, and thus about the sorts of policy actions that may be required. Greater clarity about the former is a necessary precursor to identifying the latter.

The Australian economy has in fact experienced many 'shocks' over the years. Those akin to the current mining export boom include a gold rush or two, several agricultural trade booms (most notably for wool, but also other commodities, especially in the early 1970s) and a number of earlier mining booms, the most pronounced being in the 1970s and 1980s. Each of these shocks has set in train structural changes that have ultimately brought about adjustment – or, in econ-speak, a new 'equilibrium'. The current one will be no exception, though the adjustment path is proving distinctive in key respects, and for the better.

## The economic forces at work

The latest mining boom is characterised by an expansion in foreign demand for Australian commodities, which, together with falling import prices, has translated into a dramatic improvement in the terms of trade. To some extent, this is different from some previous booms, which resulted from discoveries of deposits and put

---

* Address to the Melbourne Institute's Economic and Social Outlook Conference, 30 June 2011.

downward pressure on commodity prices. But whether a minerals boom arises from a new discovery or increased foreign demand for our resources, increased national wealth will lead to increased domestic spending on goods and services over time. With close to full employment, increasing the supply of non-traded goods (services) will require expansion of that sector relative to the traded goods sector.

Put another way, domestic production of traded goods has to make way for our increased consumption of non-traded goods. This shift is accommodated by 'real appreciation' — effected either through domestic inflation or nominal exchange rate appreciation, or some mix of the two. In essence, the real appreciation makes domestically-produced traded goods more expensive relative to their foreign counterparts, reducing both domestic and foreign demand for them.

In addition to this demand-side effect, on the supply side, expansion of the minerals sector will directly draw some resources from other sectors. This can further impact on other traded sectors as well as on some non-traded ones, depending on their factor requirements — for example, specific labour skills.

But the pressures being placed on our traded goods sector are mainly due to us being richer than we were, and consuming more goods and (especially) services, rather than because mining draws labour or capital from manufacturing and agriculture. In this respect, the rapidity and scale of the income growth associated with the boom has served to amplify underlying structural trends.

This adjustment process has been variously referred to as 'de-industrialisation', the 'Dutch Disease' and, most recently, the 'two-speed economy'.

These labels suggest a policy problem, requiring government intervention to reverse or dampen the structural adjustments required by the resource boom. But it is important not to lose sight of the fact that these economy-wide impacts unambiguously raise our national wealth. (Some have claimed that we are not benefiting from the mining boom because companies are foreign owned. But if this were the case, and the income were going abroad, we wouldn't have a 'two-speed' economy!) As was observed about the 'Dutch Disease' literature nearly three decades ago:

> Although virtually ignored in much of the discussion, consumption of all goods would increase, as would national expenditure and aggregate welfare; indeed, terms such as 'Dutch Disease' seem to imply that it is a morbid condition rather than the sign of a lucky country (Porter, 1984, p. 16).

## Recent developments in historical perspective

The current mining export boom has been accompanied by sharply rising terms of trade. Indeed our terms of trade attained historic highs in the March quarter of 2011, equalling the iconic Korean War peak. Terms of trade increases have accompanied some previous mining (and other export) booms. But the recent surge has been considerably stronger and longer than any that have come before. The earlier booms involved shocks that reverberated through our economy in a disruptive way. How has the economy responded this time by comparison?

The short answer is 'very differently'. This is particularly evident in relation to inflation and (nominal) wage outcomes. Both of these have been influenced for the better by the changed institutional settings since the early 1980s.

Importantly, the current export boom is the first in which Australia has had a floating currency. As a consequence, the rise in exports has been met with an appreciation of the exchange rate, directly re-pricing Australia's traded goods and signalling the necessary structural adjustments.

By contrast, when export booms occurred in the past, the only manner in which the *real* exchange rate could adjust was via a (relative) increase in the domestic price level — Australia's inflation had to rise. The Reserve Bank was essentially powerless to stop this blunt adjustment, since commitment to a fixed exchange rate resulted in loss of monetary autonomy.

Clearly, the current experience couldn't be more different — the exchange rate has appreciated greatly, and inflation has remained relatively low.

A further comparison of the outcomes in the current boom with previous ones suggests that our changed labour market institutions have also played an important role for the better. For instance, during the Korean War boom, wage growth accelerated to 19 per cent in the year that the terms of trade peaked. Similarly, when Australia's terms of trade peaked again in 1973-74 during the commodity boom, nominal wage growth reached 17 per cent in that year, accelerating to almost 30 per cent in the following year.

The reason for the different outcomes is clear in retrospect. Australia's centralised wage setting system had the effect of transmitting demand pressures in expanding parts of the economy to aggregate wage outcomes. By contrast, in the current episode, our more decentralised wage setting arrangements have enabled wages to adjust differentially according to changes in demand and supply in specific markets — notably mining — such that wage growth has been subdued overall.

## The sectoral jobs story

Ric Battellino from the Reserve Bank (2010) has suggested that the current boom can be dated from around 2005, based on the behaviour of mining investment and commodity prices. The period since then has seen a rise in the terms of trade of nearly 60 per cent. In the same period, total employment has grown by about 16 per cent.

The biggest gains in employment during this period have occurred not in mining, but in the services sector, which has created jobs for around 1.5 million people. Mining has undergone a much smaller, though not insignificant, expansion in employment, of around 100 000 people.

By contrast, employment in manufacturing has decreased by around 59 000 or by roughly 6 per cent. The gain in mining employment alone was enough to offset this, but the employment changes in all sectors have been relatively small when compared with the growth of employment in the services sector.

### *Longer- term trends*

These sectoral employment movements in the recent boom years broadly accord with 'theory'. But it is important to recognise that, to a large extent, we are just seeing an accentuation of longer-term trends.

Employment in Australia's manufacturing sector expanded considerably in the first half of the twentieth century and continued to grow into the 1970s, fostered by expanding domestic market opportunities and high import protection. Although the number of people employed in manufacturing peaked in the early 1970s, the share of total employment accounted for by manufacturing was already beginning to decline. The decline in manufacturing's employment share has thus been happening for around 40 years. Similarly, agriculture's share of employment has also steadily declined.

Delving a bit further into the manufacturing employment story reveals that, in the recent 'two speed' years, the main casualties in employment terms within that sector have been the relatively highly assisted motor vehicle and TCF industries. I think this illustrates firstly the beneficial nature of the current reallocation of jobs within the economy (from lower to higher valued activities) and, secondly, the ineffectiveness, as well as costliness, of using industry assistance for job creation purposes.

Mining has never accounted for a large proportion of the economy's jobs. The high point of just over 5 per cent occurred early in the 20th century. Its share then fell to around 2 per cent by the 1940s, and to just under 1 per cent by the late 1990s. With the recent export boom, mining's share of total employment has risen again, but it is still only about 1.8 per cent.

The real action, when it comes to job creation, has been in the services sector, where employment has grown persistently strongly over the past 6–7 decades. Accounting for one-half of employment early last century, the service sector's share now stands at around 86 per cent of the Australian workforce — in other words, nine jobs in ten.

Similar long-term trends are apparent in the sectoral composition of output. The proportion of national output accounted for by agriculture and manufacturing has steadily declined over time, whereas that of services has increased inexorably, now accounting for nearly 80 per cent of the total. As expected, during the recent boom period, the share of output accounted for by the mining sector has also risen strongly, from around 6 per cent to 9 per cent.

Notably, while their shares have fallen, the absolute levels of output in manufacturing and agriculture have continued to rise. It is also notable that there has been no discernible change in the *rate* of decline in manufacturing's share of national output in this same period.

In sum, the biggest impact of the mining boom appears to have been on activity levels and jobs in the mining sector itself. The main effect on other sectors appears to have been to nudge them further in the direction that they were already going, though with differential effects among individual industries. Those longer-term trends — the relative rise of the services sector and decline of manufacturing and agriculture — are a manifestation of the process of advanced economic development, observable in all OECD countries.

In Australia's case, the decline of manufacturing has looked more pronounced than elsewhere only because of its artificially elevated starting point — underpinned by high protection. By the same token, the services sector has benefitted from the liberalisation of previously highly restricted financial markets, plus the further boost to the finance industry that came with compulsory superannuation. (It has also benefitted from technological changes that facilitated outsourcing of activities previously conducted within manufacturing, leading to their re-labelling as 'services'.)

The two service industries under most pressure from our high dollar are education and (domestic) tourism. Arguably some correction in the former's stellar expansion

(which in part had been driven by liberalised migration rules that have recently been tightened again) was inevitable, and some shake-out within the sector probably desirable. In the case of tourism, there is a strong domestic demand component and much of this 'satellite' sector has other sources of demand anyway (eg for hotels, transport) and employment has stayed strong.

One casualty of the demand-side boom, has been reduced supply-side performance, as measured by productivity indicators. While there are other ingredients, a key influence on Australia's recent productivity slump has been the massive injection of labour and capital, together with more costly production and resource depletion effects, directed at satisfying minerals demand. However, this can hardly be described as a 'problem', given its flipside of higher prices, profits and national income growth.

Reversing Krugman's aphorism, in the short term productivity clearly *isn't* everything. But of course the terms of trade will stabilise if not decline at some point, by which time productivity growth will again need to have become the mainstay of income growth. And there remain important policy challenges if we are to realise its potential.

## What *is* the role for policy?

Objectively, the main policy challenge posed by this latest mining boom — apart from holding the line on the institutional reforms that have helped avert the downsides of earlier episodes — is how best to facilitate the adjustments needed to maximise the gains.

### *Macro policy issues*

As noted, terms of trade booms in the past posed significant problems for macroeconomic management. These have largely been avoided under current institutional settings. In particular, the floating of the $A in 1983 — though hotly debated at the time — has benefitted the Australian economy greatly by giving it an external 'shock absorber'. The Reserve Bank has been able to keep inflation within its target band on average since the boom began, and we have not seen the rapid economy-wide wage increases experienced in previous booms.

Contrasting this experience with the past illustrates that reducing flexibility in one area of the economy places extra adjustment pressures on other parts. With a fixed nominal exchange rate, additional pressure is placed on domestic prices and wages. Similarly, measures that inhibit the ability of wages to move in accordance with the

demand and supply of labour place additional adjustment pressure on employment levels and regions. Maintaining flexibility in institutional arrangements helps ensure that extreme movements in key variables are avoided.

### *A Sovereign Wealth Fund?*

The current sustained rise in the terms of trade has prompted questions about the appropriate role of fiscal policy in an environment of ongoing growth in income and output, and low unemployment. As discussed earlier, one of the most important effects of a mineral discovery or the terms of trade improvement is an increase in real national income. An intertemporal dimension is how much of the increase in income should be saved.

There has been active debate about whether the government should set aside at least some of the increase in revenues it receives from taxing the extraction and sale of non-renewable resources in a 'sovereign wealth fund'. The Greens have seen this as warranting an inquiry by the Productivity Commission. It is a matter on which our Federal Treasury has already had a bit to say.

The former Secretary, Ken Henry (2010) outlined four possible objectives of such a fund:

- to sterilise foreign exchange flows and limit nominal appreciation;
- to provide a source of saving (and to smooth consumption);
- to reduce revenue volatility, and
- to discipline government spending.

The first of these has to do with curtailing 'Dutch Disease' or 'two speed' effects. The idea is that by investing abroad, such a fund will increase the demand for foreign currency and reduce the extent to which Australia's currency appreciates. In turn, this could limit contractionary pressure on other traded sectors. As Henry points out, however, a country wishing to limit exchange rate appreciation does not have to explicitly earmark receipts from the sale of mineral resources for investments overseas to achieve this. Using the proceeds to retire debt or purchase domestic financial assets — reducing the demand for foreign liabilities — would have the same effect.

Increased exposure to economies such as China and India may lead to higher, but more variable, economic growth in Australia in the longer term. As Glenn Stevens (2010) has noted, there may be a case for some of the adjustment to higher income variability occurring through the public finances. However, individuals in their

daily decisions about whether and how to consume or save are already implicitly managing the potential variability in their future incomes — without the significant governance issues and administrative costs that come with a sovereign fund. (Note the recent sharp — and probably largely precautionary — increase in household savings.)

In earlier years, proponents of a sovereign wealth fund cited unfunded superannuation liabilities and the ageing of the population as reasons for its establishment. The former Treasury Secretary, Ted Evans (2003), pointed out that the ability of future governments (and citizens) to meet their expenditure needs essentially depended on the size of the economy at the time. The best contribution the current population could make to the welfare of future generations is to help maximise future income (through high productivity and participation). It is not clear that setting aside current tax revenue for future expenditures will necessarily achieve that objective more effectively than allowing the present population to allocate its own income itself. Moreover it appears that, internationally, sovereign wealth funds have not proven very effective in disciplining government expenditure.

### *Other fiscal issues*

Questions also arise as to how much of the additional revenue government receives from increased mining and other activity should be allocated for current uses. Should additional revenue facilitate a reduction in income or other taxes? Should government increase its expenditure? If so, on what, and for how long?

Ultimately, decisions about government spending should be made on cost-benefit grounds. If new infrastructure or some other public project is assessed to yield sufficient net benefits, it should be worth undertaking regardless of whether the government has received more tax revenue than it might otherwise have expected. (Nevertheless, the availability of more revenue may influence the *timing* of major expenditures — especially if governments are reluctant to issue new debt.)

In the current fiscal circumstances, in the aftermath of the GFC, the task of budgetary consolidation would clearly be ameliorated by greater taxation revenue from mining. Much contention surrounds the vexed issue of how taxation and royalty systems should be configured to appropriate the 'right' returns from Australia's natural resources. The two related questions, both addressed in the Henry Review, are whether the structure of taxation is efficient and whether the share is sufficient. You will not be surprised that I do not propose to offer any comment on these contentious matters, the Commission having last addressed such questions some 20 years ago! (The 1991 Mining Inquiry supported a move from

output-based royalties to charges based on 'pure rent' for high unit value commodities, though allowing existing projects to stay with the status quo. It also came to the view that, in practice, no tax can avoid having some impact on production or investment decisions.)

What I do feel able to observe is that taxation policy has as much art as science to it, and the nature and extent of the consultative processes for developing it will generally be crucial to how good the outcomes turn out to be. A second observation based on recent experience in Latin America, is that whatever Australia does is being closely watched internationally. No country's taxation system is an island. Relative expected returns across resource-prospective countries will be the main determinant of international investment and thus domestic activity in the long term.

The second route to fiscal consolidation is to cut existing public outlays. This is never easy and is compounded by the need for additional spending in some areas. For example, more fiscal room will be needed if the Government accepts the Commission's arguments for a significant step-up in aged care funding and in support for people with profound disabilities, both yielding important social benefits and arguably well overdue.

The cost-benefit logic informing such new initiatives should also be brought to bear on existing programs, with those yielding the smallest relative payoffs the first to go. Indeed some of the worst have already gone. These include the (stillborn) 'cash for clunkers' program and the Green Car Innovation Fund, both of which were more likely to have yielded net losses than gains to society.

But no doubt there is more low-hanging fruit waiting to be picked. For example, the case for Australia spending $36 billion or so on another dozen homemade submarines, when imported alternatives could be purchased for a fraction of the cost (and risk) has never been adequately explained publicly — notwithstanding the generally acknowledged failure of the Collins Class precedent. The whole area of defence procurement seems ripe for a thorough independent review.

The justifications sometimes offered for 'build rather than buy' policies — skilled job creation or technological spillovers — even if they had some merit in the past, have little credibility today, given the pressing need for such skills in mining and associated industrial activities.

## What microeconomic policies?

This brings us from the macro to the micro policy spheres. The microeconomic policy challenges for Australia essentially remain the same whether there is a mining boom or not. The imperative must be to drive productivity improvements and efficiency throughout the economy, through actions that can effectively foster competition, facilitate organisational flexibility and adaptability, and build capability. Whatever the economic question, 'productivity' is generally the answer.

As outlined on previous occasions, there is a broad potential reform agenda for governments across the key drivers of productivity just mentioned. However, the current structural pressures arguably put a premium right now on the economy's ability to allocate and reallocate labour and capital to the industries where they can do most good.

This economic logic is not universally accepted. It is therefore worth looking briefly at some of the key policy areas where contrary policy approaches for our 'two speed' economy are being advocated.

### *Trade and industry policies*

One is industry policy, as a means of supporting sectors under pressure. However, the old saying about 'having and eating one's cake' is apposite in the current circumstances. Attempting to hold resources in sectors and industries under pressure from dollar appreciation by providing them with (additional) government assistance can only succeed in lowering our living standards. As observed by Bob Gregory in his seminal article of 1976 on the Dutch Disease (before it acquired that title), attempting to assist those parts of the traded sector adversely affected by currency appreciation would be 'self-defeating'. By attempting to push exports up relative to imports it would only trigger further real appreciation. And while assistance targeted at a few selected industries might ameliorate their circumstances, it would force more adjustment onto industries that were not so favoured.

If the boom were to be short-lived, it could be argued (and has been) that some defensive industry support might avoid double adjustment, or the permanent demise of activities that would have been viable again in normalised circumstances. However, evidence and logic suggest that the recent step up in export demand for minerals is unlikely to be reversed in the foreseeable future. As David Gruen from the Australian Treasury recently expressed it:

> this global changing of the Guard [from the economic re-emergence of China and India] seems more like a generational change in Australia's comparative advantage

than it does an example of the Dutch Disease, in which we might wish to return Australia to its pre-boom industrial structure once a short-lived disturbance has passed (Gruen, 2011).

Moreover, implicit in the doomsday scenarios for certain trade-exposed industries (including education and tourism) is the notion that structural adjustment is a one-way street. However if and when the mining boom comes to an end, there will be forces within our economy that will automatically favour other traded activities again. The best possible illustration of this comes from the Netherlands itself, where the decline of the gas reserves that prompted the 'Dutch Disease' literature has seen a strong resurgence in manufactured exports. In the meantime, the Dutch benefitted greatly from their 'disease'! Again, the best way of potentially securing such a reallocation for Australia in the future is by adopting policies now that can further enhance the flexibility of our economy.

This does not, of course, rule out actions by government that could help industries under pressure by addressing policy-related impediments to their performance. For example, as argued previously, there remains an array of regulation that weakens the competitiveness of these and other industries. Some key ones at a national level are being addressed through COAG's 'seamless economy' processes. The current structural pressures give force to arguments for advancing these reforms as rapidly as possible (particularly in such significant and pervasive areas as OH&S).

Equally, there remains a good 'in-principle' case for support for research and development. However, its design and extent need to be carefully directed at achieving additional benefits for the wider economy, not just for the firms or industries concerned. Research and development consumes productive resources and is not an end in itself. And designing socially beneficial programs is not straightforward. It is made less so by the apparent political difficulty of introducing desirable modifications in the light of experience, where that involves withdrawing perceived 'entitlements'.

Political resistance of the same kind can also be expected when it comes to terminating high cost carbon abatement measures, which should be an essential adjunct to introducing a more cost-effective market-based instrument. (Indeed this is already evident in recent attempts to reform the very costly solar 'feed in tariffs' in NSW and the ACT.)

A second area where the policy devil is in the detail is anti-dumping. A 'tougher' anti-dumping regime — one more receptive to imposing duties on imports — has been advocated by some as a means of alleviating the exchange rate pressure on import-competing manufactures. While such duties are usually portrayed as serving domestic over foreign interests, the main winners and losers are located within our

own economy — the losers being user industries like mining, and of course consumers.

Getting the right balance in the anti-dumping regime among competing interests — and between efficiency and 'fairness' goals — has never been easy. It places a premium on transparency and good analysis to inform individual decisions and any changes to the regime. It also requires limitations on the discretion of administrators, in circumstances of uneven political pressure. The history of anti-dumping policy is marked by successive advances and retreats against these tests. Which category the recently announced arrangements fall into will reveal itself in time.

I have thus far ignored the arguments sometimes made for policy intervention on the grounds of the superiority of certain industries, particularly manufacturing, over others. It is not so long ago, for example, that the 'New Economy' rhetoric was deriding our mining industries as 'so last century'. It is hardly necessary to point out how erroneous that was. While manufacturing is important to our economy — and its activity levels have not diminished in absolute terms — the reality is that its *relative* decline has been integral to the marked increase in the living standards of Australians.

### *Regional policy*

An expansion in mining and in non-traded industries attracts mobile factors of production from other parts of the economy. Some regions will accordingly experience an influx of workers and others will face a decline, as certain industries contract. While mobile labour gains from being able to exploit regional differences in wage rates, those made worse off by the expansion in mining will be the less mobile and owners of fixed inputs in declining industries and regions.

Some have argued that these resource movements are undesirable, and that policy initiatives aimed at retaining resources in declining regions are needed.

As it turns out, the impacts of the mining boom appear to have been benign for most regions of Australia, whether or not they are engaged in mining. Indeed there has been a decline in the regional dispersion of unemployment, with two-thirds of 'statistical subdivisions' experiencing a drop in unemployment rates over the period 2003 to 2010. The Treasury observes in its recent Budget Papers:

> The fall in the regional dispersion of unemployment as the national unemployment rate falls is evidence that to date … the national gains of the nation's economic success are being spread broadly to people across Australia through (among other mechanisms) improved labour market outcomes.

That said, clearly not all regions are prospering, particularly at finer disaggregations, with some experiencing declines in employment and population. However, as for the inter-industry effects, in many cases these changes are consistent with longer term trends.

The potential benefits of geographic mobility of labour during a mining boom were explored in recent modelling conducted by the Commission. Unsurprisingly, GDP and average real wages were projected to be higher when labour was fully mobile across jurisdictions, reflecting the gains from resources moving to higher valued uses. A less obvious, though equally important result, was the role of labour mobility in distributing the benefits of the resource boom across Australia. The ability of workers to move to work in another state or territory moderated the growth in wages in booming jurisdictions, and increased it elsewhere.

The Commission found in earlier studies that the drivers of regional change comprise a complex amalgam of forces, including various technological and demographic changes. Policies designed to arrest or reverse the consequences of such changes have historically not been very successful.

Past inquiries, have concluded that the best approach to regional policy is for governments to reduce regulatory impediments to regions exploiting their differences and adapting to change, as well as enhancements to governance arrangements at the regional level. In practice, as the Grattan Institute noted recently, there has been a range of expenditures on infrastructure and other services in declining regions with dubious cost-benefit outcomes. Such expenditure also reduces the resources available to meet the more pressing needs of expanding regions.

### *Labour and immigration policies*

Although mining is not labour intensive, its recent sharp expansion has created demands for skilled labour which appear not to have been adequately met from domestic labour markets. This is reflected in the wide wage differentials that have opened up — a topic of conversation in bar rooms around the country.

Some have argued that this provides a strong argument for a larger immigration intake, essentially to lessen nominal wage growth and alleviate pressures on other industries. However general immigration is a blunt tool for ameliorating industry-specific labour shortages. And skilled migrants, who generally bring families with them, have an impact on the demand as well as supply sides of the economy. More targeted, ‘temporary’ (457) work visas are likely to be more effective in meeting

skill needs in particular enterprises, while also usefully serving as a screening device for longer term settlement.

Ideally such actions would be complemented by measures to achieve greater skill development and workforce participation in the local population, and considerable policy attention has been given to this recently. From this perspective, high *relative* wages should not be seen as a problem — they constitute an important signalling device for skill acquisition. And, pending a labour supply response, their effect is mainly distributional — delivering more of a company's profits to its workers than otherwise. (A notable finding from our recent inquiry into Executive Remuneration was that the earnings of employees of mining companies were on average significantly higher as a proportion of CEO salaries than was the case for workers in other industries.)

## Summing up

The problems posed for Australia by the mining boom are not the associated structural changes. To the extent that we have a two (or more) speed economy, that should be welcomed as the mechanism by which we are capitalising on our external good fortune, yielding higher living standards for Australians. The real challenge confronting policy makers is to ensure that the adjustments can proceed smoothly. This also means holding the line on past reforms that have enhanced our economy's flexibility and avoiding introducing new rigidities.

Attempting to slow the structural pressures emanating from the mining boom would only reduce the net dividend in national income. Feasible policy actions are unlikely to succeed in averting adjustment pressures anyway, or may simply divert them onto other parts of the economy. In any case, such pressures have many sources other than mining — including changes in demography, consumption and savings behaviour, and global competition. Moreover, for many enterprises, including in the industrial sectors, a drop in mining activity would have adverse effects.

By the same token, policies intended to shelter particular industries or regions would be both costly and ultimately ineffective, as our own protectionist history attests. Again, the best we can do for industries facing increased competitive pressure is to remove regulatory or other policy-related impediments to their ability to respond.

## References

Banks, G. 2008, *Industry Policy for a Productive Australia*, Colin Clark Memorial Lecture, Brisbane, 6 August.

Battellino, R. 2010, 'Mining Booms and the Australian Economy', address to the Sydney Institute, 23 February.

Connolly, E. and Lewis, C. 2010, 'Structural Change in the Australian Economy', Reserve Bank of Australia *Bulletin*, September, pp. 1–9.

Cook, L.H. and Sieper, E. 1984, 'Minerals Sector Growth and Structural Change' in Cook, L.H. and Porter, M.G. (eds.), *The Minerals Sector and the Australian Economy*, George Allen & Unwin, Sydney, pp. 85–127.

Evans, T. 2003, 'The Budget Constraint', paper presented to the conference "Pursuing Opportunity and Prosperity", University of Melbourne, 14 November.

Gillitzer, C., and Kearns, J. 2005, *Long-term Patterns in Australia's Terms of Trade*, Reserve Bank of Australia Research Discussion Paper, no. 2005-01, Sydney.

Gregory, R.G. 1976, 'Some Implications of the Growth of the Mineral Sector', *The Australian Journal of Agricultural Economics*, vol. 20, no. 2, pp.71–91.

Gruen, D. 2011, 'The Resources Boom and Structural Change in the Australian Economy', address to the CEDA 2011 Economic and Political Overview, 24 February.

Henry, K. 2010, 'Fiscal Policy and the Current Environment', post-budget address to the Australian Business Economists, 18 May.

Porter, M.G. 1984, 'Mining and the Economy — Some Key Issues' in Cook, L.H. and Porter, M.G. (eds.), *The Minerals Sector and the Australian Economy*, George Allen & Unwin, Sydney, pp. 1–35.

PC (Productivity Commission) 1999, Impact of Competition Policy, Report No. 8, Canberra.

—— 2009a, *Australia's Anti-dumping and Countervailing System*, Report No. 48, Canberra.

—— 2011a, *Trade & Assistance Review 2009-10*, Annual Report Series, Productivity Commission, Canberra, May.

—— 2011b, *Rural Research and Development Corporations*, Report No. 52, Final Inquiry Report, Canberra.

—— 2011c, *Carbon Emission Policies in Key Economies*, Research Report, Canberra.

Snape, R.H. 1977, ‘Effects of Mineral Development on the Economy’, *The Australian Journal of Agricultural Economics*, vol. 21, no. 3, pp. 147–156.

Stevens, G. 2010, ‘The Challenge of Prosperity’, address to the CEDA annual dinner, 29 November.