

# Mining Booms and the Australian Economy

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## Introduction

The topic of my talk tonight is 'Mining Booms and the Australian Economy'. I have chosen this topic because the Australian economy is currently experiencing a surge in mining activity, one of a sequence of mining booms since the European settlement of Australia. These have been a powerful force in shaping the Australian economy.

Tonight I want to review the effects of these booms. Of particular interest is the question of whether there are recurring themes from which we can draw lessons on how to manage the current episode.

My talk is based on research by a couple of my colleagues from the Bank which draws on the work of several economic historians.<sup>1</sup> I won't take time to list these references now, but they are shown at the end of my talk.

## Mining Booms in Australia

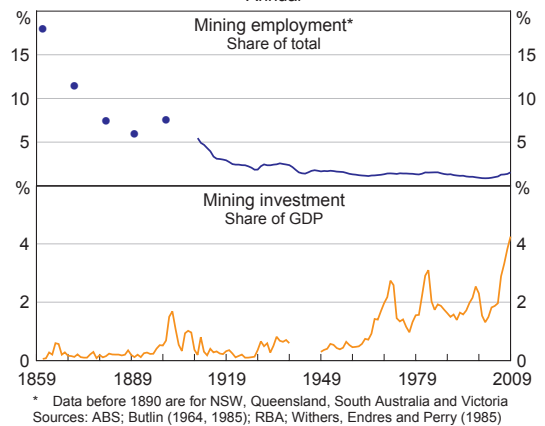
The distinguishing features of a mining boom are significant increases in mining investment or mining output, usually both, which go on to have important macroeconomic consequences.

On this basis, I think we can identify five major mining booms during the past two hundred years or so (Graphs 1 and 2). These are:

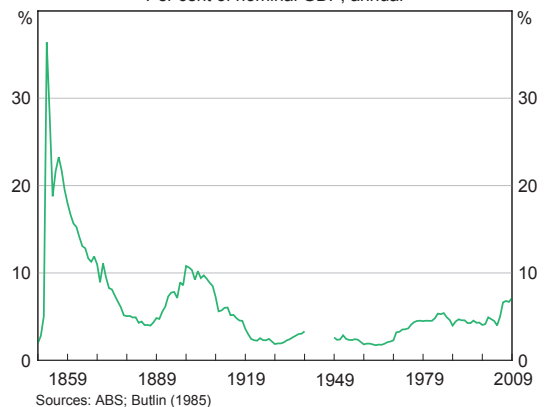
- the 1850s gold rush;
- the late 19<sup>th</sup> century mineral boom;

<sup>1</sup> I would like to thank Ellis Connolly and Christine Lewis for this work. The data underlying the graphs in this speech are drawn from multiple data sources, which may affect the comparability of series over time.

**Graph 1**  
Mining Employment and Investment  
Annual



**Graph 2**  
Mining Value Added  
Per cent of nominal GDP, annual



- the 1960s/early 1970s mineral and energy boom;
- the late 1970s/early 1980s energy boom; and
- the current episode, which is again both a mineral and energy boom.

There have also been quite a number of other mini booms in mining activity, but given the time available I am going to limit myself to the five episodes I have just noted.

I will start with a brief summary of the causes, characteristics and consequences of each of the booms, and then provide a more general assessment of their macroeconomic implications.

### (a) The 1850s gold rush

The 1850s gold rush was the first major mining boom in Australia. Economic historians note that the timing of these gold discoveries may have been related to international developments such as the California gold rush of the late 1840s, which had heightened general interest in gold exploration and mining. The first well-publicised find of gold in Australia, near Bathurst in New South Wales, was by a veteran of the California gold rush. Domestic economic developments may also have influenced the timing, as the continuing effects of the 1840s recession meant that labour in Australia was abundant and mobile, and therefore more likely to become involved in prospecting.<sup>2</sup>

This boom ended up being mainly centred on the gold fields of Victoria. It was atypical compared with later booms in that it was not accompanied by a large increase in mining investment. At that stage, large amounts of capital were not readily available and, in any case, the form of mining that was taking place – surface alluvial mining – was well suited to large inputs of labour and little input of capital.

The boom lasted for about a decade and a half; by the mid 1860s, the gold rushes of Victoria had largely faded.

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2 See Blainey (1963, p 12, 1970).

Measured in terms of value added to GDP, this boom greatly exceeded all subsequent mining booms. At its peak in 1852, mining comprised about 35 per cent of GDP.<sup>3</sup> This created tremendous upheavals in the economy at the time. The value of exports from New South Wales and Victoria rose by a factor of six in three years, and exports of gold exceeded wool exports for the following 18 years.<sup>4</sup>

Labour flowed strongly to the gold states, particularly Victoria, and Melbourne became the largest city in Australia. Some of this flow of labour came from other states. For example, the male populations of South Australia and Tasmania fell by 3 per cent and 17 per cent respectively in 1852. But a large amount of labour also came from sharply increased immigration; the Australian population almost trebled during a 10-year period.<sup>5</sup>

Wages rose sharply, at first in mining, then across the country as labour flowed to the diggings. Between 1850 and 1853, wages in Victoria rose by 250 per cent.<sup>6</sup>

Colonial governments had no powers over the money supply or the exchange rate.<sup>7</sup> The money supply trebled in the space of a couple of years. All the adjustment in the economy took place via inflation. The rise in inflation meant that by the middle of the boom the real exchange rate was about 50 per cent higher than at the start.

There was evidence of what we now call the ‘Dutch disease’ – i.e. damage to some non-mining industries because of the difficulty of retaining labour, increased costs and the high real exchange rate.<sup>8</sup> For example, shepherds’ wages doubled between 1850 and 1853, creating difficulty for the wool industry and wool exports grew at much reduced rates. Also, according to one data source, the number of manufacturing

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3 See Butlin (1985).

4 See Doran (1984); Maddock and McLean (1984).

5 See Blainey (1963, p 62); Maddock and McLean (1984).

6 See Maddock and McLean (1984).

7 See Maddock and McLean (1984).

8 Gregory (1976).

establishments in New South Wales fell from 165 in 1850 to 140 a couple of years later.<sup>9</sup>

The overall impact on economic activity was, however, highly positive. Confidence was high, the flow of immigration greatly boosted demand for goods and services, and industries servicing the mines – e.g. sawmilling, brick-making and transport – all boomed. Parts of agriculture also benefited from greatly increased demand for food. The infrastructure provided to service the mines – such as extensive road-building – went on to have many positive effects in terms of opening up agricultural land. GDP growth remained very strong for a decade after the boom peaked.<sup>10</sup>

Despite having a new source of tax and licence revenue, governments faced pressures in their finances, both because of strong demand for infrastructure spending and sharply rising costs of providing it. In 1853, for example, the Victorian Government spent £520 000 on roads, compared with £11 000 two years earlier.<sup>11</sup> Governments therefore resorted to borrowing, which they did through London markets. They found this relatively easy to do, as the discovery of gold had made the colonies more creditworthy.

### **(b) The late 19<sup>th</sup> century mineral boom**

The second boom was that in the late 19<sup>th</sup> century.

This boom was driven by the discovery and development of new gold and metal mines across the country, but particularly in Western Australia, Queensland and western New South Wales. Partly this was the natural consequence of the spread of the population to more remote areas, but partly it reflected capital market developments. There was ample capital available in London to fund exploration activities as the recession in the early 1890s had led to a fall in investment opportunities.

Also the development of the ‘no-liability’ company made it much easier to access this capital. In 1894, 94 Western Australian companies had been floated in London; two years later there were 690.<sup>12</sup> Sadly for the British investors, much of this money was never repaid in dividends, an indication of the risks that can be involved in mining investment.

The main part of this boom took place against a very subdued economic background, both in Australia and in the major economies. The financial collapses that occurred after the bursting of the 1880s property bubble had led to a global depression with very large falls in output and high unemployment.

The continuing effects of that financial collapse meant that this boom, somewhat unusually, was not accompanied by a sharp acceleration in money supply growth. Similarly, the large amount of spare capacity in the economy meant that there was significant deflation at the start of the boom, which limited the subsequent peak in inflation.

There were some pressures on wages as the unemployment rate fell sharply from the very high levels of the early 1890s, and there were signs of rising industrial disputation. The real exchange rate, however, did not move much through this episode.<sup>13</sup>

The current account, which had moved to a very large deficit during the 1880s property bubble (13 per cent of GDP) moved back to a more normal small deficit in the 1890s, and eventually into surplus when the mining boom ended and the economy slowed in the early 1900s.<sup>14</sup>

The inter-regional effects of the boom, as in the 1850s, were very powerful. There were strong flows of labour to the new mine sites. The population of Western Australia increased from 48 000 to 180 000 during the 1890s; and the population of Broken Hill

9 See Maddock and McLean (1984).

10 See Blainey (1963, p 62); Doran (1984); Maddock and McLean (1984); Butlin (1986).

11 See Doran (1984).

12 See Blainey (1963, pp 187, 190).

13 See Blainey (1963, p 303); McKenzie (1986).

14 See Belkar, Cockerell and Kent (2007).

grew from 6 000 in 1888 to almost 20 000 in 1891. Charters Towers had its own stock exchange.<sup>15</sup>

There were also significant shifts in industrial composition. Exports of wool and grains stagnated and metals took over as Australia's leading export.<sup>16</sup>

Eventually, the combination of rising costs and falling profits meant that capital dried up, investment fell, and the boom ended. Some of the policy actions taken at that time – such as the imposition of tariffs to protect urban industries – had powerful long-run influences.<sup>17</sup>

### (c) The 1960s/early 1970s boom

The third boom was that in the 1960s/early 1970s. This boom was quite broadly based, but the key parts were sharp increases in mining of coal and iron ore, and the development of oil and bauxite discoveries.

The background to this boom was that both the global and domestic economies were becoming increasingly stretched, with rising commodity prices and rising inflation more generally. Particularly important for Australia during this period was the economic development of Japan. As well as adding to the global demand for resources, this had particular significance for Australia because Japan's proximity lowered transport costs and made certain mineral discoveries economically viable.

This boom differed from the episodes in the 19<sup>th</sup> century in that it was more capital intensive. Partly this reflected supply factors, as global capital markets had developed significantly since the turn of the century. Partly it was also technological, as some of the resources could only be developed with large-scale investment. Mining investment rose from about ½ per cent of GDP in 1960 to a peak of almost 3 per cent in the early 1970s.

Export prices rose strongly, particularly in the early 1970s, resulting in a large swing in income towards exporters. The current account of the balance of

payments moved to surplus, an outcome that has not been repeated since.

Employment grew strongly in the second half of the 1960s, by close to 3 per cent per annum, due to large-scale immigration and increased female participation. Wages rose strongly, and the centralised wage fixing system spread the increases widely through the community.

The nominal exchange rate remained relatively fixed until towards the end of the boom, the eventual appreciation of the exchange rate in the early 1970s coming too late to benefit the economy. Money supply growth picked up to over 20 per cent per annum in the early 1970s and fiscal policy also became expansionary. Inflation rose sharply.

Tariff cuts were introduced in 1973 to help control inflation, but the benefit of this was later offset by the imposition of import quotas to try to protect manufacturing jobs.

By the mid 1970s, both the Australian economy and the global economy were experiencing severe difficulties, primarily flowing from the adverse consequences of very high inflation. The boom therefore ended; mining investment fell to low levels, and commodity prices stagnated.

### (d) The late 1970s/early 1980s boom

The fourth major boom was in the late 1970s/early 1980s. This boom was largely driven by the energy sector, in particular steaming coal, oil and gas. This followed the second of the oil price shocks in the late 1970s. In addition, the increased cost of energy made Australia an attractive place for energy-intensive activities such as aluminium smelting.

Investment in mining started to pick up in the late 1970s and increased sharply in 1981 and 1982.

This mining boom led to a sense of euphoria about Australia's future which was accompanied by a resurgence of wage demands and rising inflation. Monetary and fiscal policies were tightened but did not succeed in keeping the economy in check.

<sup>15</sup> See Blainey (1963, p 194); Doran (1984); Withers *et al* (1985).

<sup>16</sup> See Blainey (1963, p 248).

<sup>17</sup> See Blainey (1963, p 289).

The exchange rate system at that time involved management of the Australian dollar against a trade-weighted index of currencies. The authorities followed a policy of appreciating the exchange rate, but, with the benefit of hindsight, the rate of appreciation was relatively mild and did little to insulate the Australian economy from rising inflationary pressures.

The boom was relatively short-lived. The downturn in the global economy in 1981, following the oil price shock, meant that demand for energy ended up being much less than had been expected; this was reflected in both the volume and the prices of exports. At the same time, the distortions caused by high wage growth and inflation, and the resulting tight policies, meant that by 1982/83 the domestic economy had followed the global economy into a severe recession.

**(c) The current boom**

This brings me to the surge in mining investment that is currently under way. This is again very broad-based across a range of resources, but the core part centres on the large expansion in the iron ore, coal and gas industries. It has been, to a large degree, driven by demand for resources by emerging economies, with China being the most significant.

Judged by the pattern in mining investment and commodity prices, the start of this boom can be dated from around 2005. By 2007 and early 2008, it was severely testing the productive capacity and flexibility of the economy. That all changed in the second half of 2008, as the effects of the mining boom were offset by the impact of the global financial crisis. However, now that this has passed, the underlying dynamics of the resource boom are starting to reappear.

Many of the characteristics of this episode have been similar to those of earlier booms, but there are a few key differences worth noting:

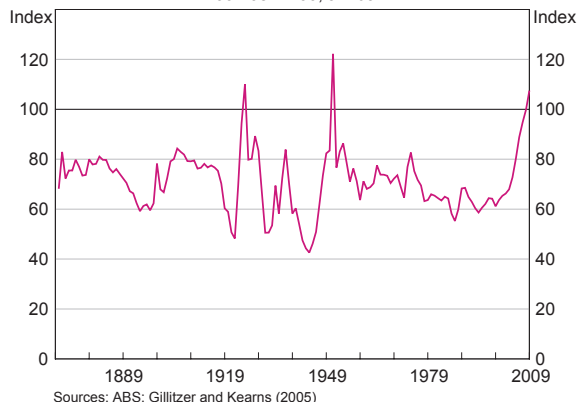
- First, mining investment as a share of GDP has been significantly higher than recorded in

previous booms and is thought likely to rise further. In terms of additions to output, the contribution of mining this time has been larger than that during the booms of the 1960s and 1970s, but still below that of the late 19<sup>th</sup> century and much lower than that in the 1850s.

- Second, the terms of trade have risen much more than they did in earlier mining booms. The current level of the terms of trade rivals the sharp peaks that were associated with rises in wool prices following the First World War and during the Korean War (Graph 3). The current mining boom has seen both the volume and the price of resource exports rise strongly.
- Third, this is the first boom during which the exchange rate has been floating, and in which a significant rise in the nominal exchange rate has been an important part of the economic adjustment. This has added an important degree of flexibility to the economy, by allowing the real exchange rate to rise through a means other than inflation.

How long the current surge in mining activity will continue is uncertain. Past booms do not seem to have lasted more than about 15 years before resource depletion, or international or domestic developments, acted to slow economic activity and bring the boom to an end. On this occasion,

**Graph 3**  
**Terms of Trade**  
2007/08 = 100, annual



the growth potential of countries such as China and India suggests that the expansion in resource demand could continue for an extended period, though this will depend at least to some extent on the economic management skills of the authorities in these countries, not to mention our own.

### Assessment

The booms that I have described took place over a period of about 160 years, and against very different backgrounds. Yet, some similarities come through.

The first point that stands out is the important role played by global events in causing mining booms in Australia. In some cases this was due to the effect on prospecting activity (e.g. the impact of the California gold rush in the 1850s boom and the availability of international capital to fund the 1890s boom); in some cases it was due to a change in the relative prices of commodities on global markets (e.g. the late 1970s boom); and in others due to the emergence of powerful new trading partners (e.g. the development of Japan in the 1960s and the development of China and India recently).

The second point is that the overall impact of each boom was to strengthen the economy. Increased investment in mining, higher income from mining

activities, and the need for increased infrastructure to service the mines all worked in this direction. Also, each boom had high, or increasing, population growth in its early years which added to the economic momentum. Not everybody benefited from that economic pick-up and some industries went into decline due to the difficulty in competing for workers with the newly expanding sectors.

The third point that seems clear from history is that every mining boom was accompanied by increased inflationary pressure. Sometimes this was part of a global story, sometimes it was due to wage behaviour, but the general factor was pressure on the productive resources of the economy due to the expansion of economic activity. Leaving aside the current episode, only in the 1890s boom, which began when the economy had large-scale spare capacity, was the rise in inflation contained to single digits.

One interesting issue is the role of the exchange rate in these booms. Theory suggests that part of the adjustment process for an economy experiencing a mining boom is a rise in the real exchange rate in order to facilitate the flow of real resources that is needed. In all the previous booms, however, the nominal exchange rate was either fixed or managed very tightly. The real exchange rate could therefore only adjust through inflation.

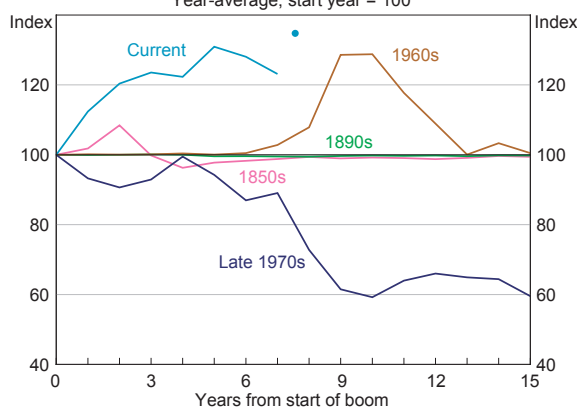
In the current episode, with a floating rate, the behaviour of the nominal exchange rate has been very different from the past (Graph 4). It has risen early in the boom and by a large amount. This has been an important factor helping to dissipate inflationary pressures.

### Conclusion

Let me conclude.

History tells us that mining booms are periods of significant economic change and that they can pose complex challenges for policy-makers. Key among these is the need to ensure flexibility in the economy and maintain disciplined macroeconomic policies in

**Graph 4**  
**Nominal Exchange Rate**  
Year-average, start year = 100\*



\* t = 0 at 1850, 1890, 1964, 1977, 2002; rates for the 19<sup>th</sup> century are bilateral against the London pound, 1960s are against the US dollar, later data are trade-weighted indices with December 2009 shown as a dot  
Sources: Global Financial Data; RBA

order to contain the inflationary forces generated by the boom.

History also shows that, in the past, these challenges proved to be quite difficult to deal with. However, in the 30 years since the previous boom, the Australian economy has developed in ways that should make it better able to accommodate the surge in mining activity that is currently under way. The floating exchange rate is a key difference, but goods and labour markets are also more flexible, and the monetary and fiscal policy frameworks are now more soundly based. This gives grounds for confidence that we can do better this time, but the task will not be without challenges. ✕

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