
Resource Based or Resource Cursed?

A BRIEF HISTORY
OF THE AUSTRALIAN
ECONOMY SINCE 1901

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**Resource Based or Resource Cursed? A Brief (And Selective)
History of the Australian Economy Since 1901**

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Introduction

In contrast to the mythical Resource Boom of the early 1980s (Pagan, 1987), there is no doubt that Australian mineral production has increased greatly in recent years. The share of mining in Gross Value Added has risen from 4.4% in 2003-04 to 7.8% in 2006-07. By contrast, the entire manufacturing sector contributed only 11.2% of GVA in 2006-07 and is shrinking. The effect of the boom on exports is even more impressive. Minerals accounted for 62.8% of total exports in 2006-07. Taken together, the shares of iron ore and coal in total merchandise exports increased from 14.8% in 2003-04 to 24.3% in 2005-06.

Only a few years ago, this scenario would have seemed improbable to some of the most knowledgeable observers of the Australian economy. In 2003, on the basis of both short- and long-term trends in the mining industry, Geoffrey Blainey contended that,

By the year 2001 some of the vigour and puff had gone from the mining industry. After forty years of expanding and diversifying, mining became less dynamic. It remained the nation's main source of exports but on most fronts it was no longer expanding. At the start of the new century the plans for new mines were few, and exploration was in sharp decline (Blainey, 2003, 388).

Nor, according to many observers, is the export boom in minerals likely to end soon, although it may level off. Kenneth Curtis, an expert on Asian economies, argues that the Australian dollar is 'on a long-term strengthening course, on the back of a strong commodities export cycle that could run for 15 or even 25 years' (Alford, 2007). These claims are not impossible since, even if growth rates in China and India moderate, the demand for raw materials will remain high.

These recent developments call for a reassessment of the structure of the Australian economy. It is not at all clear that the impact of the current boom will be similar to that of previous expansions based on the export of primary products, nor that an eventual end to the expansion

will have similar consequences. The argument of this paper is that, although the nature of structural transformation in Australia was not entirely evident as recently as 1990, two major periods of adjustment since the 1920s have led to major changes. One important result is that earlier models of the economy are no longer reliable predictors of the likely effects of change (assuming that they ever were). Despite their dominating position in exports, primary products (including agriculture as well as mining) are no longer the major drivers in an economy that is much larger and more diverse than in the past. Nevertheless, elements of earlier patterns of development remain important as success in the primary sector still underpins Australia's ability to service its substantial foreign debt. The intention of the paper is to expose some of the issues involved even though a thorough analysis of likely future effects cannot be presented here.

In the next section, I examine various export-based models of economic development, concentrating on the Staple Theories that have been widely debated in the past. This is followed by an examination of aspects of Australian economic history since the end of World War I, with an emphasis on industrialisation and then the rise of a services-based economy in more recent decades. Finally, a number of questions will be raised concerning the importance of structural change for future development.

Resources and Economic Development

Several major sets of models of export-based growth have been used to explain the impact of natural resources on economic growth and development (Kindleberger, 1958). Their general thrust is that, by entering export markets, countries can increase the value of their domestic product. These exports may be primary products, as in the staple exports at the heart of my story, but they may also be manufactures as in the spectacular growth of Korea (Harvie and Lee, 2003) and Hong Kong (Berger and Lester, 1997) in recent decades.

Export-based models may be classified in a number of ways, one of which is to divide them along Smithian-Ricardian lines (Meier, 2005). Ricardian formulations, including classical comparative advantage trade models and the Heckscher-Ohlin model, assume that all factors of production are fully employed and that any new developments must therefore attract resources away from existing uses. Smithian “vent-for-surplus” models, on the other hand, are based on the assumption that there are underutilised resources that can be developed without, in the initial stages, affecting existing uses of resources. This assumption gains importance for growth at the national or regional levels when injections of complementary resources (foreign investment and immigration) from external sources are possible (Caves, 1965, 1971; Findlay and Lundahl, 1994).

A second distinction is between positive and normative, or extensive and intensive, approaches. In positive (extensive) models, the emphasis is on the aggregate, economy-wide, effects of export growth, while normative (intensive) approaches, for example that of Chambers and Gordon (1966) for Canada in the first decade of the twentieth century, look at the effects of increases in the export of a particular item on per capita income (Caves, 1971).

In fact, while simple models of export-led growth can easily be constructed, explaining actual empirical situations is likely to be more complicated because the context in which resource exploitation occurs can be decisive in determining the developmental effects of an export boom. The presence of multiple models, variations on a theme, is essential because, although they may lead to very different conclusions, the models are often complementary since they assume different internal and external environments. Several variations may apply to a single country or regions because it is possible that a model that explains growth (or retardation) adequately in one context or in one time period may not apply even in the same economy in a different period following a shift in environmental conditions.

Staple or Export Based Models

Models of economic development based on the export of primary products were originally developed in the 1920s to explain the course of Canadian growth. Usually associated with Harold Innes, they are Smithian and extensive in their assumptions and aims, and posit that exports of one item or of a family of closely related items (termed staples because of their substantial importance in a country's overall foreign trade) can underpin the dynamics of an entire national economy (Watkins, 1963).¹ Over the years, staple models have been embellished with new concepts but their basic thrust is relatively simple. In a recent reformulation, for example, Altman (2003) shows that a single important primary product that is traded on world markets can generate export earnings that, in a suitable environment, are then used to fuel growth throughout an economy as increased income is spent on locally provided services and manufactures. Through backward linkages (Hirschman, 1958), an expansion in exports may take the form of improved infrastructure such as better transport or banking facilities to increase the efficiency of staple producers,² or it may generate demand for intermediate goods and services that the exporting industry requires. Forward linkages may also arise if industries come into being to process the staples before they are exported. Finally, the increased income derived from staple exports can lead to final demand linkages if receipts are spent on domestically-produced manufactures or services. For a nation, therefore, the overall effect of increased staple exports can be generalised economic development and, eventually, a decline in the staple's importance and in dependency on exports in general as production becomes oriented more towards domestic consumption and a wider group of goods is produced locally. If incomes and population grow substantially,

¹ As North (1955) points out, the same mechanisms can operate at the regional level.

² New infrastructure may be built as an industry develops or, as in the case of the railways that opened the prairies of the United States and Canada, they may need to be provided in advance.

greater access to economies of scale will lead to import substitution even without high levels of protection.³

When growth led by staple exports is successful, therefore, the outcome is not only increased production, which may or may lead to growth in per capita incomes, but economic development in the sense of structural transformation that over time lessens the importance of staples, and probably of exports, in a national or regional economy. An economy which does not achieve structural transformation – one that continues to be dominated by staple exports – has not undergone the full cycle envisaged by modern staple theorists.

Innes and his followers always realised that the applicability of the staple model was limited primarily to English-speaking regions of new settlement and to sections of Latin America such as Argentina, Uruguay, and perhaps southern Brazil. These were countries with high ratios of land and other resources to their populations. Many also had relatively even income distributions (Baldwin, 1956) that increased the demand for inexpensive consumer manufactures and they also possessed institutional structures that promoted economic and political stability. To the extent that these conditions were only partly met, as in Argentina, the impact of staple exports on development could be muted, and where they were largely absent (as in many resource-rich countries in Asia or Africa), large-scale exports of staples might generate almost no development or even have negative impacts such as deindustrialisation.

³ Although Pomfret (1981) contends that staple theory does not apply to either Canada or Australia as early as 1850 because their economies had already become too complex to trace linkages from primary exports, most economic historians follow the line of Watkins (1963) and Altman (2003) in their more impressionistic analyses of long-term changes arising from staple exports – analyses that do not deny the growing complexity of economies with substantial staple exports but instead attribute much of the complexity to changes arising from the exploitation of staples.

The Resource Curse Model

These potentially negative effects of resource exploitation have captured the attention of development experts in recent years. The argument that there is a ‘resource curse’ that keeps developing countries stuck in low value-added and low growth activities derives from several sources. Important works by Prebisch (1950) and Singer (1950) argued that primary exports could not be a foundation for economic development because of worsening terms of trade which disadvantage primary producers relative to advanced manufacturing countries. Prebisch postulated a ‘center-periphery’ system in which the fruits of technological innovation were jealously guarded by industrialised countries. This line was subsequently broadened by Dependency Theorists who contended that less developed countries were politically and socially, as well as economically, dependent on wealthier industrialised countries, leading to ‘unequal exchange’. To lessen the effects of exploitation, countries on the periphery were advised to turn away from participation in international markets and to concentrate on import substitution rather than trying to reproduce the development models of North America and Europe (Meier, 2005). More recently, in a paper for the National Bureau of Economic Research, Sachs and Warner (1995) used regression analysis to demonstrate, at least to their own satisfaction, that a concentration on the exploitation of natural resources can block economic growth.

The ‘resource curse’ literature goes beyond Dependency Theory by raising the possibility that the exploitation of export primary products through export markets may actually retard economic growth. One of the most common theses is that a resource-based boom may have unpleasant side-effects that are in many ways a mirror image of the benefits identified by staple theorists. At the most basic level, an increase in demand for the output of one sector can, through competition for resources, lead to higher domestic prices for labour and other

inputs that adversely affect the cost structures of industries that are not experiencing increased demand. These shifts can be exacerbated when an increase in foreign demand for natural resources leads to a substantial change in the terms of trade in favour of primary products but against other sectors, and to an accompanying move in a country's exchange rate. In this case, there may be a hollowing out of the economy as large sections of manufacturing and services, squeezed already by increased costs of domestically-produced inputs, are no longer competitive relative to imports. The outcome is a 'resource curse' (Collier, 2007) that not only holds back the prospects of resource-rich underdeveloped countries such as Nigeria, but that may also attack wealthier developed countries in the form of 'the Dutch disease'.⁴

Volatility of production and resource depletion are two further aspects of the resource curse. In addition to fluctuations caused by variable demand by importers, there is a tendency for output to be ramped up quickly in the earlier years of a country's production and then to fall off. If resources are non-renewable, which is generally true of minerals, not only does immediate income decline, but the ability to earn future income is also eroded. In order to ensure continuing prosperity, mineral exporters must therefore invest enough of their proceeds in other activities that will produce a continuing income stream after the minerals have been depleted (Humphreys *et al.*, 2007).

Just as there are a number of nations such as the USA, Canada, Australia, and New Zealand that were able to base sustained prosperity on exports of primary products, it is clear that many other countries, particularly in Asia and Africa, have not benefited as strongly, and in many cases have not benefited at all. In general, the reasons for these disparities in outcomes

⁴ So called because manufacturing in the Netherlands was said to have been damaged by inflation following the discovery of natural gas (Humphreys *et al.*, 2007). In fact, in this case at least, adjustment was relatively swift and little if any permanent damage resulted.

are fairly clear and revolve around different balances of population to resources, different income distributions and different institutional structures. Moreover, even proponents of the resource curse thesis acknowledge that the problem is not the possession of resources but how they are exploited (Sachs, 2007). Different production and marketing regimes and better institutional arrangements for investing the proceeds from exploitation than currently exist in many developing economies can lead to more favourable outcomes.

From our standpoint, however, the most interesting aspect is that elements of the resource curse may even affect the performance of economies that have been reasonably successful in basing development and widespread prosperity on staple exports. For example, if one takes a very long-term view, Australia (and New Zealand) have been especially prone to being cursed episodically despite the generally satisfactory standards of living that they have achieved. Demand is potentially volatile (the current boom is less than five years old) and mineral deposits, although substantial, are finite. Even success may arguably breed failure. In an important article analysing the boom that began in the late 1960s, R. G. Gregory (1976) maintained that the increase in mineral exports over the preceding decade had created a balance of payments surplus that would lead to either inflation or an appreciating exchange rate. Whichever happened, he argued, there would be important negative effects for both the rural sector and secondary industry.

In the complex international environment of recent centuries, Smithian and Ricardian conditions have sometimes alternated in the same economies. Findlay and Lundahl project an image of a moving 'frontier' of resource availability (Findlay and Lundahl, 1994, Findlay, 1995). The expected tendency would be for the frontier to close, as Frederick Jackson Turner originally envisaged, when all of the land is placed under cultivation or mineral discoveries cease. On the other hand, endogenous changes in supply may lead to a reinvigoration or

refocusing of export possibilities in industries that had reached their capacity or begun to decline, or even reached depletion. New discoveries, capital investment, or improved technology can give reverse a Ricardian scenario as when new mineral or oil deposits are found, a railway is built into a region that had been inaccessible, or a new strain of wheat or a better fertiliser or insecticide is developed. Exogenous changes can also be important. Growing markets make sub-marginal resources profitable and perhaps also encourage investments in new infrastructure and better technology. It is therefore conceivable that a single economy may fluctuate between greater and lesser degrees of reliance on the export of primary products and that this may be independent of previous structural change.

Although the terms of trade have moved in favour of primary products in recent years, some of the problems that have worried Dependency Theorists – such as foreign ownership of mineral deposits, competition among exporting countries, and cartel behaviour on the part of importers – could still influence the fate of even a wealthy country. These are, of course, problems that have affected Australia's economic performance since the mid nineteenth century, but a range of coping mechanisms have been developed since the 1920s to dampen the macroeconomic impact of fluctuations in primary exports. An appraisal of their effectiveness is the topic of the sections that follow.

Restructuring, Episode 1: Manufacturing

The record of staple exports in Australian history, dating back to the first substantial shipments of wool in the 1820s, is well documented. The role of staples in the macro economy in recent years, however, remains contentious. The story that follows concentrates on the structural changes of the twentieth century that have greatly reduced the share of primary production in total output and employment but not in exports. In this section, I briefly outline

the growing importance of manufacturing, followed by a discussion of the growing role of services in the following section.

From the beginning of the Second World War until around 1970, the Australian economy performed well by many standards (Maddock, 1987; Maddock and McLean, 1987). But in the unsettled environment of the late 1970s and 1980s – decades which were characterised by worldwide petroleum crises, stagflation in Europe and North America as well as in Australia, and the decline of manufacturing in the West as Japanese firms became increasingly competitive – the structure of the Australian economy was regarded by many as inadequate to meet international challenges. Schedvin's very thorough analysis of staple economies, for example, concluded that:

Australia (with New Zealand and, to some extent Argentina) has been caught in a staple trap. The tendency has been to move from one dominant staple to another, but there has been little export diversification as predicted by the optimistic version of the staple thesis. The dominant staples have generated high income levels, but in the long run relative incomes have declined because of adverse movements in the terms of trade and the inability to move into high value-added production. These trends have not been reversed as the 1980s draw to a close (Schedvin, 1990, 556).

Similar pessimism appears in several guises in the series of *State of Play* books published periodically from 1980. In 1990, for example, *State of Play 6* offered the argument of observers who were worried about Australia's level of foreign exposure:

The essential problem, as many of the sceptics see it, is that a strategy of large sections of Australian business being financed externally adds a new dimension of risk to the conduct of our economic affairs. While we are borrowing today to reap the benefits later, all who wish to borrow externally are dependent upon the continuing confidence in this country of international bankers and investors. If they should suddenly take fright at Australian developments as a whole and be wary of renewing loans on the old terms, all Australian borrowers may have to pay a price for this loss of confidence in the form of higher borrowing rates. In the jargon of the trade, there might be imposed a higher '*risk premium*' on Australian borrowers arising not from altered credit-worthiness of individual borrowers but from high '*country risk*'. There can be little doubt that Australia has been paying such '*country risk*' premiums in recent years (Indecs, 1990, 175 (*italics in original*)).

This argument has strong echoes of the 1890s and early 1930s except that the major borrowers in the 1990s were private businesses rather than Colonial or State governments. It, and Schedvin's comments, seem to imply that the dynamics of the Australian economy had not changed much since the nineteenth century and that staple exports were still the most important factor in enabling growth and development. This depends, however, on the importance assigned to various indicators over a period in which there was unquestionably tremendous change in the structure of the economy.

Structural Change and Structural Stability

Despite fluctuations, the main trends in the structure of output in the Australian economy since 1901 are clear. At the beginning of the twentieth century, farming and mining together accounted for nearly 30 per cent of total GDP (Table 1). Manufacturing, on the other hand accounted for only 12 percent of GDP and a reasonably diverse residual (including construction and water, gas and electricity) produced around three-fifths of total output. By international standards, these are surprising figures for an economy that relied on staple exports in that as early as the 1890s the proportion of Australia's labour force engaged in agriculture was substantially below that of other countries of recent settlement as well as of continental Europe (Withers, 1987).

The share of manufacturing in output began to increase in the 1920s, accelerated during World War II, and then declined quickly from the 1970s until, by 2000; the sector produced approximately the same share of output as it had a century earlier. The share of agriculture fell in mid century and mining's contribution fluctuated. Although currently higher than it has been for several decades, as recently as 2003-04 the proportion of mining to GDP was no higher than it had been in 1980-81. The share of services, however, rose considerably in the

post-war period and has stabilised at just fewer than eighty per cent in the last decade (Tables 1 and 2).

Table 1
Changing Structure of the Economy (as Percentage of GDP at Factor Cost)

Year	Farming	Mining	Manufacturing	Other
1900/1	19.3	10.3	12.1	58.3
1913/14	23.5	5.1	13.4	58.0
1919/20	23.5	3.0	13.5	60.0
1928/9	21.2	1.8	16.7	60.3
1938/39	19.5	3.3	18.5	58.7
1948/49	21.3	2.5	26.2	50.0
1955/56	15.9	2.3	28.0	53.8
1962/63	12.6	1.7	26.8	58.9
1968/69	9.6	2.4	26.1	61.9
1973/74	9.6	4.0	23.2	63.2
1980/81	5.4	6.5	20.6	67.5

Source: Rodney Maddock and Ian W. McLean, “The Australian Economy in the Very Long Run”, Rodney Maddock and Ian W. McLean, eds., *The Australian Economy in the Long Run* (Cambridge: Cambridge University Press, 1987), Table 1.2, p. 19.

Note: The series from 1962/63 is not consistent with earlier years because of the use of a standard industrial classification.

Table 2
Sectoral Percentages of Gross Value Added at Basic Prices, 1998-99 to 2006-07

Sector	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2005-05	2005-06	2006-07
Agriculture, forestry and fishing	3.5	3.5	4.0	4.4	3.3	3.5	3.3	3.1	2.3
Mining	4.4	4.6	5.5	5.3	5.0	4.4	5.5	7.3	7.8
Manufacturing	13.8	13.2	12.7	12.1	12.5	12.5	11.8	11.2	11.2
Other	78.3	78.7	77.8	78.2	79.2	79.6	79.4	78.4	78.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Adapted from Australian Bureau of Statistics, *System of National Accounts 2006-07* (5204.0), Table 11, p. 31.

Labour force data yield a similar picture (Tables 3a, 3b and 4). The proportion of workers engaged in agriculture, forestry and fishing dropped secularly from a quarter of the labour force in 1901 to under five cent in recent years. The share of mining has also dropped and has comprised barely 1 per cent of the total for recent years. In both cases, but particularly in

mining, increased mechanisation has contributed to the long term trends. The share of workers in manufacturing has tracked trends in output, while the proportions of workers in service industries, including construction and utilities, have grown substantially.

In the early decades after World War II, the agricultural workforce seems to have played a role similar to that described by W. Arthur Lewis (1954) in developing economies and by Charles P. Kindleberger (1967) for countries in Western Europe that were able to reduce potential labour shortages and inflationary effects by shifting workers from low productivity pursuits in agriculture to jobs in manufacturing. In Australia's case, however, because of high levels of immigration the catchment area was extended to include European workers. Since then, the process has continued as the relative decline of manufacturing has allowed for further shifts to service demands for higher employment in services.

Table 3a
Labour Force Classified by Industry Groups, Percentages, Censuses 1901-1954

Industry	1901	1911	1921	1933	1947	1954
Agriculture, etc(1).	25.5	24.7	22.9	21.7	15.8	13.5
Mining	7.4	5.5	2.9	2.6	1.8	1.6
Total Primary	32.9	30.2	25.8	24.3	17.6	15.1
Manufacturing(2)	16.8	19.8	21.2	19.0	27.6	28.0
Building	4.0	4.4	4.2	4.0	4.5	5.4
Construction(3)(4)	6.1	4.6	6.0	8.1	3.9	3.5
Total Secondary	26.9	28.8	31.4	31.2	36.0	36.9
Total Services	40.2	41.0	42.8	45.0	46.4	47.9

Source: E. A. Boehm, *Twentieth Century Economic Development in Australia*, 3rd. ed. Melbourne: Longman Cheshire, 1993), Table 3.15, p. 80.

- (1) Fishing, trapping, agricultural, pastoral, dairying, and forestry.
- (2) Electricity and gas including in manufacturing, 1901-1921.
- (3) Water supply etc. included in construction, 1901-21, 1947.
- (4) In 1933, includes 165,000 labourers (6.1 per cent of persons engaged in industry) whose industry was not stated. The majority of these were unemployed or employed part-time.

Table 3b
Labour Force Classified by Industry Groups, Percentages, Censuses 1961-1986

Industry	1961	1966	1971	1976	1981	1986
Agriculture, etc. (1)	10.6	9.5	7.6	7.2	6.1	5.3
Mining	1.3	1.2	1.5	1.3	1.4	1.3
Total Primary	11.9	10.6	9.0	8.5	7.6	6.6
Manufacturing	25.8	26.5	23.8	20.2	18.0	14.1
Construction	8.6	8.9	8.1	7.6	6.4	6.2
Total Secondary	34.4	35.4	31.9	27.8	24.4	20.3
Tertiary and Quaternary	49.7	52.4	57.4	59.4	62.0	63.8

Source: E. A. Boehm, *Twentieth Century Economic Development in Australia*, 3rd. ed. Melbourne: Longman Cheshire, 1993), Table 3.16, pp. 82-83.
 Agriculture, forestry, fishing and hunting.

Table 4
Labour Force by Sector, 1984-2007

Year (November)	Total Employed Agriculture, Forestry and Fishing/Total Employed %	Total Employed Mining/Total Employed %	Total Employed Manufacturing/Total Employed %	Total Employed Construction/Total Employed %
1984	6.2	1.4	17.5	7.1
1985	6.2	1.6	16.5	7.0
1986	6.1	1.4	15.9	7.2
1987	5.7	1.4	16.1	7.0
1988	5.8	1.3	15.9	7.5
1989	5.4	1.3	15.4	7.8
1990	5.6	1.2	14.8	7.5
1991	5.4	1.2	14.2	6.8
1992	5.3	1.1	14.3	6.9
1993	5.3	1.2	14.0	7.2
1994	5.0	1.1	13.9	7.3
1995	5.0	1.0	13.4	7.2
1996	5.0	1.0	13.5	7.0
1997	5.2	1.0	13.3	7.0
1998	4.8	0.9	12.5	7.2
1999	5.0	0.9	12.1	7.7
2000	4.9	0.9	12.4	7.4
2001	4.9	0.9	11.8	7.6
2002	4.0	0.9	12.0	7.5
2003	4.0	1.0	11.1	8.1
2004	3.7	1.0	11.2	8.5
2005	3.5	1.3	10.6	8.7
2006	3.5	1.3	10.3	9.1
2007	3.4	1.3	10.3	8.9

Sources: Calculated from data in Australian Bureau of Statistics, *Labour Force, Australia, Detailed, Quarterly (6291.0.55.003)*, November, 2007, Table 4; and Australian Bureau of Statistics, *Labour Force, Australia, Detailed-Electronic Delivery (6291.0.55.001)*, December, 2007, Table 1

To judge from GDP and labour force data, therefore, the Australian economy has made a successful transition by diversifying away from its staple base and now approximates the structure of most other OECD economies. Foreign trade data, however, tell a different story. The trade ratio ((exports + imports)/GDP) fell steadily from 1901 until the 1970s,⁵ as would be expected in a staple-based development scenario, but from the late 1970s, whether measured in terms of goods and services or of goods alone, the trade ratio has increased very significantly. While the bases in Tables 5 and 6 are not directly comparable, the importance of foreign trade at present seems to be as great as it was at the turn of the twentieth century. Moreover – in contrast to, say, Canada – the composition of Australia’s exports remains heavily tilted towards primary products. Because of adverse weather conditions, exports of rural goods have remained around \$25 billion since 2004-05 and their share of total merchandise exports has declined from 20.09 per cent in 2004-05 to 16.39 per cent in 2005-06 and 14.83 per cent in 2006-07 (ABS, 2007b, Table 3). The share of minerals in Australia’s exports, however, is currently overwhelming. Total mineral exports accounted for 59.0 per cent of total merchandise exports in 2005-06 and 62.8 per cent in 2006-07 (ABARE, 2007, Table 3). Between 2003-04 and 2005-06, exports of iron ore and concentrates rose from \$5.3 billion to \$12.5 billion and exports of coal, not agglomerated, rose from \$10.9 billion to \$24.4 billion. The shares of metal ores and minerals increased from 15.52 per cent of total merchandise exports in 2004-05 to 18.74 per cent in 2005-06 and 20.83 per cent in 2006-07, while the share of coal, coke and briquettes increased from 13.48 per cent in 2004-05 to 15.77 per cent in 2005-06 before falling back to 12.93 per cent in 2006-07 (ABS 2007b, Table 12).

⁵ The single-year spot data in Table 5 (for example 1931 and 1951) are not necessarily representative of performance over entire ten-year periods because of extraordinary circumstances (the collapse of the world economy and the Korean War wool boom, respectively).

Table 5
Australian Trade Ratios, 1901-1981

Year	Trade Ratio ¹ (%)
1901	44.9
1911	43.1
1921	42.8
1929	36.9
1931	27.3
1939	32.7
1946	31.1
1951	56.7
1961	32.8
1971	31.0
1975	32.6
1981	35.7

Source: Rodney Maddock and Ian W. McLean, "The Australian Economy in the Very Long Run", in Rodney Maddock and Ian W. McLean, eds., *The Australian Economy in the Long Run* (Cambridge: Cambridge University Press, 1987), Table 1.8, p. 28.

1. Trade ratio = (Exports + Imports)/GDP.

Table 6
Australian Trade Ratios, 1960-64 to 2005-07

Years ¹	Trade Ratio ² (Goods only) %	Trade Ratio ² (Goods and Services) %
1960-64	22.86	27.8
1965-69	21.94	27.54
1970-74	20.48	26.12
1975-79	22.96	29.02
1980-84	24.58	31.00
1985-89	26.12	33.16
1990-94	26.28	34.20
1995-99	30.00	39.18
2000-04	32.20	41.54
2005-07	32.77	41.47

Source: Derived from Australian Bureau of Statistics, *Balance of Payments and International Investment Position, Australia*, September, 2007, Table 51.

¹. Financial years ending 30 June.

². Trade Ratio = (Imports + Exports)/GDP.

Thus the Australian economy of the early twenty-first century is somewhat anomalous by the standards of other countries with similar levels of per capita income. For several decades, the basic structure of output has been similar to that of many other OECD members, with a strengthening in services and a shrinking manufacturing sector (Carter, 1987), but Australia's patterns of foreign trade are more similar to those of a number of resource-based economies with lower levels of structural complexity. Although these facts can be explained fairly easily in some respects (for example by the enormous jump in demand for minerals in East Asia in recent years), their implications are potentially very significant given Australia's extensive and growing foreign indebtedness and foreign trade deficit. While primary production is currently a fairly small proportion of GDP (one-eighth or less), the buoyancy of the secondary and tertiary sectors is also based to a sizeable extent on the ability of the primary sector to generate foreign exchange for imports of capital goods.

Post-war Reconstruction and the Restructuring of the Economy

The reorientation of the Australian economy during and after the Second World War was largely the result of government policy (Butlin and Schedvin, 1977; Singleton and Robertson, 2002). As a conscious reaction against Australia's version of the resource curse – the instability that resulted from dependence on exports of primary products that had resulted in prolonged crises in the 1890s and 1930s – along with a need to reduce the nation's strategic vulnerability that was exposed during the war, the Commonwealth adopted a three-pronged program for strengthening national defence as well as promoting long-term development. The basic premise was that Australia needed to substantially increase its population, which stood at 7 million people at the end of the war. To accelerate population growth, European migrants were recruited. Because earlier schemes to attract rural migrants, like those of the 1920s designed to settle Northern Australia or regions of marginal rainfall such as the Mallee,

had failed, development of the manufacturing sector was seen as the principal way to generate jobs, with the added benefit that this would also reduce Australia's strategic vulnerability in the event of another war (Robertson and Trace, 1983). The program was successful in attracting large numbers of migrants from Britain and other parts of Western and Southern Europe that were recovering only slowly from wartime dislocations, and the highly protected import replacing manufacturing sectors did provide sufficient employment as had been hoped (*Report of the Committee of Economic Enquiry*, 1965).

The postwar development program, whose aims were shared by all major parties, shoved Australian development forward one stage in terms of staple-based development because it led at last to a significant diversification of economic activity. The relative growth of the manufacturing sector, which was protected by substantial tariffs, included a number of advanced industries that required new skills and high levels of investment (Sinclair, 1976). In the same period, although more reluctantly, Australia also diversified its foreign trade. At the end of the war, Britain attempted to strengthen the Sterling Area (comprising the United Kingdom, its colonies, and the major dominions with the exception of Canada) in order to economise on the use of scarce American dollars. This involved calls for regional specialisation that cut across Australia's own development plans (Singleton and Robertson, 2002). By the early 1950s, while maintaining its ties to the Sterling Area, Australia had struck out on a more independent policy that allowed greater access to American dollars and to American produced capital equipment than Britain had originally been willing to countenance (Robertson, 1997). In the 1960s, a reopening of trade with Japan led to further diversification that helped to even out fluctuations in exports as the trade cycles of Britain, the USA and Japan were seldom synchronised.⁶

⁶ The post-war years also brought a significant diversification of Australia's foreign borrowing as American, World Bank and International Monetary Fund sources were tapped from the late 1940s. More recently,

Thus by the late 1960s, Australia could be said, under government aegis, to have undergone a successful transition to a non-staple economy. The proportion of GDP originating in manufacturing and the distribution of the labour force were similar to those in North America and Western Europe. The trade ratio had fallen and the distribution of exports partners had widened considerably. The United Kingdom, which had absorbed 37.2 per cent of Australian exports in 1947-48 to 1952-53, took only 13.6 per cent from 1965-66 to 1969-70. Over the same period, the share of the USA grew from 9.4 per cent to 13.1 per cent and that of Japan from 4.9 per cent to 21.8 per cent. By the late sixties, the share of the EEC⁷ was 13.2 per cent. The composition of exports also changed, but the emphasis remained on primary produce. The share of pastoral exports decreased from 60.8 per cent of total exports (excluding gold) in 1953-54 to 37.2 per cent in 1967-68 but this was counterbalanced to a degree by an increase in minerals from 6.5 per cent to 23.5 per cent. In 1967-68, primary produce still amounted to just over eighty per cent of all exports while the share of manufacturing had grown rapidly but was still only sixteen per cent (Boehm, 1993).

Restructuring, Episode 2: Services

There are two ways of looking at the decline of manufacturing and the accompanying growth of service industries from the late 1960s. The first, which was probably the more popular through the 1980s and was prominent in the early *State of Play* books, is that much of the manufacturing sector was misbegotten in the first place because firms in many industries never had any chance of being internationally competitive under Australian conditions of

Australian governments have been able to borrow in Europe, and Australian firms, which until the 1980s were regarded as too insignificant and exotic to borrow privately, now have full access to international capital markets.

⁷ In addition to the original six members of the Common Market, the figure includes Ireland, Greece, Denmark, Portugal and Spain. France, Germany and Italy together accounted for 9.9 per cent of Australian exports over the period.

severely limited economies of scale and the tyranny of distance. In this view, which is rather narrowly economic, the rise of manufacturing could be blamed for much of Australia's slow economic growth relative to Japan and the members of the Common Market (Anderson, 1987). High and increasing levels of tariff protection were an undoubted reality, supported by unions and manufacturers alike, especially before the 25 per cent across-the board cut introduced by Labour in 1973. The "made-to-measure" levels of protection granted by the Tariff Board made it possible for almost any industry to survive once it had been established in Australia (Glezer, 1982), no matter how unfavourable its cost structure. Whether the price paid by consumers was excessive, and hence the extent of the gains subsequently brought by tariff reductions, however, are matters for debate. If the logic behind the move by successive Commonwealth governments to boost population in order to bolster defence preparedness is accepted, then it is difficult to see where the necessary number of new jobs could have been found without economic restructuring. Furthermore, given the declining terms of trade for primary products flagged by Singer (1950) and Prebisch (1950), it is not at all certain that per capita standards of living would have increased more quickly than actually occurred from the late 1940s in an Australia descended linearly from that of earlier decades.

A second explanation, which is perhaps more obvious now than in the early 1980s, is that the shift from manufacturing to services was not based only on specifically Australian conditions, but reflected a global shift of manufacturing activities to developing countries such as Japan and later Korea, Taiwan and Hong Kong. As a result of rising wages, nations in Western Europe and North America lost their comparative advantage in manufacturing, particularly for less complex items. Moreover, rising real per capita incomes have led to increased demand for services, many of which were not internationally tradeable using the dominant technologies of the late twentieth century. Finally, some of the services that were

globalising rapidly, such as those associated with finance; fell naturally within the province of wealthier countries.

The second set of factors, of course, does not directly contradict the first because they could (and almost certainly did) reinforce each other. It does, however, give the structural shifts since the 1960s a more rosy glow because they are pictured as being products of success as well as of failure. As Carter (1987) argues, the historical development of service industries in Australia parallels that in other developed countries. He contends that the major shift to services is not so much a product of increased wealth,⁸ however, as of growing specialisation in the production of intermediate goods. By the late twentieth century, vertically integrated firms had begun to unbundle a range of business services (including transport), outsourcing them to specialist providers. To a degree, therefore, the growth of services and the shrinking size of other sectors may be viewed as a statistical reclassification as accountants, computer programmers and truck drivers who were once directly employed by manufacturing firms (and counted as manufacturing labour) now work as contractors or for firms of consultants or “logistics specialists”. The upshot of this redistribution, however, has been more complex and more positive for the economy because of the increases in productivity brought about by specialisation. In some cases, outsourcing reduces costs and improves competitiveness, which means that services are more than a residual that has passively absorbed labour as tariff reductions since the 1970s have diverted resources from weak manufacturing firms. The shift also points towards greater efficiency across a range of sectors and to the ability of the economy to sustain a widely diversified structure.

⁸ Although substantial growth in sectors such as health and education indicates that this has also been important.

A Few Conclusions and Some Ideas for Future Research

In many, but not all, respects the Australian economy is Resource Blessed, but it is no longer resource based in the sense discussed by traditional staple theorists. Since the 1930s, the economy has diversified dramatically to the point at which the direct linkages between primary industries in mining (and in agriculture) and the remainder of the economy are of limited importance. Indeed, under normal circumstances employment and investment are influenced primarily by factors that have little to do with the state of the markets for minerals or agricultural products. This has been amply demonstrated by the surge that began in the early 1990s, an expansion that has easily surmounted weaknesses in primary markets over its course. As attractive, and as potentially useful, as the minerals boom is for the economy, it is worth noting that the current expansion proceeded smoothly for a decade before the increase in Asian demand for raw materials gathered steam.

In many ways, then, the changing structure of the Australian economy since the 1930s has met the expectations of policy makers as well as those of staple theorists because by most criteria the economy is now driven primarily by an internal dynamic. While recognising that many manufacturing industries are no longer profitable in mature industrial nations including Australia, in contrast to conditions at the end of the Second World War, Australia's population is now large enough to provide a minimum economic scale of demand for many fields of manufacturing as well as for the service industries that now dominate the economy. Australia does not possess one or two stellar industries – as, say, Finland does – but because of the broad spread of activities undertaken here, the Australian economy is also much less vulnerable in the short to medium runs to external changes in fashions or to technological obsolescence. The goal of insulating the economy against exogenous shocks has therefore been achieved to a significant degree.

The probable repercussions of reduced mineral or agricultural exports have been dampened greatly from the position at the end of the 1920s, but repercussions there would be. Nevertheless, there is no reason to believe that the economy would not have made a fairly smooth adjustment even in the absence of a minerals boom when faced by reduced agricultural exports during the drought of recent years. The growth in GDP would have been slower and unemployment would have higher, but the effects would have been far from disastrous. Furthermore, it is unlikely that despair would have set in if the mineral boom had not occurred because it was not widely anticipated (Blainey, 2003.)

Having said that, among advanced economies Australia does remain peculiar because of its continued dependence on a narrow range of primary exports to finance industrial imports. As a result, aspects of the Resource Curse can be expected to cause some trouble if the boom continues. For example, Australia may not be immune to the Dutch Disease, or to the variant discussed by Gregory (1976). Despite the large balance of payments deficit and continuing growth in international debt, the Australian dollar has risen to the point at which many exporters are becoming uncomfortable. The direct effects of the mineral boom on inflation have been reasonably minor because so few new workers have been needed to service the great expansion in output over the next few years and because the boom has been partly counterbalanced by the effects of the drought. If, however, agriculture and mining both expand rapidly in the next few years, then some hollowing out of sections of manufacturing and services is probable (not least in sales of higher education to foreigners).

Secondly, instability is hardly out of the question despite prevailing views in the media that continued Asian expansion will make the Australian economy fireproof. News of contracts promising high prices for coal would be more convincing if our trading partners were not likely to insist on renegotiations as soon as conditions change. Moreover, the faith placed in

Asian economies continuing to follow their current trajectories is naive. Inadequate institutions and political instability combined with supply and demand bottlenecks are hardly out of the question. As Rosemary Righter recently noted,

The discrepancies between the world's awed assumptions about China's "unstoppable" rise and the anxieties voiced in its burgeoning think tanks and universities have long seemed odd, as has the blindness of financial analysts to risk factors that would, in any other country, strike them quite forcibly (Righter, 2008, 24).

Australian exports may therefore return to patterns reminiscent of the early twentieth century, forcing adjustments that are uncomfortable even if they are not as severe as they once were.

This suggests that a thorough re-evaluation of the impact of staple export cycles on the Australian economy is needed to establish the relationship between primary production and overall economic performance. The fact that a number of other high-performing economies in Europe and North America also have substantial commitments to primary production would add a comparative dimension that would increase the value of such a study. In a general way such countries as Australia, Finland, Sweden, Norway, Denmark, Iceland, New Zealand, the Netherlands, and Canada share the characteristics described above. These small open economies (and, in many respects, some much larger ones including the USA and Russia) have rested their development paths on resource-based sectors, and out of them have developed substantial secondary industries that have contributed importantly to growth within these countries. This has been the case not only historically, but in many instances remains the case today. Some countries – such as Sweden, Finland and the Netherlands – that have retained strong resource- sectors have even developed significant high tech sectors.

The importance of the shared structures lies in the fact that these countries are not simply advanced economies, but are among the richest in the world. In terms of the underlying productivity measure, output per worker hour, several of them nearly match (and in the case of Norway outstrip) the United States, and most of them have sustained very high growth

rates of output and productivity in recent decades. Most of these countries have not only generated high income levels in terms of GDP per capita, but also maintain major welfare systems related to health, education and social protection. Additional comparative analysis of these developments overseas and more thorough and unblinkered research into the changing structure of the Australian economy, itself, are needed to supplement the inadequate tools currently available to policy makers and the general public.

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