



School of Economics

Working Paper 2004-01

*Australian Economic Growth in Historical  
Perspective*

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ISSN 1444 8866

# AUSTRALIAN ECONOMIC GROWTH IN HISTORICAL PERSPECTIVE<sup>1</sup>

A survey for the *Economic Record*

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[May 2004]

## 1. Introduction

Growth economics has never been far from the centre of economists' attention since Adam Smith's inquiry into the nature and causes of the wealth of nations more than two centuries ago. But following a period in which research in this field was confined mainly to development economists and economic historians, there has been a revival of interest among theorists and macro-economists. Endogenous growth theory has flourished since the contributions of Romer (1986) and Lucas (1988) drew attention to previously neglected sources of growth, such as those arising from the presence of increasing returns, highlighting in turn the possible role of agglomeration economies, R&D, or social infrastructure. At the same time, cross-country empirical analysis of post-war growth, covering both developed and developing economies, has become a small growth industry.<sup>2</sup> Numerous correlates of the rate of growth in income per capita not previously incorporated into formal growth models have been identified in cross-country regressions, including measures of the legal system, democracy, climate, language, religion, openness, corruption, latitude, access to navigable water, natural resources, a colonial past, and more. Exactly how these correlates interact, and which are truly exogenous to the growth process, are issues of continuing debate.

Assessing the implications of this literature for the analysis of Australian growth over the long run is one motivation for this survey. Another is to review those recent contributions that have significantly enhanced our understanding of the development of the Australian economy, including contributions in which Australian experience is explored in a comparative context. Of course, much research in economic history relates, directly or indirectly, to long-run growth. And, running in

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<sup>1</sup> The helpful comments of Peter Kenyon, Richard Pomfret, and three referees are gratefully acknowledged. Choon Wang contributed excellent research assistance.

<sup>2</sup> Barro and Sala-i-Martin (1995), and Temple (2000) review the growth literature. See also the companion survey to this article by Rogers (2003).

the other direction, some of the most exciting recent work in growth economics has an historical dimension. Indeed, a striking attribute of the current growth literature is a blurring of the boundaries between economic history and other fields – especially development economics and macroeconomics. What this survey does not attempt, however, is a review of recent writings on all aspects of Australian economic history.<sup>3</sup>

To provide some context to what follows, I begin by examining key measures of Australian growth over the last two centuries and noting the major interpretations offered by earlier generations of economists and historians. I then review the significance and implications of the principal revisions and extensions made to some key historical series during the last decade or so. A survey of recent contributions to the explanation of this growth record then follows, beginning with those focusing on the proximate sources of growth, and on the role of selected economic policies. Attention then shifts to so-called deeper determinants, including geographical, institutional and cultural influences. Although these influences have only recently been incorporated into growth models and empirical growth analysis (particularly into cross-country growth regressions), many figure prominently in Australian historiography. Thus a fresh assessment of their relevance seems warranted.

## **2. Indicators of Long-Run Growth**

A selection of growth performance indicators is reported in Table 1.<sup>4</sup> In Panel A the sub-periods are defined to reflect those phases of faster or slower growth conventionally identified in the literature. The depressions of the early 1840s, 1890s and 1930s are mirrored in the poor per capita growth in those decades, while the contrasting economic impacts of the two world wars is strikingly evident. The succession of natural resource-based and export-oriented expansions lies behind the figures relating to the 1820s and 1830s (wool), the 1850s (gold), the three decades before 1890 (gold, agriculture), the decade before the first world war (agriculture), and the long post-war boom (initially agriculture, later minerals). The impressive performance of the economy in the last half of the twentieth century compares favourably (in per capita terms) with that recorded for the long boom between 1850

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<sup>3</sup> Even the discussion of growth issues does not purport to be comprehensive. And more space will be accorded twentieth than nineteenth century experience. Note that there has been no survey of the economic historiography of Australia since that by Schedvin (1979).

<sup>4</sup> These indicators are based on the GDP estimates most widely employed; criticism of them will be considered below.

and 1890. And notable about the most recent period is that the population growth rate is the lowest of any peacetime period other than that recorded during the depression of the 1930s.<sup>5</sup>

International comparisons of Australia's growth performance can also be given an historical perspective, and in Panel B of Table 1 the level of per capita GDP at benchmark dates, relative to that of the United States, is shown for Australia and a number of other countries selected because of their close links with Australia (the United Kingdom) or the many similarities in their initial growth conditions (Canada, New Zealand and Argentina). The early attainment of relatively high living standards by Australians is well known, possibly the highest in the world from 1850 to 1890. At the beginning of the twentieth century Britain, the U.S. and New Zealand all closed the gap with Australia. The data also suggest that, relative to either Britain or the U.S., there has been no secular drift in Australian GDP per capita since the 1920s – the 1950, 1973 and 1994 ratios being close to those in 1929. By contrast, Canada in the post-war era appears to have done (slightly) better than Australia by this performance criterion, while over the last quarter century New Zealand has slipped.<sup>6</sup>

Before reviewing the literature that explains this and related evidence, an important distinction is in order about what, in the Australian context, is meant by economic growth. In the evaluation of Australian growth performance, both the intensive and extensive dimensions warrant attention. Growth theory identifies key determinants of rates of change in output per capita (or in some related variable such as real income per person or output per unit of labour input), while cross-country growth regressions typically use one of these as the dependent variable. Thus growth theory and applied growth analysis both focus on the *intensive* dimension of growth. However, for much of Australia's history a more important social objective was *extensive* growth – the size of the economy – though this was pursued subject to the maintenance (at least) of real wages or living standards. And before as well as after the invention of national accounts, the most visible and best-understood measure of size was total population. In recent decades the consensus behind this policy objective has frayed, as reflected both in the current debate about the desirable total population

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<sup>5</sup> Care should be taken in pressing these inter-period comparisons too far. The sources and methods of compilation of the underlying GDP estimates vary, and their quality and reliability are best for the post-war decades and least satisfactory for the pre-1861 period.

<sup>6</sup> The underlying estimates should be treated with caution. In particular, they may be sensitive to the method of conversion (using exchange rates or purchasing power parity) to a common unit, especially for the nineteenth century: see Prados de la Escosura (2000).

and in the decline in actual rates of population increase. But until the 1970s there is little doubt as to the policy importance of economic expansion in this aggregate sense.<sup>7</sup>

### **3. Earlier Interpretations**

Given the initial conditions of European settlement after 1788, it is unsurprising that one interpretation of Australian development would emphasise the key role of the state. The British government heavily subsidised the colony in its early decades (Butlin 1994). And for many years the prominence of the convicts in the population and labour force gave to the economy the flavour of a state enterprise. Although the ‘private’ sector emerged quickly, state influence in economic activity remained pervasive. In this view, the settling of the continent by government-assisted development of rural and urban infrastructure, schemes of assisted immigration, and public sector borrowing abroad, all underpinned the economic success story down to 1890.<sup>8</sup>

An alternative view stressed the risk-taking and innovative characteristics of the individuals and firms that built the economy both in its pioneering days and in subsequent decades. The mining, pastoral and agricultural industries flourished and became world competitive under conditions of great uncertainty and limited information, underpinning the growth of commercial and industrial enterprises and raising living standards, because domestic and global market incentives encouraged effort and entrepreneurship and rewarded saving and investment.<sup>9</sup>

Common to both these views is their treatment of the Australian experience in relative isolation. By contrast, a more international perspective is the starting point for other views. On one side is the interpretation that emphasised Australia’s colonial origins, and its position in the economic arrangements of empire (Fitzpatrick 1939, 1941). Attention was drawn to the manifold links with British industrialisation. But analysis of these links was conducted on the assumption that colonial development was distorted as a result of the political and economic relationship with Britain. Another interpretation also placed domestic development in a wider perspective, but not in the straitjacket of economic imperialism. The cornerstone was the observation

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<sup>7</sup> In this view, the rates of population growth reported in Table 1, Panel A, are important indicators of economic performance.

<sup>8</sup> The most important early writer in this tradition was Coghlan (1918). See also Butlin (1959).

<sup>9</sup> A classic statement is that of Shann (1930); a recent contribution is by White (1992).

that the Australian economy in the nineteenth century was very much created by, and formed an integral part of, an emerging international economy. Some writers in this tradition emphasised the importance of export industries to domestic growth.<sup>10</sup> Others looked at the interactions between domestic and foreign markets for capital and labour, or at the transmission of economic shocks.<sup>11</sup> Indeed, Australia has always been highly integrated with the world economy, and its place in the imperial economy was an important component of this until well into the twentieth century.<sup>12</sup> And although the export-led growth hypothesis has limitations, studies in this vein were a healthy antidote to the tendency among some writers to focus on domestic conditions in relative isolation.

Particularly influential in the 1960s and 1970s was the focus by Noel Butlin (1964) on the role of investment in accounting for growth and macroeconomic fluctuations, especially in the late-nineteenth century economy. However, his narrative was not articulated in a growth-analytic framework. The links with labour force growth (especially with immigration) were not made, hence there was no attribution of growth sources between factor accumulation and total factor productivity, or discussion of technology (as occurred in the export-led growth literature, which had the aggregate production function as its organising framework). Nor was there an integration of foreign and domestic investment activity within a small open economy macro model, as was offered, for example, in the work of Hall (1963b) and Boehm (1971). What did get emphasis in Butlin's account was the importance of the public sector's contribution to both financing and allocating capital expenditure. To this extent there is a link between his work and the earlier tradition stressing the role of the state in the growth story.

#### **4. Re-assessing the Growth Record**

Assessments of the performance of the economy over the long run are heavily dependent on the availability and quality of key statistical series such as national accounts aggregates, and Australia is relatively well supplied with these, due especially to the efforts between the 1950s and 1980s of a research group at the ANU led by Noel Butlin. If in recent years the generation of significant new economic

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<sup>10</sup> The best contribution is by Lougheed (1968); see also Schedvin (1990).

<sup>11</sup> Most notably Boehm (1971), Hall (1963b), and Kelley (1965, 1968).

<sup>12</sup> The undergraduate economic history text by Meredith and Dyster (1999) conveys this theme in its design as well as its title. See also McLean (1989).

series relating to Australia's past has slowed markedly, there have nonetheless been important debates about the quality and interpretation of the statistical foundations of our knowledge of the economy's past growth performance.<sup>13</sup>

**Revisions to conventional GDP estimates.** Criticisms, extensions, and revisions of the historical estimates of gross domestic product for 1861 to 1938-39 compiled by Noel Butlin (1962) began soon after their appearance. The major revisions to and extensions of these estimates are those by Matthew Butlin (1977) covering 1900-01 to 1973-74; those by Noel Butlin and Sinclair (1986) for the early colonial period; and also the estimates of Sinclair (1996) for the colony/state of Victoria for the period 1861 to 1976-77. Broadly, each of these employed the estimation methods adopted in Noel Butlin's original work, constructing annual current-price estimates of GDP by the production (rather than the income) method, then deflating the sectoral components by appropriate price indexes to obtain constant price estimates. Collectively these remain the only comprehensive historical estimates of GDP (and its principal components), and hence are those used in international comparisons of Australian long-run growth performance.

An attempt to provide an alternative to the Butlin-based series of GDP estimates has recently been made by Haig (2001). His approach is to retain the production method, but to proceed directly to constant price estimates. This is done by computing quantity indexes of production by sector for each year, then aggregating with sectoral weights derived using unit prices in the base year only.<sup>14</sup> Over the entire 1861 to 1938-39 period, the differences in trend growth rates between the new and the original series are not great: the growth in per capita real GDP averages 0.49 percent per annum using Butlin's (1962) estimates and 0.57 percent using Haig's estimates, and between 1890 and 1938-39 the respective annual growth rates are 0.46 and 0.52 percent. However, during the long boom following the gold rushes (1861 to 1890), Butlin's estimates show an annual per capita growth rate of 1.46 percent, but Haig's new estimates reduce this by almost two-thirds, to 0.54 percent. A corollary of this more modest GDP growth before 1890 is that the subsequent depression is less severe

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<sup>13</sup> A major compilation of statistics on the history of the economy is available in Vamplew (1987). See also the analyses of key macro time series by Greasley and Oxley (1997, 1998).

<sup>14</sup> Actually, two base years are used: 1891 prices for the period 1861 to 1911; and 1938-39 prices for the period 1910-11 to 1948-49. Estimates for both Victoria and New South Wales for 1861-1911 are separately reported.

than that reflected in Butlin's estimates.<sup>15</sup> If Haig's new series are eventually accepted as being the more credible, there will have to be a re-interpretation of some important episodes in Australia's late nineteenth-century economic history.

Note should also be made here of the estimates by Cashin (1995a) of GDP in all colonies/states and in New Zealand for 15 (mainly census) years between 1861 and 1991. His estimation method for the Australian states prior to 1971 relied on monetary data, and an assumption that the income velocity of money derived for Australia as a whole could be applied to the individual states' money series to obtain an estimate of their aggregate incomes. His primary aim was to obtain GDP estimates for individual states, not provide an alternative set of estimates for Australia.<sup>16</sup>

**Living standards.** One of the most widely remarked features of the Australian growth story is that, from having the highest per capita income in the world in the late nineteenth century, a relative decline in living standards has since occurred. It is thus unsurprising that this topic has continued to attract attention.

A number of studies have examined Australia's relative position in the second half of the nineteenth century. Some use GDP data to make international comparisons of per capita income – the most widely cited being those by Maddison (1995) used above in Table 1, Panel B. For Australia, these rely heavily on Noel Butlin's estimates, and show that per capita GDP was clearly above Britain and the United States between 1850 and 1890, but that both had caught up by the first world war. In a recent evaluation of international comparisons of this type, Prados de la Escosura (2000) employs alternative methods of converting the national income figures for each country for benchmark years. A conversion using exchange rates ranks Australia as having either the highest GDP per capita or, in some years, the second highest (after New Zealand) from 1820 to 1890, the third highest in 1900 (though little separates it from the U.S. or New Zealand)), and the highest again in 1913. A third conversion method, preferred by Prados de la Escosura, still ranks Australia first from 1820 to 1890, but the margin over the United States is greatly reduced relative to that

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<sup>15</sup> There are also significant differences between the two sets of GDP estimates for shorter intervals during the twentieth century.

<sup>16</sup> However, summing his regional estimates produces Australian GDP levels in key early years (such as 1861, 1891, and 1910-11) that differ little from the Butlin's estimates. This may be due to the reliance placed on Butlin's work in the estimation of components of GDP in the individual states.



reported by Maddison (1995) and shown in Table 1, and in most years there is little difference between the two.<sup>17</sup>

An alternative approach to the assessment of comparative standards of living at the end of the nineteenth century and beginning of the twentieth has been attempted by Allen (1994) using nominal wage data for skilled and unskilled labour in selected cities in Australia, Britain, Canada and the United States between 1879 and 1913. He constructs a consumer price index that permits direct comparisons across these cities and through time. He finds that in the 1880s the real wages of unskilled labourers in Sydney, and the average real earnings of NSW manufacturing workers, were both significantly above their counterparts elsewhere, but that this margin was lost during the 1890s. For skilled labour, at the beginning of the 1880s, bricklayers in Sydney had real wages well above those in Manchester, but the real wages of those in Chicago and San Francisco were comparable to the Sydney bricklayers. By the 1900s the wage gap between Sydney and Manchester had been narrowed, while American real wages moved above those in Sydney. Toronto and Vancouver bricklayers, too, were at that time receiving higher real wages than their Sydney counterparts. Thus until the 1890s general and unskilled labourers may have had higher real wages than their counterparts in the United States, but this may never have been true of Australian skilled workers.

Allen's real wage comparison is important because it permits some insight into possible differences in the distribution of incomes (or margins for skill) between Australia and other countries with which the standard of living comparisons are most frequently made. Also, it offers an independent test of the international comparisons based on GDP estimates. The results are broadly consistent: Australian living standards indeed seem to have been higher than those in Britain or the United States for several decades prior to 1890, but this lead was lost by 1900 or 1914.<sup>18</sup>

The related question of what happened to Australian living standards in the half-century after 1890 has also attracted recent scholarly attention. The GDP-based

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<sup>17</sup> See also the detailed comparisons of income per capita in New South Wales and in Britain for 1891 reported in Thomas (1995) and in Haig (1989 and 2001, pp.22-25). Another method of comparison is the human development index. The historical HDI estimates of Crafts (2002, p.396) show Australia number one in 1870 and number two in 1913.

<sup>18</sup> A more appropriate comparison of incomes might be between Australia and some state or region within the United States. Considering its similarities with Australia in the timing of European settlement and initial resource endowments, California is a possible comparator. And in 1880, for example, income per capita in California was much further above the U.S. average than (in the international comparisons) was Australian income per capita (McLean and Taylor, 2003).

measures suggest that, despite short periods of growth, these were nearly offset by periods of decline such that, over 50 years, real income per capita rose only 14 percent. Is Australian long-run per capita growth really a three-act drama, with two long periods of rising living standards before 1890 and after 1940, separated by a half-century of no trend improvement?

McLean and Pincus (1983) pointed out that between 1890 and 1940 a wide range of partial measure of living standards or social indicators (such as housing quality, telephone ownership, and educational attainment), show much stronger improvement than the GDP-based measures. They also noted that the growth rates in real consumption per capita were above those of real GDP per capita. And they pointed to the major improvement in life expectancy that occurred during this time. They were aware, of course, that observing the fairly consistent growth in these indicators does not of itself establish that the GDP-based measures understate the true growth in GDP. And to establish whether there was something unusual in the relationship between the conventional and unconventional measures of living standards during this 50-year period required a similar exercise to be performed on evidence for the periods before 1890 and after 1940, an exercise they did not attempt.

In the ensuing debate, an important contribution by Carter and Maddock (1987) was to examine the changes in work and leisure hours between 1911 and 1981, and to suggest that the increase in the latter may have been one way in which Australians took out their rising wellbeing. Between 1911 and 1947 a measure of 'full income' that included leisure grew at more than twice the rate of GDP per capita. However, after 1948, the GDP-based measure generally overstates the gains in wellbeing if account is also taken of changes in leisure.<sup>19</sup>

Also relevant for the discussion of trends in living standards is the work by Snooks (1994) to augment the historical national income estimates by taking account of non-marketed (household) economic activity. He constructs an annual measure of 'gross community income' from 1861 to 1990 which is, of course, much greater than gross domestic product. This can then be divided either by the population or the number of households, the former being appropriate in a comparison with conventional measures of income. In the present context it is interesting to note that whereas the growth rates of GDP per capita and 'gross community income' per capita

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<sup>19</sup> A survey of this debate is provided in Jackson (1992).

do not greatly differ over the entire period 1861-1990 (being 1.39 and 1.33 percent per annum respectively), over the period of alleged stagnation in living standards, the conventional GDP-based measure is lower than the alternative (0.11 and 0.33 percent per annum respectively, 1889 to 1939).<sup>20</sup>

**Anthropometric history.** Related to the discussions of living standards and alternative measures of economic wellbeing, imaginative use has recently been made of a range of historical data not normally thought of as part of the economists' toolkit. Taking their cue from an earlier American literature, several scholars have analysed time series of height, weight, and body-mass index estimates for Australia.<sup>21</sup> Key assumptions are that, over at least some ranges of incomes, there exist reasonably stable relationships between these physiological indicators and nutrition, and also that the latter is likely to reflect in turn basic economic conditions. The motivation for these studies was wider than the issue of a half-century stagnation in living standards discussed above, and they are of interest more generally. But where they cover the 1890-1940 period, independent evidence of what was happening to economic and social conditions is provided. The most recent survey and assessment is that by Whitwell and Nicholas (2001), who use data on male army recruits during the two world wars. They conclude that there is a rise in heights, but the body mass index series are less strongly supportive of the case for a rise in living standards over the half-century to 1940.

**Convergence.** In the immediate post-war decades Australian growth rates were below the OECD average. However, in the context of a model of conditional convergence, Dowrick and Nguyen (1988) showed that there was nothing surprising about the Australian growth rate given its immediate post-war level – well above that of many war-devastated economies.

Nonetheless, there remains an unresolved issue for those who wish to view Australia's long-run comparative growth in a convergence framework. Since Australia's initial (mid- and late-nineteenth century) level of income exceeded that of all candidate reference countries, is the period between the 1890s and 1930s to be interpreted as one in which there occurred (beta-) convergence, but from above? If so, was there 'over-shooting'? (If not, what growth model is relevant?) Moreover, in the 70 years since the 1930s why has there been no convergence from below? Oxley and

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<sup>20</sup> These data are reported in Snooks (1994), Table 2.1, p.24.

<sup>21</sup> See Whitwell, de Souza and Nicholas (1997) and references cited there.

Greasley (1995) have confirmed that, during the postwar period, Australian GDP per capita showed no tendency to fall further relative to that of either the U.K. or the U.S., but likewise no tendency to converge. Is the persistent gap in income or productivity (of at least 20 percent) measurement error, or simply too small to observe convergence forces at work? Or is this lack of evidence of economy-wide convergence concealing quite different levels of (and rates of growth in) productivity across the main sectors in the Australian economy, relative to their counterparts in (for example) the U.S.? If so, the speed of structural adjustment becomes part of the explanation for the aggregate economy's relative performance.<sup>22</sup>

Historical analysis of convergence among the seven colonies of Australasia (and their successor states) was also the motivation behind the regional estimates of Cashin (1995a) previously described. He finds (Cashin 1995b) that there was (both beta- and sigma-) convergence among the seven regions between 1861 and 1991. Within this, he finds brief periods of divergence (during 1901-11 and 1947-51), and also that most of the reduction in the dispersion of regional incomes occurred by 1891.

## 5. The Sources of Growth Framework

Turning from questions relating to the *measurement* of Australia's growth record to the *explanation* of that record, one entry point is to distinguish between proximate determinants of long-run growth (physical and human capital accumulation, productivity improvement, the exploitation of scale economies), the contribution of growth-enhancing or growth-inhibiting policies, and the role of deeper determinants (such as institutional arrangements, geographic features, and cultural or social norms).

**Factor accumulation.** Noel Butlin's (1964) narrative of late-nineteenth century development focused on investment partly because of the central role of capital accumulation (and the saving that financed it) in the growth models of the 1940s and 1950s. There has been little further historical research in this tradition, perhaps reflecting the subsequent trend away from so restricted a perspective in both theoretical and empirical studies of growth. However, recent studies of the evolution

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<sup>22</sup> These speculations are prompted in part by the findings of Broadberry (1998) with respect to sectoral productivity levels and (national) convergence trends in Britain, Germany and the U.S. between 1870 and 1990.

of the capital market have improved understanding of the institutional context within which investment was financed.<sup>23</sup> And two studies have examined the determinants of long-term changes in the aggregate saving rate in the light of the life-cycle and permanent income hypotheses, immigration flows, and demographic influences, placing the Australian experience in the context of saving behaviour in Argentina, Canada and the United States.<sup>24</sup>

The effect on growth of fluctuations in the expansion of the labour force was investigated in the 1960s in several analytical studies of economic-demographic interactions and of the economic effects of immigration (Hall 1963a; Kelley 1965, 1968). Again, the focus was on the late nineteenth and early twentieth centuries, and in particular on the very long run consequences of the demographic shock associated with the gold rushes. The unusual age and sex ratios, and also workforce participation rates, associated with that event played a significant role in the economy's growth.<sup>25</sup> Subsequently there has occurred a broadening of this canvas. Both the economic determinants of immigration, and its effects on the economy, have been analysed in several studies, most notably in the work of Pope and Withers (1993, 1994) and Taylor (1994). And other historical features of the labour market of relevance to growth, especially human capital accumulation, have also received some attention.<sup>26</sup>

Among these is one feature of Australian growth that is striking when viewed in comparative perspective – the much later rise in high school participation rates during the twentieth century than occurred in the United States. MacKinnon (1989) has shown how Australia (and Britain) lagged the U.S. by several decades in this crucial determinant of productivity performance. The fact that most other advanced economies similarly lagged American educational attainments only increases the need for a clearer understanding than currently is available of the contribution of schooling to Australia's long-run comparative growth performance.

**Technological change.** The diverse historical literature on innovation and technological change in Australian manufacturing, agriculture, and other sectors directs attention beyond factor accumulation and towards productivity improvement as a source of Australian growth. Yet the work of Kaspura and Weldon (1980)

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<sup>23</sup> This is surveyed by Merrett (1997). See also the comprehensive overview by Davis and Gallman (2001), Chapter 5.

<sup>24</sup> See McLean (1994) and Taylor and Williamson (1994).

<sup>25</sup> An early effort at formal modelling was made by Withers (1977).

<sup>26</sup> Several contributions in Pope and Alston (1989) represent this literature.

relating to productivity growth since 1900 supports the view that Australia seems to have stayed in the factor accumulation phase longer than, for example, the U.S. where the transition to growth based on increasing total factor productivity occurred in the early decades of the twentieth century. By contrast, in most decades to the 1960s growth in total factor input accounted for about two-thirds of Australian output growth.

Since the 1960s, Australia has experienced a temporal pattern similar to that of most OECD countries: a slowdown in productivity growth in the 1970s and 1980s followed by a recovery in the 1990s. The explanation for the more favourable recent trends remains open to debate (Dowrick 2001). From an historical perspective an important question is whether the current productivity surge marks a decisive break with the past in that increases in labour productivity (and per capita income) are no longer so dependent on increases in capital intensity or on natural resource extraction. If so, the transition from the dominant sources of nineteenth century growth will be identified as having occurred only at the end of the twentieth century.

**Scale economies.** A potential source of growth that has not received much formal attention relates to the size of the domestic economy. The rise of wool exports in the 1820s demonstrated a capacity to achieve scale economies (at the level of the firm or industry), despite a very small home market, by specialisation of production for sale into world markets. Further examples were to follow. Of course, if establishing a domestic base prior to entering export markets is important, the size of the domestic market may still matter.<sup>27</sup>

A related consideration is the initial fragmentation of the domestic economy. Blainey (1966), among others, has stressed the importance to growth of the gradual integration of regional markets separated by considerable distances and high transport costs. Heavy investment in social infrastructure, beginning in the second half of the nineteenth century, lowered communication and transport costs between these regional economies. Colonial labour and capital markets seem to have become remarkably well integrated. And federation assisted in removing barriers to inter-regional trade. Support for these generalisations may be found in the evidence of regional income convergence reported by Cashin (1995b). Nonetheless, the dispersion

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<sup>27</sup> The importance assigned to the size of the United States domestic market in explanations of that economy's growth is a reminder of the possible constraint on Australian growth from the same source.

of the population around thousands of kilometres of coastline remains a striking characteristic of this economy.

Offsetting this, however, and evident from the nineteenth century, is the tendency for this scattered population to concentrate in a few large urban areas. If economic density and agglomeration economies matter to the efficiency of firms or industries (as stressed in some endogenous growth models), growth would be enhanced as the Australian economy shifted to a more urban orientation – both in manufacturing and services. The earlier urbanisation than in many other countries may thus have made an indirect contribution to Australia’s high productivity and incomes.<sup>28</sup>

## **6. Policy**

The focus in this survey is on the long run, thus I will not consider recent contributions to the debates about the role of policies during the depression of the 1930s.<sup>29</sup> Nor, given the historical orientation adopted here, will I enter the debate concerning the effect of market liberalisation policies on growth and productivity performance since the 1980s. More generally, no recent study of the economic role of the state during the twentieth century has matched either the comprehensiveness or the historical sweep of that by Butlin, Barnard and Pincus (1982). However, there is one major area of policy that is closely linked to long-run growth, and that concerns the openness of the economy.

Australian experience seems to offer something of a natural experiment on the relationship between trade policies and growth. A theme that is sometimes explicit, but often implicit, in Australian discussion of this issue is that the growth rate of the economy was reduced by the protectionist policies put in place after 1900, and thus to re-orient the economy to be more internationally competitive would raise the growth rate and hence per capita income levels.<sup>30</sup> I am not concerned here with the theoretical basis for this view. Rather, what is the evidence of the extent to which Australian growth was lowered as a result of pursuing for so long the (now) discredited policies on trade protection?

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<sup>28</sup> For a comparative assessment of historical urbanisation trends see Frost (1991).

<sup>29</sup> A useful collection can be found in Gregory and Butlin (1988).

<sup>30</sup> Anderson and Garnaut (1987, pp.16-17) explicitly link the growth in protection with Australia’s decline in income levels relative to other countries in the twentieth century.

The short answer is, there have been few rigorous attempts empirically to get a handle on the magnitude of these growth-reducing effects. Siriwardana (1996) has a shot at the impact of the tariff during the 1930s. However, estimates of the comparative static costs of protection do not by themselves indicate the long-run and dynamic growth effects in a world characterised by increasing returns, differentiated products, and changes over time in both transport costs and trade barriers in export markets.

Not only is there a lack of evidence on the magnitude of the growth-retarding effects of the inward-oriented development strategy, there is a lack of clarity about the counterfactual, including the time period over which it is constructed. In the interwar years when world commodity markets were in retreat and international factor flows largely dried up, it might be that the impact on growth of rising protection were much less than over, say, a later two-decade period. In fact, the possibility that the relationship between tariff protection and growth has changed over the long run has been raised in recent comparative work, where Australia has been included in the sample of countries whose historical experience has been examined. O'Rourke (2000) has found a robust but positive relationship between tariffs and growth in the period 1875 to 1914. Clemens and Williamson (2001) report confirmation of these results. But they also extend the analysis up to the present. They discover a negative and significant relationship for postwar years, confirming the accepted views relating to this period. For the interwar period the relationship is less clear-cut. The implications of this debate are important, raising the possibility that the growth-retarding impact of high protection in Australia was attenuated by other influences during certain periods of the twentieth century.

## **7. Deeper Determinants**

It is increasingly recognised by growth economists that limiting one's focus to the proximate determinants will leave unexplained the key question of why some countries are rich and others poor. A similar conclusion applies to the Australian historical evidence. If we are to explain convincingly why Australia achieved living standards at least roughly comparable to those anywhere else soon after European settlement, and maintained this for 150 years, we need to do more than point to the growth of factor inputs and productivity. What accounts for the observed rates of domestic saving, foreign investment, and immigration? What lies behind measured



productivity growth? And why were policies either growth promoting or, if seriously growth inhibiting, modified or abandoned? Such questions take us directly to an examination of institutions, social attitudes, culture, and politics.

**Avoiding the resource curse.** One widely recognised influence on Australian growth has been the abundance of its resource base (Helliwell, 1984). However, many natural resource-rich economies have failed to sustain growth, whereas some resource-poor economies have succeeded. Resource abundance is thus neither necessary nor sufficient for long run growth.<sup>31</sup> Thus, a key question is what enabled Australia to convert its natural resource windfall into a basis for sustained growth.

The answer to this question must lie in influences not traditionally incorporated in growth models – institutional arrangements, social values, and political decisions. For example, the terms and conditions of access to pastoral land (from the squatting era on) were crucial to the security of property rights and hence profitability of wool production.<sup>32</sup> Similarly, the reform of goldfields regulations and taxation arrangements that followed the Eureka stockade incident are an illustration of the growth-promoting redesign of institutional arrangements in the mining industry at a critical stage in its development (La Croix 1992). Again, the provision of agricultural research through the establishment of agricultural colleges and experimental farms in the nineteenth century and of the CSIRO in the twentieth century, institutions critical to the international competitiveness of Australian agriculture, are illustrations of public goods being supplied by the state where market forces alone would most likely have led to their under-supply (McLean 1982; Schedvin 1987). Thus the existence of abundant natural resources is not an explanation of Australian prosperity. It is their discovery, the rate of their exploitation, and the distribution of the resource rents, that leads to an impact on growth.

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<sup>31</sup> The prevailing view among empirical growth economists is that resource abundance is negatively related to growth – the seminal study being Sachs and Warner (1995). Australian experience (and that of some other economies) does not support this view: see Helliwell (1984), and McLean and Taylor (2003, pp.39-41).

<sup>32</sup> The 1847 New South Wales regulations governing pastoral land occupation that denied squatters freehold tenure, but instead awarded them fixed-term leases, may have been a pivotal decision with long-lasting political and social implications. It allowed the peaceful sub-division (‘selection’) of vast areas of land from the 1860s to 1880s that created a more egalitarian distribution of land ownership, limiting in turn the political power of the pastoralists. The contrasting history of land disposal policies in Argentina, and of the political influence of large landowners there, is a salutary reminder of what might have been.

Of course, the extraction of non-renewable mineral resources, over-grazing of natural grasslands, soil erosion resulting from introduced livestock, and the increased salinity of river systems, are examples of the stock of natural capital being depleted in the course of obtaining high incomes for the inhabitants of this continent. What we await is a careful assessment of the extent to which past economic growth rates (and income levels) were achieved only by patterns of natural resource utilisation that maximised current rather than sustainable future consumption.

**Geography.** To the foreign observer some of the most striking aspects of the context within which the Australian economy operates are geographical. Australia is the same size as the continental United States but has a population equal only to that of Texas or New York. It is one of the few advanced economies having a significant proportion of its territory within the tropics. And though it lies at the southeast edge of Asia its economic links, until recently, were overwhelmingly with north-western Europe.

Most Australian economists and many economic historians have taken these features for granted as not requiring explicit incorporation into structured stories of how the economy evolved and flourished. There have been exceptions. One of the reasons for the enduring interest in Geoffrey Blainey's *Tyranny of Distance* (1966) is surely its thesis that aspects of geography are fundamental to Australian economic development. Also, recent interest in the environmental sustainability of economic activity stems in part from the growing appreciation of the importance of certain features of the Australian physical environment to our economic prosperity. Precisely because the motivation in some cases is to oppose further economic growth, even to advocate lower population levels (e.g., Flannery 1994), these authors use history to argue that the environmental limits to growth in this country were exceeded long ago. They thereby challenge (at least implicitly) the success story of growth as conveyed in mainstream accounts.

Some writers in the empirical growth literature have elevated the importance assigned to geographical influences. Climatic conditions, access to the sea or navigable rivers, and distance from the centres of world trade and finance, have all been found to be significant determinants of growth in cross-country regressions.<sup>33</sup> The relevance of such geographical considerations to an account of the sources of

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<sup>33</sup> See, for example, Gallup, Sachs and Mellinger (1999). The role of geographical determinants in growth has, however, been contested by Rodrik, Subramanian and Trebbi (2002).

Australia's successful growth experience could draw on the traditional themes of its historians and historical geographers as well as insights from development economics.<sup>34</sup> In particular, it is likely that geography plays a prominent role in accounting for Australia's extremely low population density.

**Institutions and colonial inheritance.** A further influence on the long-run growth performance of the Australian economy that receives little direct attention is the contribution of the institutional arrangements within which growth has occurred. This neglect seems due to the combination of the ease with which growth-enhancing institutions were created (most were imported), and due to the limited challenges that arose in adapting them to local or changing conditions. The institutional framework is seldom offered as a reason for our economic success because it is taken for granted. Yet many growth economists now believe that, perhaps more than any other factor, appropriate institutions are the key to explaining why some countries are rich and others poor (Acemoglu et al, 2002). Thus, institutional arrangements in Australia seem to be a case of the dog that didn't bark. At a time when failing institutions seem central to the problems of growth in many developing countries, the contribution of its institutional arrangements to the Australian success deserves more attention.

However, there has been recognition of the importance of some institutions. The convict system is an example of a set of institutional arrangements that were fundamental to the early years of economic growth. Stephen Nicholas and his collaborators (Nicholas 1988) recently have placed on a much firmer basis the ways in which the convict labour market, and its interaction with the market for free (and emancipist) labour, worked flexibly to ensure the efficient allocation of workers. Furthermore, the selection in Britain of convicts for transportation appears to have been well attuned to the special labour requirements of a pioneer settlement. This all stands in some contrast to popular views that the convict system was a blight and burden on the establishment of solid foundations for a free and prosperous society.<sup>35</sup>

The institutional arrangements within which Australians had access to, and secure property rights in, land and minerals, has already been alluded to. For example, the family farm became the typical unit in rural settlement, ensuring (at least after the

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<sup>34</sup> McLean and Taylor (2003) raise these issues in the context of an historical comparison of growth in Australia and California.

<sup>35</sup> Other examples could be noted here: Khan (1999, 2000) on sources of improved legal efficiency in early rural NSW; and Ville's (2000) account of the emergence and evolution of the stock and station agents and their industry – treated as an institutional innovation.

land acts of the 1860s and 1870s) a reasonably wide distribution of land ownership. This is similar to the pattern of public land disposal observed in the United States and Canada, but not in Argentina. The long-run economic consequences were probably momentous – influencing not just the distribution of wealth, but the concentration of political power, the timing of the widening of the political franchise, investment in public education, immigration policy, and even the evolution of financial market institutions.<sup>36</sup> The contrast between Argentina and Australia is especially telling here, given the likely importance of these differing initial institutional arrangements to the later divergence in growth rates between these two economies.

Further, one may cite Australia's colonial inheritance that, broadly speaking, endowed it with ready-made institutions derived from the world's (then) most successful economy. Unlike Latin America or much of Africa and Asia, there has been no suggestion that growth performance over the last two centuries was significantly retarded by our colonial origins (Acemoglu et al, 2001). One may also note the transition to full independence (especially the federation of the Australian colonies in 1901) as institutional re-arrangements that did not have deleterious effects on growth in the long run, in contrast to the post-independence economic turmoil in many developing countries. In a comparative growth context, this is a significant Australian achievement.

**Culture, ethnicity, and social norms.** There is no evidence that Australia encountered serious growth-inhibiting obstacles in any of the following: language, religion, legal system, ethnic diversity, political culture, or social norms. However, there is now strong evidence that, in some countries, one or more of these factors are (or were at some time in the past) crucial to the explanation for poor growth performance. Hence, an important part of the success story here is to account for our avoidance of these growth-retarding factors. Some of this was contingent – luck. This applies to the inheritance from Britain of language, legal system, and political institutions. Some of it may be home grown, including certain social norms. And it is, of course, more challenging to appraise the importance of an absent (but potentially negative) influence on growth.

These observations reinforce how important it is for economic historians to stay in touch with developments in both the theoretical and empirical growth

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<sup>36</sup> These speculations are drawn from Sokoloff and Engerman (2000), and Engerman and Sokoloff (2003), who investigate the historical growth divergence of Anglo America and Latin America.

literatures – as well as for economists to keep abreast of work in economic history. They also make the case for more attention to comparative historical analysis. The clearest illustration is offered by the small literature explaining the very different long-run growth experiences of Australia and Argentina.<sup>37</sup> In these writings the consensus is that it is precisely in the institutional arrangements, and in the political and cultural realms, that the deeper determinants are to be found for the striking divergence in the growth histories of these two countries despite what, on the surface, appeared very similar initial conditions, especially relating to their resource endowments and close integration with the international economy.

## **8. An interpretation**

It is possible to suggest an interpretation of the long-run growth story in Australia that builds on aspects of the traditional interpretations while taking account of insights from recent growth analysis. Space dictates that only the barest outlines can be sketched here.<sup>38</sup>

Australia's (modern) economy was formed as part of the first globalisation, dating from the 1820s. Further, it was a settler economy – or European offshoot – where growth was at first primarily extensive in nature. As the natural resource base was discovered, the complementary factors of labour and capital were attracted in significant (if volatile) flows. The institutional framework for the economy was also imported, then adapted to local conditions, and proved to be predominantly growth enhancing. And the spatial pattern of development was heavily constrained by key features of the natural environment, including the location of fertile land, mineral deposits, and water supplies. The essential driver of this development was, at first, international demand for wool, gold, and other agricultural and mineral products. The combination of resource abundance (per capita) and strong foreign demand encouraged specialisation in production and ensured international competitiveness and hence high levels of productivity. This underpinned extraordinarily high per capita incomes from a very early stage.

For how long these initial conditions persisted and continued to underpin growth (both extensive and intensive) is an important question. The severe depression of the 1890s does not seem to have fundamentally shifted the nature of the growth

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<sup>37</sup> See Duncan and Fogarty (1984), Dingle and Merrett (1985), and White (1992, Chapter 15).

<sup>38</sup> Some of the themes in what follows are also raised in McLean (2003).

process: reliance on rural development and commodity exports continues up to the first world war, and, despite quickening manufacturing development, resumes in the early 1920s. However, the view that the 1920s were the last phase of this century-long epoch of natural resource-based growth (Sinclair 1976) does not accord with the prominent role of the natural resource-based industries in the second long boom after 1945. The post-war golden age has something of a nineteenth century feel about it: export booms in wool (Korean war), other agricultural products, and a range of minerals, together with a renewed surge in immigration and foreign investment.

In a currently popular expression, Australia is described as having a commodity-based economy, the implication being that, in some respects, there has been no fundamental shift in its basis of growth despite dramatic changes in economic structure and organization since the nineteenth century. One illustration is the continuing dominance of primary products (agricultural, mineral, etc) in exports. An alternative illustration is the contributions to output growth of factor accumulation and total factor productivity. As previously described, there is no evidence of any dramatic change in the importance of the former between 1900 and 1979 (Kaspura and Weldon, 1980), implying that, at the earliest, such a shift might have begun only in the last decade or so (if then).

This perspective can be given a comparative basis. The growth of the U.S., another settler economy, has been described in similar terms (Abramovitz and David 2000). In the nineteenth century economic growth there, too, was primarily an extended process of factor accumulation, with the (measured) contribution from productivity gains being relatively less important. Immigration, the settlement of the west, and the integration of regional product and factor markets, underpinned both extensive growth and rising incomes. Around the end of the nineteenth and beginning of the twentieth centuries, however, a fundamental shift occurred - productivity improvement rather than factor accumulation became the principal source of American growth. Although natural resource abundance continued for several more decades to determine the products in which the U.S. had a comparative advantage, there occurred a transition to greater dependence on various types of knowledge creation. For example, the U.S. led the world in high school retention rates in the early twentieth century. Then, at the middle of the century, there occurred the dramatic rise of university education and of investment in scientific research in universities, corporations, and government research establishments. The transition

from its nineteenth century growth sources was by then complete. Australia's lagged transition, in this comparative view, is a topic warranting further inquiry.

## 9. Conclusion

Some knowledge of Australian history is essential to an adequate understanding of why the economy is as it is. Also, there is relatively good evidence relating to the Australian growth record. And Australian experience is in some respects unusual, hence providing a natural experiment on issues such as the influence of geography versus institutions, the effects of colonialism or of tariff protection, the role of corruption, or the importance of social norms. Thus Australian historical experience is likely to attract more attention from economists.

What light Australia's historical experience throws on the relative usefulness of neoclassical and endogenous growth models is a topic beyond this survey.<sup>39</sup> However, the results of Kaspura and Weldon (1980) might be supportive of the view that 'old' growth theory, stressing factor accumulation, may have retained its relevance to this particular economy – at least until quite recently. But is this an exercise that tests the assumptions of a model rather than assisting the explanation of the historical record? For, as pointed out above, there are deeper questions, even about factor accumulation, concerning which neoclassical growth models offer little guidance. By contrast, the comparative approach, common to both economic historians and empirical growth economists, seems fruitful, especially when drawing on insights from growth models of any genre. Natural resource abundance appears to have been a blessing (as in the U.S.), rather than the curse portrayed in much of the growth literature. Human capital accumulation, by contrast, appears to have been rather less than in the U.S., but it is unclear how much this explains Australia's poorer growth record in the first half of the twentieth century. Comparison with Argentina points to differences in access to foreign savings at certain times as favouring Australia – an insight from a traditional view of growth determinants.<sup>40</sup> However, the same comparison also suggests the importance of differences in the security of property rights, the distribution of access to land, and political stability in accounting for Australia's superior growth record over the very long run – themes important in

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<sup>39</sup> Compare the comments on this same question as applied to U.S. and British historical experience by Romer (1996) and Crafts (1998), respectively.

<sup>40</sup> See, for example, the analysis in Taylor (1992).

new growth theory. In a similar vein, comparisons with Canada might help answer different questions about Australian growth: for example, the role of geography – nearness to the U.S. market – in accounting for Canada’s earlier industrialisation; or its (arguably) better post-war growth record.

Finally, a comment about future contributions to the investigation of the Australian growth experience is perhaps apposite. Recent developments in theoretical and empirical growth economics have led to a renewed interest by economists in questions of long-standing concern to economic historians. Elsewhere this is rejuvenating co-operative research among specialists in macroeconomics, development economics and economic history. But it is unclear how far this will emerge in Australia, especially in light of the collapse in support for historical research in most of Australia’s leading economics departments. Scholars located overseas may thus come to play a more prominent role in the analysis of Australian long-run growth. This trend is already underway and evident in the many contributions by non-Australian economists to the writings on aspects of Australian economic history surveyed here.<sup>41</sup>

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**Table 1. Australian Economic Growth 1828-2000**

**Panel A: Growth Rates**  
(Average annual percentage growth rates between end years)

Years	Real GDP	Population	Real GDP Per Capita
1828 - 1840	13.2	10.4	2.6
1840 - 1850	8.7	7.8	0.8
1850 - 1860	12.8	10.9	1.8
1861 - 1889	4.8	3.5	1.3
1889 - 1905	0.8	1.7	-0.8
1905 - 1914	5.2	2.3	2.9
1914 - 1920	-1.6	1.3	-2.6
1920 - 1930	3.2	1.9	1.1
1930 - 1939	1.6	0.8	0.6
1939 - 1946	3.4	1.0	2.4
1946 - 1974	4.8	2.2	2.5
1974 - 2000	3.2	1.3	1.9

**Panel B: Levels of Per Capita GDP 1820 - 1994**  
(United States = 100)

Year	Australia	U.K.	Canada	N.Z.	Argentina
1820	119	136	69	n/a	n/a
1850	169	130	70	n/a	n/a
1870	155	133	66	127	53
1890	141	121	66	111	63
1900	105	113	67	105	67
1913	104	95	79	98	72
1929	74	76	69	77	63
1938	92	98	70	106	66
1950	75	72	74	89	52
1973	75	72	82	76	48
1994	76	73	81	67	37

Sources: Panel A: 1820 - 1860, Butlin (1986, Table 8); 1861 - 1974 Maddock and McLean (1987, Table 1.1); 1974 - 2000, Australian Bureau of Statistics, 5204 Australian System of National Accounts. Panel B: Maddison (1995, Appendix D).