International comparison of industry productivity

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'Productivity isn't everything, but in the long run it is almost everything'. Paul Krugman

The United States has long been considered the world's productivity frontier, maintaining a sizeable aggregate productivity gap with Australia over the past quarter century. This paper finds that Australia's industry structure does not appear to make a major difference to Australia's productivity gap with the US, suggesting that the gap arises mainly from differences in productivity levels within industries. Using new data from the EU Klems project, this paper finds that Australia's productivity level relative to the US differs markedly across industries.

1 The authors are or were from the Macroeconomic Policy Division of the Australian Treasury. This article has benefited from comments and suggestions provided by Bryn Battersby, Ben Dolman, Graeme Davis, Jyothi Gali, Angelia Grant, David Gruen and Tony McDonald and participants at a number of internal Treasury presentations. The views in this article are those of the authors and not necessarily those of the Australian Treasury.

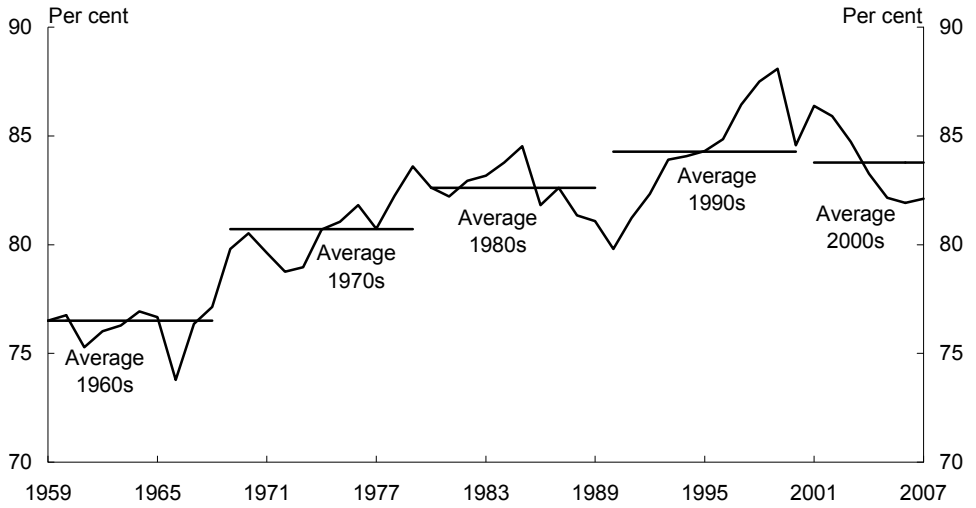
Introduction

Although limited, GDP per capita is a useful measure of countries' standard of living. A higher GDP per capita means more consumption possibilities, on average, for a country's population. Differences in GDP per capita over time and across countries are driven by differences in productivity. As labour productivity grows, higher levels of output are produced for a given level of labour inputs. As Krugman (1991) noted, a country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker. A better understanding of the causes of productivity differences shed light on how much a country's income per person can catch up to richer countries, and the role for economic policy.

The US economy has represented the technological and efficiency frontier at the aggregate level since the early stages of the twentieth century and is often referred to as the productivity frontier. As such, Australia's labour productivity performance — measured as gross value added per hour worked, and referred to synonymously as productivity in this paper — is often analysed relative to US productivity.

Australia's labour productivity has averaged around 84 per cent of US productivity since the early 1990s, rising from an average of around 76 per cent in the 1960s (Chart 1). More recently, Australia's relative productivity during the 2000s has been slightly below that of the 1990s, although by 2007 it had fallen to around 82 per cent of US productivity. If Australia's productivity had been the same as that of the US in 2007, other things being equal, Australia's GDP per capita would have been around $8,500 higher.

Chart 1: Australia's productivity level relative to the United States



Source: Groningen Growth and Development Centre (GGDC) and The Conference Board Total Economy Database, January 2008.

Productivity performance at the national level is the net outcome of decisions made at the industry and firm level, including entry, exit and the implementation of new ideas, new business models and new production activities. Therefore, analysing productivity at the industry level can help us understand aggregate differences.

At an industry level, Australia's productivity gap with the US could be due to two factors: industry structure — Australia has more low-productivity industries than the US; or the productivity gap within industries — Australian industries are less productive than US industries. The purpose of this paper is to examine which of these factors is most prominent using a new internationally comparable data set.

The first section reviews some of the existing literature in this area. In the second section industry structure differences are examined. The third section looks at productivity differences within industries. Finally, we investigate the extent to which some industries have caught up with the US and the implications for policy.

Comparing industry productivity

Identifying why Australia's productivity level has been below that of the US has been the subject of recent research. A range of microeconomic and macroeconomic reforms undertaken in Australia over the past quarter century contributed to Australia's strong productivity performance during the 1990s and narrowed the aggregate productivity gap with the US (Davis & Rahman 2006).

However, differences in geography and history are likely to limit Australia's ability to fully close the gap. Battersby (2006) provides evidence that geographic isolation may mean Australia will not be able to close the gap entirely. Indeed, the OECD (2008) found that distance to world markets has had a significant negative effect on Australia's GDP per capita. The OECD adjusted Australia's labour productivity to account for geography and found that the gap with US productivity fell from 17 to 10 per cent.

Dolman, Parham and Zheng (2007) use data from the Groningen Growth and Development Centre's (GGDC) *60 Industry database* to compare Australia's productivity performance to other OECD countries, between 1979 and 2003. They find that while the aggregate productivity gap between Australia and the US has been sizable and relatively stable over time, there has been a diversity of experience at the industry level. Australia's mining industry experienced higher productivity during this period, while manufacturing, wholesale and retail trade, utilities, communications and finance all maintained their respective productivity gaps with the US or fell further behind.

However, the authors caution that international comparisons at the industry level are affected by the accuracy of the measures, noting that the EU Klems project, which was not available at the time the paper was published, would potentially provide a richer set of internationally comparable data. Using the EU Klems database, this paper investigates whether industry structure or differences within industries cause the aggregate productivity gap between Australia and the US. Box 1 provides additional details on the EU Klems database.

Box 1: The EU Klems database

Klems is an acronym for the various categories of capital (K), labour (L) energy (E), material (M) and service (S) input measures the database utilises. The EU Klems database was developed as part of a project to analyse productivity in the European Union at the industry level and has been expanded to include other countries such as Australia, Japan and the US. It supersedes the *60 Industry database* developed by the GGDC, which due to the development of EU Klems will no longer be maintained. The primary difference between EU Klems and many of its predecessors including the OECD's Structural Analysis database is that it accounts for changes in composition of the labour force over time and across countries. This reduces the bias related to aggregate measures of multi-factor productivity commonly experienced with such databases. Capital input measures also take into account the effects of the rapid shift in investment towards Information and Communications Technology in recent years (Timmer, Ypma & Van Ark 2007).

The EU Klems database classifies industries according to the NACE (in French: Nomenclature statistique des Activités économiques dans la Communauté Européenne) classification system, which is very close to the International Standard Industrial Classification. This provides more detail than the two-digit GGDC *60 Industry database* used by Dolman, Parham & Zheng (2007) and is readily transferable to the Australian and New Zealand Standard Industrial Classification system used by the Australian Bureau of Statistics (ABS).

Industry structure

Geography, history, natural resource endowments and policy settings can shape the industry structure of a country's economy. Some industries are likely to form a bigger part of some economies than of others. It follows that any industry-level analysis of Australia's productivity relative to other countries should begin by comparing Australia's industry structure with that of other countries.

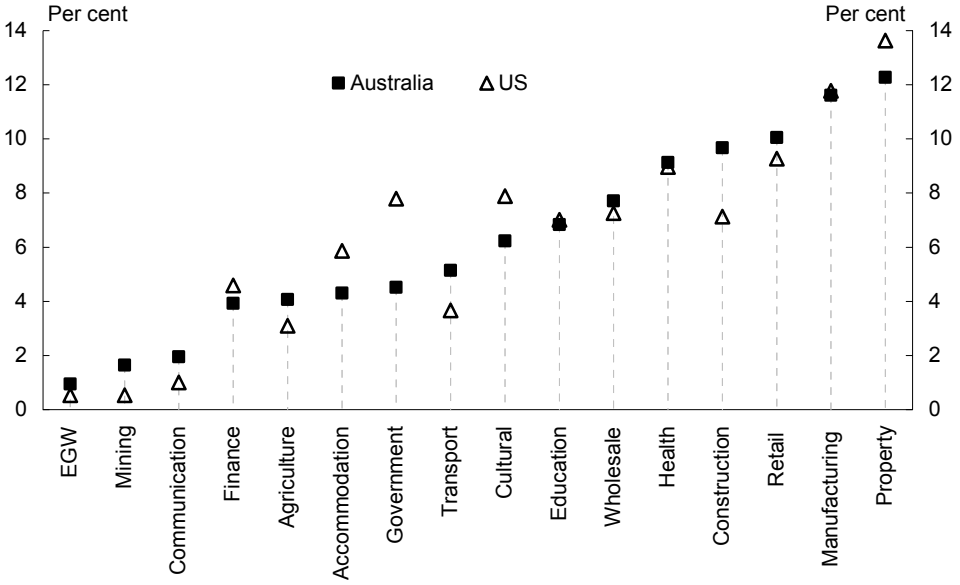
Industry structure matters for international comparisons of aggregate productivity because some countries have greater specialisation in economic activities with relatively high levels of productivity, while others may have an industry mix skewed

toward low productivity — more labour intensive — activities. This can limit the extent of productivity catch-up that is feasible (Dolman, Parham & Zheng 2007).

There are two widely accepted methods of defining industry structure, either using shares of gross value added or shares of total hours worked. The focus here is on labour productivity at the industry level therefore, the distribution of total hours worked between industries has been used to define industry structure.

Using this definition, the industry structure in the 22 OECD countries represented in the EU Klems database in 2005, was compared to Australia using a correlation analysis. By way of example, Chart 2 displays the industry structures of the US and Australia which have a correlation coefficient (R^2) of 0.928, reflecting a very strong similarity between the industry structure in the two countries, with both having a high proportion of labour employed in service industries, such as property, retail, construction, health and education.

Chart 2: Australia and US industry structure, 2005
Industry share of total hours worked, per cent

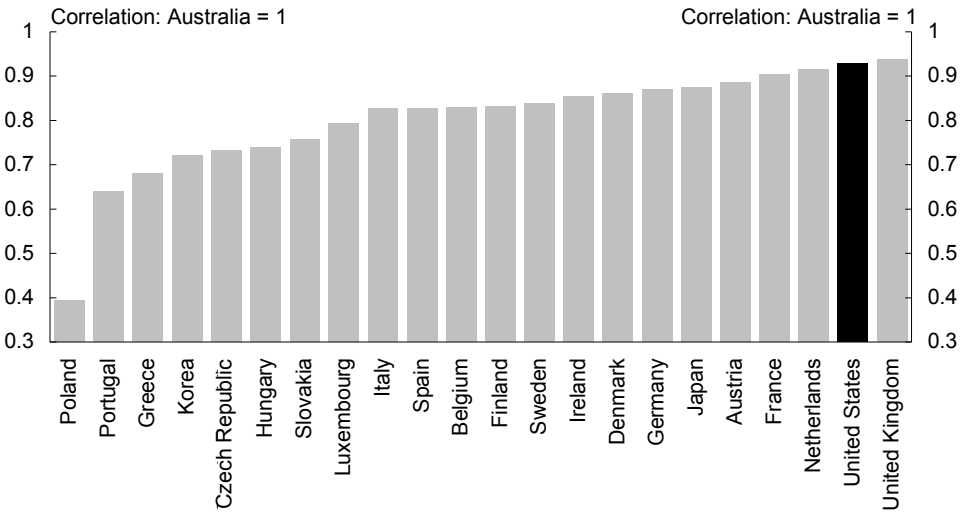


Source: EU Klems database (March 2008) and authors' calculation.

Chart 3 shows the correlation coefficient of shares of hours worked in 16 industries for 22 OECD countries, ranked in order, from least to most similar to Australia. Australia was used as the base, therefore Australia correlated against itself provided a correlation coefficient of 1. The UK with a correlation coefficient of 0.938 had the most similar industry structure to Australia, the US was next and Poland was last with an R^2 of 0.395. While the EU Klems database currently does not include Canada, calculations

using the GGDC *60 Industry database* indicate that Canada's industry structure may be more similar to Australia's than the UK's.

Chart 3: Correlation of industry hours worked shares in selected OECD countries with Australia, 2005



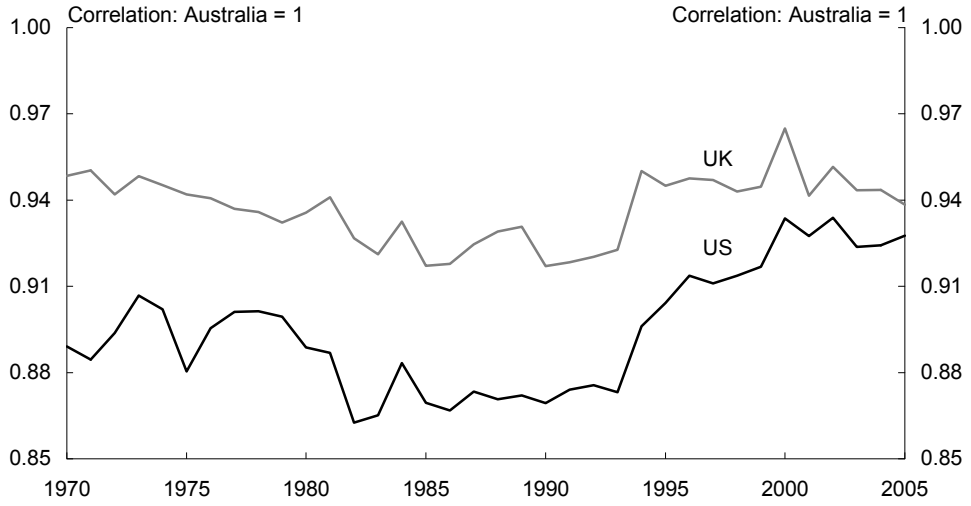
Source: EU Klems database (March 2008) and authors' calculation.

The correlation coefficients for the UK and US, the two countries whose industry structure bore the most similarity to Australia's, reveal that Australia's industry structure has become more like that of the US over the past decade, while remaining fairly stable against the UK industry structure (Chart 4).

The extent to which differences in industry structure between Australia and the US explain productivity differences between the two countries can be measured by comparing actual output in Australia to a hypothetical case in which Australia has the same industry structure as the US. The productivity levels within each industry in Australia are not changed, but the allocation of resources between industries in terms of hours worked are set to that of the US in each year.

The ratio of actual output to hypothetical output measures the extent to which output would have been different in Australia had the economy had the same industry structure as the US. If the ratio differs greatly from 1, industry structure is significant in explaining differences in aggregate output (and productivity). If the ratio is below 1, then, with unchanged Australian industry productivity, Australian aggregate productivity would be higher if Australia had US industry shares. That is, it could be concluded that the US has higher aggregate productivity because it has higher productivity industries.

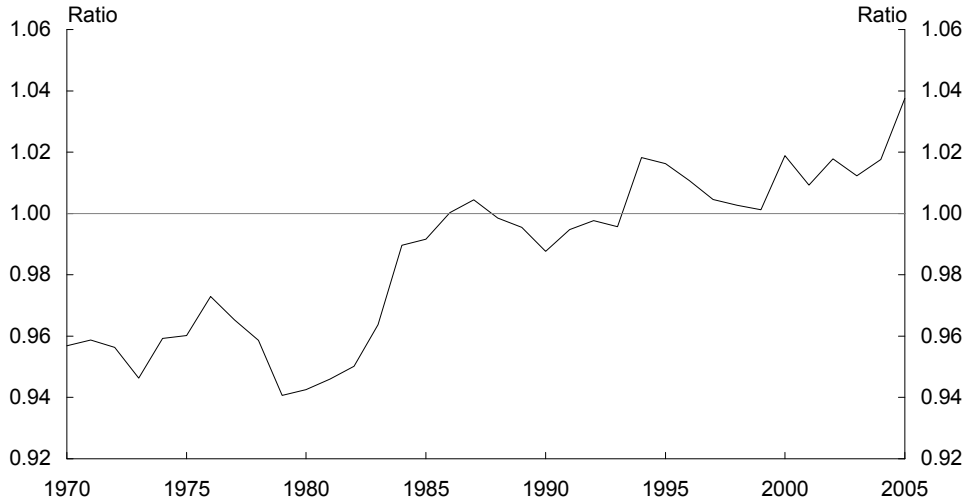
Chart 4: Correlation of industry shares in the US and UK with those in Australia, 1970-2005



Source: EU Klems database (March 2008) and authors' calculation.

Industry structure appears to have mattered in the past (Chart 5). In the 1970s through to the early 1980s, had Australia had the US industry structure, Australia's total output would have been up to 6 per cent higher. That is, in those years, Australia had relatively more low-productivity industries than the US.

Chart 5: The effect of industry structure on output in Australia (the ratio of actual to hypothetical output)



Source: EU Klems database (March 2008) and authors' calculations.
Note: A ratio below 1 means that Australia would have higher output if it had the same industry structure as the US, above 1 means that Australia would have lower output if it had the same industry structure as the US.

The ratio of actual to the hypothetical output has been around 1 between the late 1980s and late 1990s, suggesting that industry structure has not made too much of a difference to Australia's aggregate output during that time.

However, since 2000, with a US structure Australia would have had lower output and productivity. This result serves as a reminder of caution about assuming that there is an optimal industry structure. Industry structure should be determined by relative price signals in a market economy which, absent relevant externalities, ensures the allocation of resources to their most productive use and allows an economy to specialise in its area(s) of comparative advantage.

The importance of industry structure to bridging the aggregate productivity gap between Australia and the US has diminished since the mid 1980s as Australian industry structure has become more similar to that of the US. Therefore it follows that productivity differences within industries between Australia and the US must be playing a more prominent role.

Productivity differences within industries

This section explores relative productivity levels and growth rates over the 1990s and early 2000s to discern which Australian industries were catching up to US productivity levels in those periods. In understanding this analysis, it is important to acknowledge a range of measurement and methodological issues that should be taken into consideration when making international comparisons of industry productivity. These issues are summarised in Box 2.

Australian-US productivity differences within industries can be shown graphically (Charts 6, 7 and 8). The level of productivity in each industry is expressed relative to the US productivity level in that industry (Lewis 2004). A ratio of 100 means that productivity levels are the same in the two countries. Australian industries with higher productivity levels relative to the US record a ratio above 100, while industries with lower productivity levels have a ratio below 100.

Here we look at industry productivity differences in 1990, 2000 and 2005. The first two years have been selected as they were the most recent two years when both economies were simultaneously at their business cyclical peaks. The most recent data available is for 2005. Comparative statics are useful for measuring the effects of changes over time, but do not account for the causation or path of growth, therefore care should be taken when analysing this data, given the limitations (see Box 2).

Box 2: Measurement and methodological issues

A number of measurement and methodological issues make international comparisons of industry productivity problematic.

It is not easy to measure output and inputs separately in some industries. Methods of measuring output for many industries are different across countries or depend on uncertain links with wages. This is why the ABS focuses on productivity in the market sector, which includes manufacturing and construction but not government administration. Similarly, the US Bureau of Labor Statistics publishes data for the private business sector. This presents difficulties when trying to interpret the results for non-market sector industries presented in this paper.

Inputs and outputs are also generally measured in terms of value added. This presents another difficulty in international analysis of productivity levels as we must choose an exchange rate to compare national data. Using market exchange rates is not appropriate for this purpose as they do not always reflect relative price differences between countries. For example, if an industry had lower prices in Australia than in the US, productivity in that industry would be understated in Australia relative to the US. The standard method used in international comparisons, which this paper also uses, is to convert national currency estimates of productivity into purchasing power parity (PPP) US dollar equivalents using standard PPP exchange rates.

However, using standard PPP exchange rates to compare industry productivity levels has problems because these exchange rates do not take into account within-country relative price differences. For example, if an industry has lower prices relative to other goods in Australia than in the US, then using standard PPP exchange rates would still understate productivity in that industry in Australia relative to the US. This might be the reason why agriculture appears to be less productive in Australia than in the US.

The alternative to using economy-wide PPP exchange rates is industry-specific PPP conversion; however the quality of conversion factors used across industries can vary greatly. Timmer, Ypma & Van Ark (2008) have recently developed a set of industry specific output PPPs designed to overcome these difficulties but have noted they are limited in their scope to provide accurate international comparisons of value added and total factor productivity in a full-scale EU Klems framework.

Productivity growth varies with the business cycle (Basu & Fernald 2000; Rahman & Tunny 2006). As a result, care needs to be taken in choosing the year of comparison for analysis. If the comparison is made in a year when the Australian economy is growing strongly but the US economy is in recession, then this would overstate relative productivity in Australia. This paper uses comparative statics to analyse the productivity differences in 1990, 2000 and 2005. The first two years have been selected as they were the last two years when both economies were simultaneously at their business cyclical peaks. The most recent data available is for 2005. Comparative statics are limited inasmuch as it compares relative productivity levels at different points in time, but does not study the cause, motion or progress of change. As a result, care should be taken in making policy recommendations.

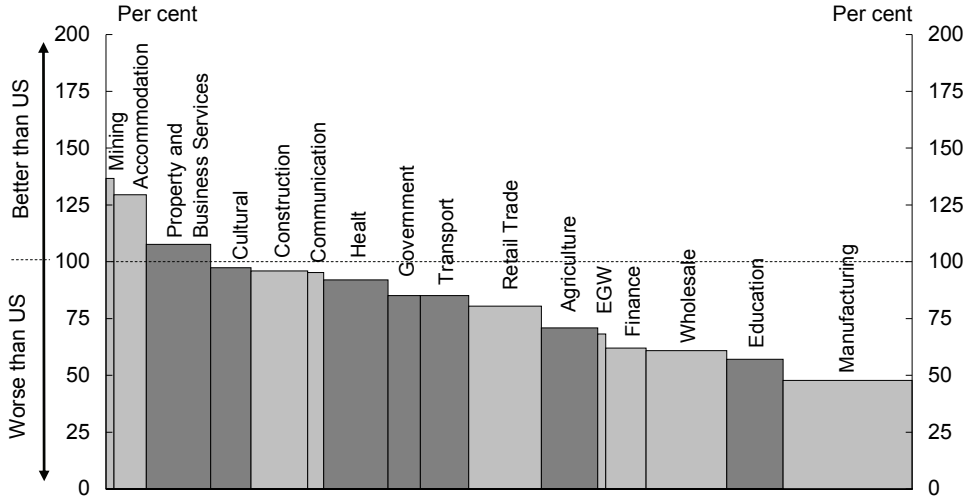
In Charts 6, 7 and 8, the width of each column is calculated using the industry's share of hours worked in the Australian economy. To simplify the presentation, data for the 71 industries provided in the EU Klems database are summarised into 16 industries that are broadly similar to the industry classification used by the ABS. Small industries within these broader groups can have a strong influence on productivity if they have very high or very low productivity. As a result, countries with identical industry productivity might have very different results at this level of aggregation due to different structures within the broader industry groups.

The resulting charts provide a simple view of industry productivity differences between the two countries and the relative importance of industries for Australia. The vertical axis represents the relative productivity level — taller industries are more productive relative to the US; and the horizontal axis reflects the industry structure — wider industries make up larger parts of the Australian economy in terms of hours worked. For example, in 1990 mining accounted for around 1 per cent of the Australian economy and was more than 30 per cent more productive than the mining industry in the US (Chart 6). Manufacturing accounted for around 15 per cent of the Australian economy and was half as productive as the US.

Productivity differences within industries between 1990 and 2000

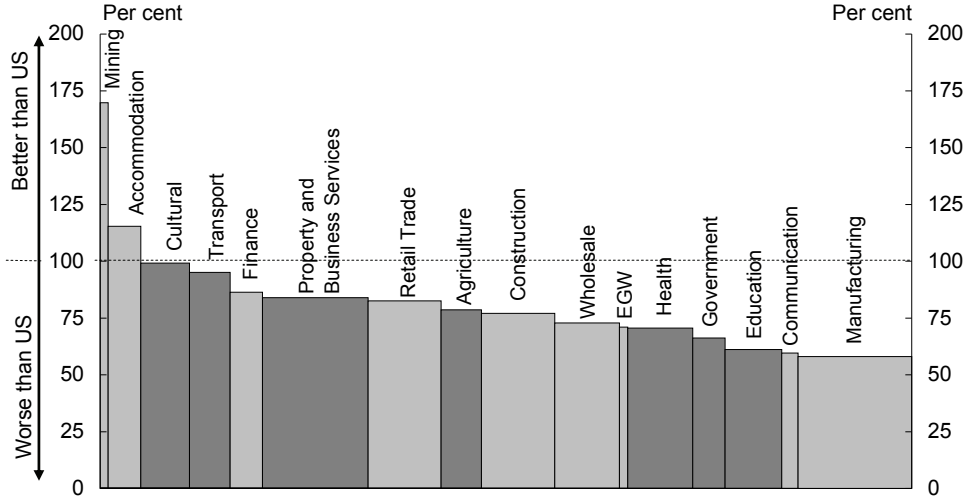
Charts 6 and 7 show productivity levels relative to the US in 1990 and 2000. A comparison of the two charts reveals movements in industries in terms of rankings, productivity improvements and changes in industry structure between 1990 and 2000.

Chart 6: Productivity levels in Australian industries relative to the US, 1990



Dark grey industries are where data contain significant measurement or methodological issues (see Box 2).
Source: EU Klems database (March 2008) and authors' calculation.

Chart 7: Productivity levels in Australian industries relative to the US, 2000



Dark grey industries are where data contain significant measurement or methodological issues (see Box 2).
Source: EU Klems database (March 2008) and authors' calculation.

A comparison between 1990 and 2000 reveals significant movement between industries in the period. Table 1 displays each industry categorised by its productivity performance relative to the US in 1990 and 2000. The categories separate those industries that surged ahead, caught up, lost ground or fell behind. Industries surged ahead if in 1990 they were ahead of US productivity and in 2000 increased their lead further. Industries caught up if they had productivity levels lower than the US in 1990 and experienced faster productivity growth than the US during the 1990s. An industry lost ground if in both 1990 and 2000 it was ahead of US productivity but had lower relative productivity in 2000. An industry fell behind if it was below the US in 1990 and experienced slower productivity growth than the US. The table also displays the industry structure in terms of hours share.

Of the industries whose productivity exceeded that of the US in 1990, only mining surged ahead during the period with productivity in 2000 almost 70 percentage points above that of the US. Finance displayed the largest improvement while wholesale trade, manufacturing and transport, agriculture, education, utilities (electricity, gas and water), retail trade and cultural services also improved. Of these, measurement and methodological issues make it difficult to interpret the results for transport, agriculture, education and cultural services. However, reforms over the past quarter century opened many of these industries to competition, fostering innovation and investment, and generating faster productivity growth.

Table 1: Australia's industry productivity as a percentage of US industry productivity

Industry	Industry structure by hours share 1990	2000	Australian productivity by industry sector relative to US 1990	2000	Difference
Surged ahead					
Mining	1.4	1.1	136.6	169.7	33.1
Caught up					
Finance	4.6	3.9	61.9	86.3	24.4
Wholesale Trade	10.6	8.3	60.9	72.8	11.9
Manufacturing	15.7	13.5	47.7	58.0	10.3
Transport*	5.4	5.3	85.0	95.0	10.0
Agriculture*	6.8	5.6	70.8	78.5	7.8
Education*	6.4	6.7	57.1	61.2	4.1
Electricity, Gas & Water	1.3	0.8	68.2	71.0	2.8
Retail Trade	9.5	9.1	80.5	82.6	2.1
Cutural*	5.0	5.8	97.3	99.2	1.8
Lost ground					
Accommodation	3.8	4.6	129.5	115.3	-14.1
Fell behind					
Government*	4.5	4.0	85.0	66.2	-18.8
Construction	7.7	8.4	95.9	77.0	-18.9
Health*	7.5	8.4	92.0	70.6	-21.4
Property*	8.0	12.6	107.6	83.9	-23.7
Communications	1.9	2.1	95.2	59.6	-35.6

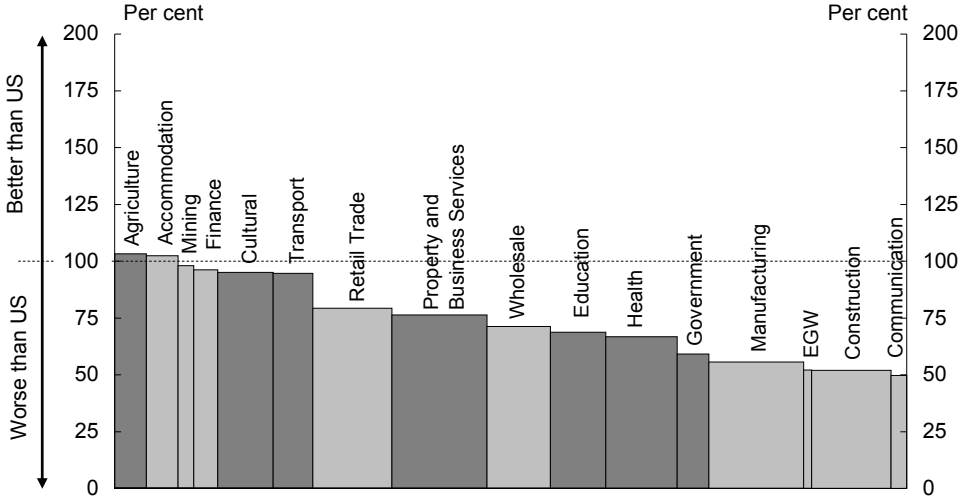
* Data containing significant measurement or methodological issues (see Box 2).
Source: EU Klems database (March 2008) and authors' calculation.

Accommodation lost ground over the period, while government services, construction, health, property and business services and communications all fell behind. Of these, measurement and methodological issues mean that only the results for construction and communications can be viewed with confidence. The pre-GST housing boom in the lead up to 2000 contributed to the decline in productivity in construction relative to the US, as the industry mix transitioned to the relatively more labour intensive activity of housing construction. As more labour was utilised to increase the housing stock, the construction industry share also increased. Meanwhile, the communications industry fell further behind as the US communications industry surged ahead in response to the rapid growth of ICT manufacturing.

Productivity differences within industries between 2000 and 2005

Chart 8 shows productivity levels relative to the US in 2005. A comparison of Charts 7 and 8 reveals significant movement between industries in the period. Table 2 displays each industry categorised by its productivity performance relative to the US in 2000 and 2005.

Chart 8: Productivity levels in Australian industries relative to the US, 2005



Dark grey industries are where data contain significant measurement or methodological issues (see Box 2).
Source: EU Klems database (March 2008) and authors' calculation.

None of the industries whose productivity exceeded that of the US in 2000 surged ahead during the five years to 2005. Indeed, mining, which had surged ahead during the 1990s, actually fell, with productivity only 98 per cent that of the US.

Slower mining productivity growth in Australia than in the US is likely due to the commodity boom. In response to a large increase in commodity prices there has been a rapid increase in investment and labour in the mining sector. As Table 2 shows the share of hours worked in the mining sector increased from 1.1 to 1.6 per cent between 2000 and 2005. However, this is not yet reflected in higher output (Ewing, Fenner, Kennedy & Rahman 2007).

In previous mining booms in the late 1970s and early 1980s it took around five years for the increase in mining investment to be translated to high growth in output (Gruen & Kennedy 2006). Furthermore, declining production in the oil sector (which has relatively high productivity within the mining sector) has also subtracted from productivity growth in mining.

Table 2: Australia's industry productivity as a percentage of US industry productivity, 2000-2005

	Industry structure by hours share		Australian productivity by industry sector relative to US		
Industry	2000	2005	2000	2005	Difference
Caught up					
Agriculture*	5.6	4.1	78.5	103.3	24.7
Finance	3.9	3.9	86.3	96.2	9.9
Education*	6.7	6.8	61.2	68.8	7.6
Lost ground					
Accommodation	4.6	4.3	115.3	102.4	-12.9
Fell behind					
Transport*	5.3	5.1	95.0	94.7	-0.3
Wholesale	8.3	7.7	72.8	71.3	-1.5
Manufacturing	13.5	11.6	58.0	55.7	-2.3
Retail	9.1	10.1	82.6	79.3	-3.3
Health*	8.4	9.1	70.6	66.8	-3.9
Cutural*	5.8	6.2	99.2	95.1	-4.0
Government*	4.0	4.5	66.2	59.1	-7.1
Property*	12.6	12.3	83.9	76.4	-7.5
Communications	2.1	2.0	59.6	49.7	-9.9
EGW	0.8	1.0	71.0	52.2	-18.9
Construction	8.4	9.7	77.0	51.9	-25.1
Mining	1.1	1.6	169.7	98.1	-71.6

* Data containing significant measurement or methodological issues (see Box 2).
Source: EU Klems database (March 2008) and authors' calculation.

Manufacturing, wholesale and retail trade, all of which caught up with the US during the 1990s, fell behind in the early 2000s. These three industries make up almost a third of hours worked in the Australian economy and a quarter of gross value added. As such, any productivity differences in these industries relative to the US have the potential to significantly affect the degree of catch up in productivity that might be obtainable.

In the early 2000s, finance, education and agriculture continued to catch up with the US, with productivity in finance and agriculture almost the same as in the US. Measurement and methodological issues make it difficult to interpret the results for agriculture and education. With respect to finance, it is likely that the financial market reforms of the 1990s and early 2000s and investment in new ICT capital are continuing to have a positive effect on productivity in the financial sector.

During the 1990s these industries benefited from regulatory reforms, adoption of new technology, competition and rationalisation in these industries over the period (DIISR 2008). However, these benefits may have been one-off, rather than having an ongoing influence on productivity growth. Indeed, productivity growth in Australian manufacturing and wholesale and retail trade during the early 2000s was slower than in the US.

It may be that in these industries the extent to which Australia can catch up to the US productivity is limited by other factors, such as geography (Wilkie & McDonald 2008). Australia's market is small and fragmented and for much of Australia's history tariff barriers isolated its manufacturing firms from large foreign markets. As a result, Australian manufacturers are unable to access the same economies of scale that firms in the United States are able to access in their own large and well integrated domestic market. Similarly, geography and population settlement patterns in the US provide economies of scale in warehousing and distribution.

Another factor that may limit Australia's ability to close the productivity gap within the manufacturing industry is differences in comparative advantage — an ideal industry structure will reflect comparative advantage. For example, Australia has a comparative advantage in mining due to its abundant natural resources. The US has a comparative advantage in ICT manufacture and as a result ICT manufacture grew rapidly as a share of total manufacturing during the 1990s. Australia does not have a comparative advantage in ICT manufacture and we would not expect Australia's ICT manufacture as a share of total manufacturing to expand greatly.

However, comparative advantage does not affect Australia's ability to adapt and use ICT technology to boost its productive capacity. As productivity improves in overseas ICT manufacture and competition continues to lower the prices of ICT, Australia will continue to benefit from terms-of-trade and further productivity gains as Australian firms innovate and adapt ICT technologies (Dolman, Parham & Zheng 2007).

Concluding remarks

This paper has used industry level data from the EU Klems project to shed light on Australia's aggregate productivity gap with the US. It shows that Australia and the US have a very similar industry structure in terms of hours worked, with Australia becoming more like the US over time. As such, it appears that differences in productivity between Australia and the US are not due to industry structure but instead are due to productivity differences within some specific industries. For example, manufacturing, distributive trades and some other services form a large proportion of Australia's economy and performed poorly in comparison to US productivity levels.

Australia's geography, size and settlement patterns appear to be an ongoing limiting factor which may affect the extent to which Australian industries can close the productivity gap with their US counterparts. Governments can do nothing to affect geography; however they can ensure that Australia has the right policy settings, maintaining good macroeconomic and microeconomic frameworks to allow the

efficient allocation of resources to their highest productive use. Appropriate policy settings play a supporting role to enable sound investment decisions by private firms.

If Australia's aggregate productivity is to catch up further with US productivity, it will be the result of decisions made at the industry and firm level. Policy settings fostering open competition, flexibility and innovation will assist firms and industries in making optimal choices, as will the removal of distortions around participation and investment.

Productivity enhancements in the area of government services such as utilities (electricity, gas and water), health and education would also be of benefit. Reforms to increase the efficiency of public service provision and network industries of utilities, transport and infrastructure can assist in addressing the productivity gap.

Productivity improvements usually arise from a larger ongoing reform process and are likely to be one of the benefits of reforms enacted within the National Reform Agenda. The Productivity Commission (2006) estimate that improving productivity and efficiency through the three streams — competition, regulatory reform and human capital (education and health) — could have substantial impacts on Australia's aggregate performance.

Future research could extend the paper's analysis in a number of ways. Although this paper used aggregate PPP exchange rates, the use of industry PPP exchange rates is preferable when comparing industry productivity levels across countries. A set of industry-specific PPPs is being developed for use with the EU Klems framework (Timmer, Ypma & Van Ark 2008). As these rates become available, they should be used to replicate the above analysis. This research could also benefit from firm level analysis, either econometric or case study, to establish the impact of microeconomic reform on firm-level productivity. The imminent release of the ABS' Business Longitudinal Database (BLD) should aid future research. The BLD will contain data to enable the identification and understanding of possible drivers of firm-level productivity growth and performance more generally and the capacity of businesses to undertake those activities.

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