4 The labour share: aggregate perspective

This chapter returns to Australia’s market sector and seeks further proximate explanations for the fall in the labour income share.

The chapter takes the following course.

* Section 4.1 reviews trends in the labour income share in the market sector over the 1990s and 2000s.
* Section 4.2 reiterates the explanation for the fall in labour share in terms of a stronger acceleration in capital income than in labour income.
* Sections 4.3 and 4.4 find explanations in terms of:
* increased capital intensity
* a gap between real wage growth and labour productivity growth.
* Section 4.5 provides a summary.

## 4.1 The labour income share in the market sector

The labour income share (LIS) was generally flat over the course of the productivity decade, but fell markedly over the terms of trade decade.

### Income shares over the past two decades

ABS estimates of the LIS in the market sector of the economy are used to examine trends. The market sector is used for three reasons.

First, the ABS only apportions the income of proprietors (who provide a combination of capital and labour services) into a capital component and a labour component for the market sector.

Second, use of the market sector avoids complications that arise from the inclusion of ownership of dwellings (capital income only) and industries in the government sector (no return on capital).

Third, the use of market sector data on the LIS allows the analysis to be integrated with productivity estimates that are better-formed with respect to the market sector.

Data for the 12-industry market sector (MS12) are used in the rest of this paper, because they encompass all of the 1990s, as well as the 2000s. The data for the 16‑industry market sector (MS16) do not span the 1990s.

#### The 1990s

Australia’s labour income share changed little overall in the productivity decade of the 1990s. Although there was a rise in the early part of the decade, its significance can be heavily discounted as it was a temporary change associated with the recession at that time.[[1]](#footnote-1) The LIS declined by 2 percentage points between 1989-90 and 1999-00, on the raw data (figure 4.1). In another long-term ABS series, in which some of the year-to-year volatility has been removed, the LIS did not change over the decade.[[2]](#footnote-2) The ACTU (2013) study shows and notes no overall change in the LIS over the 1990s.

#### The 2000s

The LIS clearly fell more sharply, however, over the terms of trade decade. It fell by 4 percentage points in both the 12-industry and 16-industry market sectors[[3]](#footnote-3) between 1999-00 and 2009-10 (figure 4.1). The LIS fell further, but recovered, over the following two years.

By way of comparison, the ACTU (2013) study reports a fall in the LIS of 5.8 percentage points between 1999-00 and 2011-12. The ACTU paper canvasses a range of methods which provide results that are different in degree, but all show there has been a large fall in the LIS over the 2000s. The 4 percentage points gap presented here, based on ABS market sector data, would appear to be at the low end of the range of estimates.

Figure 4.1 Labour income share in Australia’s 12-industry market sector (MS12) and 16-industry market sector (MS16)

per cent

|  |
| --- |
| Labour income share in Australia’s 12-industry market sector and 16-industry market sector. This figure shows that the labour income share in the 12-industry market sector was basically steady in the 1990s apart from a rise in the early 1990s recession. It fell in the 2000s. The labour income share in the 16-industry market sector is higher but followed the same pattern through its shorter time span. |

a The coverage of the 12-industry and 16-industry market sector is outlined in box 2.1.

*Data source*: ABS (Cat. no. 5260.0.55.002).

## 2 Relative growth in capital and labour income

The previous chapter noted that economy-wide capital income grew faster than labour income in the 2000s. This was also true for the market sector.

### Growth in capital income exceeded growth in labour income

The fact that there was more growth in capital income than in labour income in the 2000s meant that, by definition, the labour income share fell. Figure 4.2, which shows in the right panel that capital income more than doubled between 1999-00 and 2009-10, whereas labour income grew 80 per cent. In terms of annual average rates, capital income grew 1.6 percentage points faster than labour income (table 4.1).

#### There was no reduction in growth in labour income

As suggested in the previous chapter, and unlike what happened in the US, the labour income share did not fall as a result of a slowdown in growth in labour income. In fact, as figure 4.2 shows, nominal labour income grew more in the 2000s decade (80 per cent) than it did in the 1990s (55 per cent). The annual average rate of growth was 1.5 percentage points faster in the 2000s decade (table 4.1).

Figure 4.2 Cumulative growth in labour and capital income and the labour income share in the 1990s and the 2000s

per cent

|  |  |
| --- | --- |
| *1990s* | *2000s* |
| Cumulative annual growth in labour and capital income and the labour income share in the 1990s and the 2000s. This figure shows that, in the 1990s, growth in capital and labour income was closely aligned and so the labour income was steady. In the 2000s, there was stronger growth in capital income than in labour income and so the labour income share fell. | Cumulative annual growth in labour and capital income and the labour income share in the 1990s and the 2000s. This figure shows that, in the 1990s, growth in capital and labour income was closely aligned and so the labour income was steady. In the 2000s, there was stronger growth in capital income than in labour income and so the labour income share fell. |

*Data source*: ABS (Cat. no. 5260.0.55.002).

Table 4.1 Growth in labour, capital and total income, 1990s and 2000s

per cent per year

|  |  |  |  |
| --- | --- | --- | --- |
|  | 1989-90 to 1999-00 | 1999-00 to 2009-10 | Percentage point change |
| Total income | 4.5 | 6.6 | 2.0 |
| Labour income | 4.3 | 5.8 | 1.5 |
| Capital income | 4.9 | 7.5 | 2.6 |
| Difference (cap - lab) | 0.6 | 1.6 | 1.1 |

*Source:* Author’s estimates based on ABS (Cat. no. 5260.0.55.002).

#### There was a stronger acceleration in capital income

Capital income growth exceeded labour income growth in the 2000s because capital income accelerated more than labour income, from their growth rates of the 1990s. The growth rates of capital and labour were similar in the 1990s, with capital income growing around 60 per cent or at a rate of 4.9 per cent a year. In the 2000s, capital income grew an additional 50 percentage points or at 7.5 per cent annual average rate. The 2.6 percentage points acceleration in the rate of capital income growth rate compares with the 1.5 percentage points acceleration in the labour income rate.

## 3 Factor proportions and relative rewards

The stronger growth and acceleration in capital income, relative to labour income, could be due to one or a combination of:

* a quantity effect
* the quantity of capital used increases relative to the use of labour
* this would be a ‘factor proportions’ contribution;
* a price effect
* the rate of payment of income to capital increases, relative to the rate of payment to labour
* this would be a ‘relative rewards’ contribution.

The objective in this section is to discover whether the quantity or price effect dominated in the 2000s.

In the assessment that follows, the capital-labour ratio (*K/L*) is defined in terms of capital services delivered (*K*) and hours of work provided (*L*). The reward ratio (*w/r*) is formed from labour income divided by hours worked and capital income divided by the productive capital stock. The wage rate is therefore the average hourly cost of labour (*w*). The gross rate of return (*r*) is the average gross return on capital, before tax, depreciation and interest.[[4]](#footnote-4)

### Factor proportions, reward ratios and the labour income share

The capital-labour ratio tends to increase over time. For the LIS to remain constant in these circumstances, growth in the reward ratio (wage rate to rate of return) has to match growth in the capital-labour ratio. A fall in the LIS means that growth in factor proportions exceeds growth in the reward ratio (box 4.1).

|  |
| --- |
| Box 4.1 Changes in the LIS and quantity and price contributions |
| One way to capture the relationship between changes in the labour income share (LIS) and quantity and price effects is to express the ratio of the LIS and the capital income share (KIS) in terms of their quantity and price components.    where *K* is capital services, *L* is hours worked, *w* is the nominal average hourly wage rate, *r* is the rate of return on capital and *Y* is nominal output.  To put this relationship in growth rate terms:    where the hat symbol ‘^’ over a variable refers to a growth rate in that variable.  If the LIS remains constant, so does the KIS (because KIS = 1- LIS). In this case the left hand side equals zero and the condition for that result is that growth in the capital labour ratio is equal to the growth in the reward ratio.  A decrease in the LIS will mean that the left hand side is negative and growth in the capital-labour ratio is greater than growth in the reward ratio. However, the size of the gap between growth in the price and quantity ratios does not indicate the extent of the decline in the LIS. |
|  |
|  |

The 1990s experience provides an illustration, albeit an inexact one. The labour income share was mostly flat and, as figure 4.3 (left panel) shows, growth in the capital-labour ratio and the reward ratio were fairly closely aligned over the decade.[[5]](#footnote-5)

The 2000s, when the LIS fell more markedly, were different. As the right-hand panel of figure 4.3 shows, the capital-labour ratio grew much more (53 per cent) than the wage-return ratio (32 per cent).

However, the growth in the quantity and price ratios should be treated as orders of magnitude, rather than as precise estimates. As will be discussed in chapter 6, there is some uncertainty about the accuracy of the capital and rate of return estimates.

Figure 4.3 Cumulative annual growth in factor proportions and reward ratios and the labour income share, 1990s and 2000sa

per cent

|  |  |
| --- | --- |
| *1990s* | *2000s* |
| Cumulative annual growth in factor proportions and reward ratios and the labour income share, 1990s and 2000s. This figure show that, during the 1990s when the labour income share was stable, growth in the capital-to-labour ratio and the wage-to-return ratio were closely aligned. In the 2000s, when the labour income share fell, growth in the capital-to-labour ratio was much stronger than growth in the wage-to-return ratio. | Cumulative annual growth in factor proportions and reward ratios and the labour income share, 1990s and 2000s. This figure show that, during the 1990s when the labour income share was stable, growth in the capital-to-labour ratio and the wage-to-return ratio were closely aligned. In the 2000s, when the labour income share fell, growth in the capital-to-labour ratio was much stronger than growth in the wage-to-return ratio. |

a 1989-90 to 1999-00 and 1999-00 to 2009-10.

*Data source*: Author’s estimates based on ABS (Cat. no. 5260.0.55.002).

#### The quantity effect dominated

If the 1990s are taken as a benchmark in which ‘typical’ growth in the capital-labour ratio is approximately offset by ‘typical’ growth in the reward ratio[[6]](#footnote-6), the fall in the LIS in the 2000s can be attributed predominantly to an increased quantity effect. Factor proportions grew much more in the 2000s (70 per cent) than they did in the 1990s (34 per cent), whereas growth in the reward ratio was similar (32 and 26 per cent respectively). (See figure 4.3.)

Table 4.2 provides the comparisons in growth rates. The average annual rate of growth in the capital-labour ratio accelerated by 1 percentage point between the decades, whereas the rate of growth in the reward ratio remained stable.

#### The quantity effect was the result of an investment boom

The faster growth in the capital-labour ratio in the 2000s was due to more rapid growth in capital (table 4.2). While growth in hours worked picked up in the 2000s (a 0.5 percentage points faster rate), the 2000s investment boom lifted the rate of growth in the capital stock by even more (1.5 percentage points faster). Capital input growth was a very rapid 5.0 per cent a year on average over the first decade of the 2000s.

#### Increased growth in wages and profits largely offset each other

The rate of growth in wages and profits both lifted in the 1990s, but to about the same extent. Growth in nominal wage rates rose 1 percentage point and growth in rates of return rose 1.1 percentage points (table 4.2). And so, the growth in the reward ratio was approximately the same over the two decades.

Table 4.2 Rate of growth in factor proportions, reward ratios and their components**a**

per cent per year

|  |  |  |  |
| --- | --- | --- | --- |
|  | 1989-90 to 1999-90 | 1999-00 to 2009-10 | Percentage point change |
| Capital [K] | 3.5 | 5.0 | 1.5 |
| Labour [L] | 0.5 | 1.1 | 0.5 |
| K/L | 2.9 | 3.9 | 1.0 |
| Wage rate [w] | 3.8 | 4.8 | 1.0 |
| Profit rate [r] | 1.4 | 2.5 | 1.1 |
| w/r | 2.4 | 2.3 | -0.1 |
|  | -0.6 | -1.6 | -1.0 |

a See box 4.1 for derivation of relationships.

*Source*: Author’s estimates , based on ABS (Cat. no. 5260.0.55.002).

#### Labour and capital had stronger growth in both quantity and price terms in the 2000s

All labour and capital quantities and prices grew more rapidly in the 2000s (figure 4.4). On the labour side, the hours worked growth rate picked up from 0.5 to 1.1 per cent a year, and the rate of wages growth picked up from 3.8 to 4.8 per cent a year.

The growth in capital and labour inputs over the 2000s was strong by historical standards. The average rate of growth in hours worked of 1.1 per cent a year compares with a long-term average of 0.8 per cent a year.[[7]](#footnote-7) The average rate of growth in capital services of 5.0 per cent a year compares with a long-term average of 4.2 per cent a year.

Similar data on long-term average rates of growth in wages and rates of return are not available.

Figure 4.4 Growth in factor proportions, reward ratios and their components

per cent per year

|  |  |
| --- | --- |
| Growth in factor proportions, reward ratios and their components. This is a three part figure. The first part shows that while the capital-to-labour ratio accelerated in the 2000s, growth in the wage-to-return ratio. The second part shows that the acceleration in the capital-to-labour ratio was due to stronger acceleration in capital than in labour. The third part shows that while the wage rate and the gross rate of return both accelerated in the 2000s, they accelerated to the same degree. | |
| Growth in factor proportions, reward ratios and their components. This is a three part figure. The first part shows that while the capital-to-labour ratio accelerated in the 2000s, growth in the wage-to-return ratio. The second part shows that the acceleration in the capital-to-labour ratio was due to stronger acceleration in capital than in labour. The third part shows that while the wage rate and the gross rate of return both accelerated in the 2000s, they accelerated to the same degree. | Growth in factor proportions, reward ratios and their components. This is a three part figure. The first part shows that while the capital-to-labour ratio accelerated in the 2000s, growth in the wage-to-return ratio. The second part shows that the acceleration in the capital-to-labour ratio was due to stronger acceleration in capital than in labour. The third part shows that while the wage rate and the gross rate of return both accelerated in the 2000s, they accelerated to the same degree. |

*Data source*: Author’s estimates based on ABS (Cat. no. 5260.0.55.002).

## 4 Productivity and costs

The fall in the labour income share can be viewed in yet another way. The LIS is equivalent to the real unit cost of labour, which is the real *cost* of an hour of labour (the real wage) divided by the real *product* of an hour of labour (labour productivity). Box 4.2 demonstrates the equivalence between the LIS and real unit labour costs (RULC).

The real wage concept used in this context warrants explanation. Growth in real wages here is the change in the real cost of labour to producers. The nominal wage rate is the hourly cost of labour (all forms of compensation, including on-costs). The real cost of labour is measured with reference to movements in the prices of the goods and services for which the labour is engaged to produce. That is, movements in *product* prices are used to convert nominal wage costs into real wage costs. A real wage increase means the nominal cost of an hour of labour has risen faster than product prices.

This real wage is referred to as ‘the real product wage’ (RPW). As will be seen in chapter 7, it is important to distinguish between a real wage based on the prices of goods and services *produced* and a real wage based on the prices of goods and services *consumed*.

|  |
| --- |
| Box 4.2 The labour income share, growth in real wages and labour productivity and real unit labour costs |
| The labour income share is mathematically equivalent to the real unit cost of labour.  Real unit labour costs (*RULC*) are the real costs of labour ( divided by the number of units of output ():  (1)  The labour income share (*LIS*) is the nominal cost of labour () divided by the nominal amount of income ():      Real unit labour costs can be defined in terms of the real product wage (RPW) and labour productivity (LP). Multiplying and dividing (1) by the number of hours worked:    (2)  Equation (2) can be expressed in growth rate terms, where a hat ‘^’ over a variable signifies a growth rate in that variable:  (3) |
|  |

### Labour productivity and wages

According to the decomposition in box 4.2, a decline in the LIS means there is a decline in RULC, which in turn means that growth in real wage rates does not keep pace with growth in labour productivity (LP). The evidence from the 2000s (figure 4.5) bears this out.

#### Real wage growth did not keep pace with productivity growth in the 2000s

The real product wage moved mostly in line with LP growth during the productivity decade of the 1990s.[[8]](#footnote-8) There was little change in both RULC and the LIS (left panel of figure 4.5).

Figure 4.5 Cumulative growth in the real product wage (RPW), labour productivity (LP) and real unit labour costs (RULC) and the level of the labour income share (LIS),1990s and 2000s

index, 1999-00=100 (left hand side) and per cent (right hand side)

|  |  |
| --- | --- |
| *1990s* | *2000s* |
| Cumulative growth in the real product wage (RPW), labour productivity (LP) and real unit labour costs and the level of the labour income share, 1990s and 2000s. This figure shows that in the 1990s, when the labour income share was stable, real unit labour costs were stable and growth in the RPW and LP were closely aligned. In the 2000s, when the labour income share fell, real unit labour costs fell and growth in LP was stronger than growth in RPW. | Cumulative growth in the real product wage (RPW), labour productivity (LP) and real unit labour costs and the level of the labour income share, 1990s and 2000s. This figure shows that in the 1990s, when the labour income share was stable, real unit labour costs were stable and growth in the RPW and LP were closely aligned. In the 2000s, when the labour income share fell, real unit labour costs fell and growth in LP was stronger than growth in RPW. |

*Source*: Author’s estimates based on ABS (Cat. no. 5260.0.55.002).

However, growth in the RPW was about 9 percentage points below LP growth over the first decade of the 2000s (right panel of figure 4.5). In keeping with the growth gap, RULC declined by 9 per cent.[[9]](#footnote-9)

In terms of annual average rates, growth in the real product wage was 0.7 of a percentage point behind LP growth in the 2000s (table 4.3).

#### Growth in real wages slowed even more than productivity growth

It is well known that productivity growth slowed from the record highs achieved in the 1990s. A slowdown is reflected in the 0.8 of a percentage point slower decadal rate of growth in LP presented here (table 4.3).

However, the slowdown in real wage growth was even larger (figure 4.5). Annual average RPW growth was 1.2 percentage points slower in the 2000s than in the 1990s (table 4.3).

Table 4.3 Decomposition of growth in real unit labour costs into growth in the real product wage and growth in labour productivity

per cent per year

|  |  |  |  |
| --- | --- | --- | --- |
|  | 1990s | 2000s | Percentage point change |
| Real product wage (RPW) | 2.7 | 1.4 | -1.2 |
| – nominal wages | 3.8 | 4.8 | 1.0 |
| – output prices | 1.1 | 3.4 | 2.3 |
| Labour productivity (LP) | 2.9 | 2.1 | -0.8 |
| – real output | 3.4 | 3.2 | -0.2 |
| – hours worked | 0.5 | 1.1 | 0.5 |
| Real unit labour cost (RULC) | -0.2 | -0.7 | -0.5 |

*Source*: Author’s estimates based on ABS (Cat. no. 5260.0.55.002).

#### The slowdown in real wage growth was mainly due to faster output price inflation

Table 4.3 also provides a decomposition of the growth in the RPW into its nominal wage and product price components. Here, product prices refer to goods and services produced in the market sector[[10]](#footnote-10). Growth in RPW is, of course, equal to growth in the nominal wage less the rate of inflation in product prices.

The much stronger inflation in product prices was the main reason for the slower RPW growth in the 2000s. As noted before, nominal wages grew at a healthy 4.8 per cent a year, or 1 percentage point a year faster than in the 1990s. But a 2.3 percentage point acceleration in the rate of product price inflation more than offset the acceleration in nominal wage growth. And so, the rate of RPW growth fell.

The full decomposition of RULC growth for the 2000s is presented visually in figure 4.6.

Figure 4.6 Decomposition of 2000sa growth in RULC into elements of productivity and costs

per cent per year

|  |
| --- |
| Decomposition of 2000s growth in RULC into elements of productivity and costs. This figure shows that the moderate growth in the RPW was associated with very strong growth in nominal wages and strong growth in product prices. The stronger growth in labour productivity was associated with strong growth in output and moderate growth in hours worked. |

a 1999-00 to 2009-10.

*Data source*: Author’s estimates based on ABS (Cat. no. 5260.0.55.002).

## 5 Key point summary

* The labour income share in the market sector of the economy was stable over the 1990s, but fell 4 percentage points over the 2000s.
* This is at the low end of a range of estimates of the fall.
* The LIS fell in the 2000s because there was stronger growth in capital income than in labour income.
* Capital income more than doubled over the decade, whereas labour income increased by 80 per cent.
* But there was more growth in labour income in the 2000s (80 per cent) than in the 1990s (55 per cent).
* The fall in the LIS was predominantly associated with an increased quantity effect.
* Compared with the 1990s, there was much stronger growth in the capital‑labour ratio.
* Capital and labour both grew more rapidly in the 2000s.
* But the investment boom meant that growth in the capital stock picked up more than did growth in the use of labour.
* The reward ratio grew at about the same rate as it did in the 1990s.
* There was also stronger growth in both the wage rate and the rate of return in the 2000s.
* But they accelerated from the 1990s to about the same degree.
* The fall in the LIS is equivalent to a fall in real unit labour costs.
* This means that growth in the real product wage does not keep pace with growth in LP.
* The slowdown in growth in the real product wage in the 2000s was even greater than the slowdown in productivity growth.
* This was due to more rapid inflation in product prices in the 2000s.
* The growth in nominal wages was stronger in the 2000s than in the 1990s.

1. The LIS tends to rise in recessions, as businesses hoard labour and wages are ‘sticky’ or limited in their downward movements, while profits fall (chapter 3). [↑](#footnote-ref-1)
2. The ABS publishes two LIS series for the 12-industry market sector: one from 1989-90 and another from 1973-74, which contains two-period averages. The latter is presented in figure 3.3 in the previous chapter. [↑](#footnote-ref-2)
3. See box 2.1 in chapter 2 for the industry composition of the two market sectors. [↑](#footnote-ref-3)
4. Data from the ABS productivity accounts are used to generate the estimates in this section. Consequently, capital is measured as a capital services index and the gross profit rate is measured as an index of capital income per unit of capital service (and since capital services are proportional to the productive capital stock this index is also an index of the gross rate of return on the productive capital stock). While this does not conform to the normal concept of a gross rate of profit, a very similar pattern of divergence between the capital-labour ratio and the wage to gross profit ratio (as shown in figure 4.3) emerges if capital is measured as net capital stock. [↑](#footnote-ref-4)
5. Again, there was a temporary aberration in the early 1990s associated with the recession, when profit rates declined relative to wage rates. [↑](#footnote-ref-5)
6. There are no equivalent data to determine long-term trends. [↑](#footnote-ref-6)
7. The long-term averages provided in ABS data are from 1973-74 to 2007-08. [↑](#footnote-ref-7)
8. Again the aberration associated with the early 1990s recession is evident. [↑](#footnote-ref-8)
9. A decline in LIS from 57 to 53 per cent is a 7 per cent decline. The difference between 7 per cent and the 9 per cent decline in RULC is likely to be due to ‘rounding’, since the LIS is expressed only in terms of integers and not with decimal place precision. [↑](#footnote-ref-9)
10. Output prices are measured as implicit prices for value added — that is, the ratio of current‑price value added to the volume of value added. [↑](#footnote-ref-10)