

THE VICTORIAN ECONOMY IN THE 1989/90-1992/93 RECESSION

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ABSTRACT: The last major contraction experienced by the Australian economy took place over the period 1989/90 - 1992/93. In that recession aggregate employment fell by 7.5 percent in Victoria but only by 2.9 percent in New South Wales. This paper aims to do two things. First, to explain why there was such a large difference in the employment experience of the two states during the recession. Second, to demonstrate that more than one shift-share decomposition may be used in an attempt to isolate the contribution of industry-mix c.f. differential growth to the difference in the reduction in employment between the two states.

1. INTRODUCTION

Taken together, residents of New South Wales and Victoria make up around 60 percent of the national labour force (at least they did in the early 90s – the period which is the focus of this paper - today it is around 57 percent), so the performance of the labour markets in those two states is not unimportant as a determinant of national labour market indices such as the unemployment rate in addition to being rather important for the well-being of the residents of those two states. Both states were hit by the recession of the early 1990s, but Victoria more so than New South Wales. In 1989/90 the unemployment rate for persons was 4.6 percent in Victoria and 5.9 percent in New South Wales – indeed the Victorian rate had been below that of New South Wales for almost a decade. However during the recession which began in that year the unemployment rate for persons in Victoria rose by 6.8 percentage points to 11.4 percent in 1992/93 while that in New South Wales rose by only 4.7 percentage points to 10.6 percent in 1992/93.¹ It was to take another decade before the unemployment rate for Victoria was to again equal that of New South Wales.

In this paper we look at one aspect of this transformation in state unemployment rate relativities, the differing employment experience of the two states over the recession period 1989/90-1992/3. Employment fell much further in Victoria than it did in New South Wales during the contraction. Between 1989/90 and 1992/93 aggregate employment fell by 7.5 percent in Victoria but only by 2.9 percent in New South Wales. We are especially interested in assessing the relative contributions of industry mix and differential-growth

¹ This marked difference in the increase in unemployment during the course of the recession is seen in data for both males and females.

factors to the differing employment experience of the two states. Shift-share analysis would seem to be ideally suited to this and so we begin by wondering about the extent to which the different experience might be due to any differences in industrial structure in the two states.

2. SHIFT-SHARE ANALYSIS

It has become common for regional economists to assess the contribution of differences in industry structure to differences in aggregate regional employment growth by comparing the observed aggregate growth rates with one or more 'hypothetical' growth rates. Although most researchers and practitioners act as if there is only one possible way to compute the industry mix and differential-growth factors, there are, as we shall see, at least three different ways in which it might be done.

Aggregate employment growth in any one state (say Victoria, denoted in what follows by the subscript v) will equal the change in aggregate employment which we observe over the period divided by the level of employment in the base or initial period. So the Victorian aggregate employment growth rate (G_v) will be

$$G_v = \frac{\Delta E_v}{E_v}$$

where E_v is total employment in Victoria in 1989/90 and ΔE_v is the difference between employment in 1992/93 and 1989/90.²

Now the total change in employment (ΔE_v) is simply the sum of all the changes in employment in all of the (i) industries in the state, so we can write the above as

$$G_v = \frac{\sum_i \Delta E_{iv}}{E_v}$$

where E_i is employment in industry i .

Notice that the above may be written as

$$G_v = \sum_i \left(\frac{\Delta E_{iv}}{E_{iv}} \right) \left(\frac{E_{iv}}{E_v} \right) \quad (1)$$

where $(\Delta E_i/E_i)$ is the rate of growth of employment in industry i .

Which is to say that the observed aggregate employment growth rate for Victoria (indeed, for any region) is a weighted sum of the growth rates of employment in each industry in the state, where the weights are the proportion of total state employment to be found in that industry in the initial period.

By an analogous argument we can say that for any other region (say New South Wales, denoted in what follows by the subscript n), its aggregate

² In fact we are using yearly averages of quarterly data.

employment growth (G_n) is the weighted sum of the growth rates of employment in each industry in that state, where the weights are the proportion of total New South Wales employment to be found in that industry in the initial period. In other words:

$$G_n = \sum_i \left(\frac{\Delta E_{in}}{E_{in}} \right) \left(\frac{E_{in}}{E_n} \right) \quad (2)$$

where E_n is total employment in New South Wales, E_{in} is employment in industry i in New South Wales and $(\Delta E_{in} / E_{in})$ is the rate of growth of employment in industry i in New South Wales.

Subtracting (1) from (2) to gives an expression for the relative aggregate growth rates of employment in Victoria c.f. New South Wales. If we do this we obtain the following expression:

$$G_v - G_n = \left[\sum_i \left(\frac{\Delta E_{iv}}{E_{iv}} \right) \left(\frac{E_{iv}}{E_v} \right) \right] - \left[\sum_i \left(\frac{\Delta E_{in}}{E_{in}} \right) \left(\frac{E_{in}}{E_n} \right) \right] \quad (3)$$

It follows (obviously) that there are two ‘proximate’ sources of any difference in aggregate employment growth in Victoria compared with New South Wales. First, there may be a difference in the growth rates of one or more industries in Victoria compared with the growth rates for the same industries in New South Wales. Second, even if industry growth rates were the same in the two states, there may be differences in the structure of industry (that is, the weight given to the different industries) in Victoria compared with New South Wales.

In practice there are likely to be differences in both industry growth rates and in the structure of industry, so that both elements will be contributing to any recorded difference in the aggregate growth rates. The task facing the researcher is to find a mathematical rule which will enable us to decompose any difference in the aggregate employment growth rate in Victoria compared with New South Wales into two components: (i) that part which reflects differences in industry growth rates – i.e. it reflects differences between $(\Delta E_{iv} / E_{iv})$ and $(\Delta E_{in} / E_{in})$, and (ii) that part which reflects differences in the structure of industry - ie it reflects differences between (E_{iv} / E_v) and (E_{in} / E_n) . Often the first item is called the “differential growth” effect and the second the “composition” or “industry-mix” effect. Any analysis along these lines has come to be known as “shift-share analysis”.

While shift-share analysis is very popular in regional studies, different methods of de-composition have been adopted by different researchers. The differences relate to the (often implicit) choice of ‘weights’ that are applied to the two difference terms.

One very common method (but, as we will show, this only one among many methods) which might be used to separate out or ‘decompose’ the two elements involves computing a hypothetical employment growth rate for Victoria

assuming that each industry in Victoria grew at the New South Wales growth rate. This hypothetical growth rate would be calculated as³

$$\sum_i \left(\frac{E_{iv}}{E_v} \right) \left(\frac{\Delta E_{in}}{E_{in}} \right)$$

Now, let's go back to equation (3) and both add the above to and subtract it from the RHS of that equation. After some rearrangement we have

$$G_v - G_n = \left[\sum_i \left(\frac{E_{iv}}{E_v} \right) \left(\frac{\Delta E_{iv}}{E_{iv}} - \frac{\Delta E_{in}}{E_{in}} \right) \right] + \left[\sum_i \left(\frac{\Delta E_{in}}{E_{in}} \right) \left(\frac{E_{iv}}{E_v} - \frac{E_{in}}{E_n} \right) \right] \quad (4)$$

where the first term on the on the RHS of (4) informs us about the effect of differences in industry growth rates in Victoria compared with New South Wales; while the last term on the on the RHS of (4) informs us about the effect of differences in the structure of industry in Victoria compared with New South Wales.

Composition and differential growth components arrived at using this decomposition procedure are given in the first row of Table 1 which reports the results of computations based on ABS Labour Force Survey data where total employment is broken down into 53 industries at the 3-digit level.⁴ These results indicate that pretty much all of the difference in aggregate employment losses are attributable to differential growth between the same industry in the two states rather than the composition of industry.

Table 1. Composition and Growth Components of Aggregate Employment Growth Differences between Victoria and New South Wales 1989/90 – 1992/93.

Method	Composition effect	Differential Growth effect	Total Difference
Equation (4)	0.002	-0.048	-0.046
Equation (5)	-0.009	-0.037	-0.046
Equation (6)	-0.003	-0.042	-0.046

While the decomposition algorithm given in equation (4) is very commonly used,⁵ this is in fact not the only way to decompose the total growth difference into its 'differential growth' and 'composition' components. For example

³ Some people refer to this measure as "the proportionality shift in employment" (Perloff et al, 1960, p 71) or as the "industry mix component of regional employment growth" (Stilwell, 1969, p 163 and 1974, p 67).

⁴ The data is taken from the ABS Labour Force Statistics folder in the DX database. The industry classification used is given in Appendix A. In all of the Tables presented in this paper we will only report figures for persons, as essentially the same results in each case are obtained if males and females are studied separately.

⁵ For Australian examples see Productivity Commission (1998, p 42) and the Bureau of Transport and Regional Economics (2003, p 33).

instead of adding and subtracting $\sum (E_{iv}/E_v)(\Delta E_{in}/E_{in})$ to and from the RHS of (3) we could, with equal justification and add and subtract $\sum (E_{in}/E_n)(\Delta E_{iv}/E_{iv})$. If we did this and rearranged the resulting expression we would end up with

$$G_v - G_n = \left[\sum_i \left(\frac{E_{in}}{E_n} \right) \left(\frac{\Delta E_{iv}}{E_{iv}} - \frac{\Delta E_{in}}{E_{in}} \right) \right] + \left[\sum_i \left(\frac{\Delta E_{iv}}{E_{iv}} \right) \left(\frac{E_{iv}}{E_v} - \frac{E_{in}}{E_n} \right) \right] \quad (5)$$

The first term on the RHS of (5) informs us about the effect of differences in industry growth rates while the last term on the RHS of (5) informs us about the effect of differences in the structure of industry. But there is no reason why the differential growth and composition components calculated this way should yield the same answer as we would obtain if we calculated them according to equation (4).

Composition and differential growth components arrived at using this decomposition procedure (that is, applying equation (5)) are given in the second line of Table 1. These results again indicate that most of the differences in aggregate employment losses are attributable to differential growth between the same industry in the two states rather than the composition of industry. Comparing the first two rows of Table 1, we see that although the use of equations (4) and (5) can yield different signs and (slightly, in this case) different values to the composition and differential growth components, they both agree that the composition component is much smaller than the differential growth component.

Some authors have argued (we think compellingly) that faced with alternative ways of decomposing a difference into its component parts the best way to proceed is to calculate them both and then average them.⁶ The general principle to be invoked, as enunciated by Harris (1966, p. 97n), is that “when calculating the contribution of one variable to a difference determined by the operation of two variables as a product, the weights adopted are the mean values of the other variable. That is, in general

$$a'b' - ab = 1/2(a'+a)(b'-b) + 1/2(b'+b)(a'-a).”$$

When this expression is written using the notation given above, we have:⁷

$$G_v - G_n = \left[\sum_i \frac{1}{2} \left(\frac{E_{iv}}{E_v} + \frac{E_{in}}{E_n} \right) \left(\frac{\Delta E_{iv}}{E_{iv}} - \frac{\Delta E_{in}}{E_{in}} \right) \right] + \left[\sum_i \frac{1}{2} \left(\frac{\Delta E_{iv}}{E_{iv}} + \frac{\Delta E_{in}}{E_{in}} \right) \left(\frac{E_{iv}}{E_v} - \frac{E_{in}}{E_n} \right) \right] \quad (6)$$

The first term on the RHS of (6) is an estimate of the effect of differences in industry growth rates while the last term on the RHS of (6) is an estimate of the effect of differences in the structure of industry.

⁶ This is analogous to the familiar ‘index number problem’ in Economics.

⁷ It is easy to verify (by expansion and the cancellation of terms) that the expression is formally correct in the sense that the RHS equals the LHS.

Composition and differential growth components arrived at using this decomposition procedure (that is, applying equation (6)) are given in the last line of Table 1. These results also indicate that most of the differences in aggregate employment losses are attributable to differential growth between the same industry in the two states rather than the composition of industry.⁸

The data on employment which is the basis for the results reported in Table 1 above, includes self-employed and employers, as well as wage and salary earners and comes from the Labour Force Survey, which is a survey of households. A separate industry breakdown is available for wage and salary earners alone at the 2 digit level, where the whole economy is broken up into 17 sectors, with manufacturing as a single sector.⁹ This data is based on a survey of employers and thus acts as a check on the results reported in Table 1, which are based, as we have said, on a survey of households. Composition and differential growth components arrived at using the various decomposition procedures (that is, applying equations (4), (5) and (6)) applied to the wage and salary earners data are given in Table 2. These results also indicate that most of the difference in the reduction in aggregate employment between the two states is attributable to differential growth of the same industry in the two states rather than differences in the composition of industry between the two states.

Table 2. Composition and Growth Components of Aggregate Wage and Salary Earners Growth Differences between Victoria and New South Wales. 1989/90 – 1992/93.

Method	Composition effect	Differential Growth effect	Total Difference
Equation (4)	0.004	-0.043	-0.039
Equation (5)	0.001	-0.040	-0.039
Equation (6)	0.002	-0.041	-0.039

We have seen that all three decomposition algorithms and both data sets are telling us essentially the same thing about the role of industrial structure as an explanation for the different amounts by which employment fell in Victoria compared with New South Wales during the downturn. It is not important. So we now have to consider why there are such differences in the growth rates for the same industry in the two states.

⁸ It will be noted that in this case all three methods of computing composition and differential growth components yield quite similar results. This need not always be the case. See Dixon & Thirlwall (1975, Ch 8) for examples of data sets where they yield different results.

⁹ Again, the data is taken from the ABS Labour Force Statistics folder in the DX database. The industry classification used is given in Appendix B. Again, essentially the same results are obtained if males and females are studied separately.

3. THE REASONS FOR DIFFERENTIAL GROWTH IN VARIOUS INDUSTRIES

Looking at the individual industry elements which make up the composition and differential growth components arrived at by applying equation (6) to the employment by industry data sets (the figures for each individual industry are not reported in the paper as they would take up a large amount of space) we find that:

(a) In the case of the Labour Force Survey data set the large negative growth components are for Textiles clothing & footwear (-0.004), Personal and household goods retailing (-0.009), Accommodation cafes & restaurants (-0.009), Education (-0.005) and Health services (-0.007).¹⁰

(b) In the case of the Wage and Salary Earners data set the large negative growth components are for Manufacturing (-0.005), Retail trade (-0.010), Education (-0.006), and Health & community services (-0.006).¹¹

Since the two data sets are directing our attention to the same variables, and given that the Labour Force Survey data set has a finer industrial classification than the Wage and Salary Earners data set, we will concentrate on the set of industries identified there as having a large negative growth component. We begin with the reason for the dramatic fall in employment in Textiles clothing and footwear in Victoria over the period.

Commencing in the early 1980s in Australia there has been a sustained decline in assistance to manufacturing, largely due to the abolition of import quotas and progressive reductions in tariffs (Lloyd (2006) provides a good overview). One of the industries which experienced the largest tariff reductions has been a highly localised industry where tariff protection (and thus the lack of international competitiveness) was initially the highest, namely Textiles clothing and footwear.¹² To take just three examples from within this sector: the effective rate of protection for Knitting Mills fell from 222 percent in 1984/5 to 144 percent in 1989/90 and to 101 percent in 1992/3; the effective rate for Footwear fell from over 250 percent in 1984/5 to 111 percent in 1989/90 and to 67 percent in 1992/3, while; the effective rate for Clothing fell from 243 percent in 1984/5 to 105 percent in 1989/90 and to 66 percent in 1992/3.¹³ The result was a

¹⁰ The figures in parentheses are the industry's contribution to the differential growth components using the results obtained from applying equation (6). These industries alone account for 3/4 of the total (negative differential growth component of -0.042 as given in Table 1).

¹¹ The figures in parentheses are the industry's contribution to the differential growth components using the results obtained from applying equation (6). These industries alone account for 2/3 of the total (negative differential growth component of -0.041 as given in Table 2).

¹² Details may be found in Lloyd (2006), Industry Commission (1995a and 1995b) and Productivity Commission (2002).

¹³ The effective rate data is taken from Industry Commission (1995a). That publication also provides a history of reductions in the nominal rates of protection.

massive reduction in employment in these industries (between 1989/90 and 1992/3 employment in Textiles clothing & footwear in Victoria fell by 30 percent) which were concentrated in Melbourne and the other large cities in Victoria.

Before we discuss the reasons for the reduction in employment (relative to NSW) in the other sectors we think it useful to give some background to the, at times tumultuous, events which took place in Victoria in the late 80s and early 90s. A state Labor government with John Cain jr as leader was first elected to office in April 1982 and was re-elected in 1985 and 1988. It lost office in 1992. In its last period in office it “degenerate[d] into a fractious, impotent and financially embarrassed administration” (Consadine & Costar, 1992, p 1). It was also a period during which there was considerable tension between the State (Labor) government’s ‘keynesianism’ and the federal (Labor) government’s economic rationalism. In addition there were a series of major strikes (especially by tramways employees in early 1990 when trams blocked city streets for 5 weeks in disputes relating to the introduction of driver-only operation and the scratch ticketing system) and financial disasters (the collapse of the merchant bank Tricontinental - and with it the the State Bank of Victoria - and the Pyramid Building Society are the most prominent). Also, for various reasons, not all of which were of their own making, the Victorian Government was itself facing budgetary problems. In April 1990 the state Treasurer, Robert Jolly resigned and in August of that year John Cain resigned as leader and Joan Kirner became premier. At the next state election, in October 1992 “the ALP was swept from office in one of the biggest electoral landslides in the state’s history” (Consadine & Costar, 1992, p 9) and the Liberals under Jeff Kennett took office and immediately embarked upon a number of cost-cutting and revenue-raising exercises. The Liberal Party remained in power until October 1999.

Table 3 shows the numbers employed in Education and Health Services in New South Wales and Victoria over the period 1985/86 – 1995/1996. Clearly, the reductions in employment in Education and Health services in Victoria over the period we are interested in (1989/90 – 1992/93) cannot be attributed solely or even primarily to the actions of the Kennett government (as already mentioned, it did not come to power in Victoria until after October 1992, towards the end of the recession). To provide some perspective we report data beginning mid-way through the Cain government’s term (1984/5) and ending mid-way through the term of the Liberal government (1995/1996). A rough summary in relation to the number employed in Education would be that while it rose (albeit sometimes at a very low rate) in every year in NSW, it peaked in Victoria in 1989/90 – well before the Kennett government came to power - when it fell by about 4 percent and was roughly constant at this lower level for the rest of the period covered by the table. A similar evolution can be seen in employment in Health services except that here the peak year for employment in Victoria was in 1990/91 when it started to fall reaching its lowest level in 1994/95 – after the Kennett government came to power - after which it rose slightly. The reason for the lack of growth (by comparison with NSW) in employment in both sectors in Victoria is the reduction in state government spending on these sectors. In the

case of the Cain and Kirner Labour governments this was forced on them as budgetary pressure mounted and spending cuts could no longer be avoided. In the case of the Kennett government it was partly for this reason but it should not be forgotten that there was also a view on the part of the Liberal Party that public spending should be reduced as a matter of principle. Notice that we are not saying that the Kennett government was not responsible for a reduction in employment in the public sector – it was. Rather, we are saying that over the period we are interested in (1989/90-1992/93) and in the sectors under consideration (Education and Health) both Labour and Liberal governments contributed to the fall in employment in Victoria relative to New South Wales.

Table 3. Numbers Employed in Education and Health Services in New South Wales and Victoria over the period 1985/86 – 1995/1996 ('000s).

	Education		Health	
	NSW	VIC	NSW	VIC
1985/86	130.3	134.3	158.2	125.9
1986/87	147.9	130.9	159.8	130.7
1987/88	149.2	129.6	170.6	130.4
1988/89	150.8	134.4	182.7	143.1
1989/90	163.3	142.2	168.9	138.9
1990/91	167.7	137.2	180.8	151.3
1991/92	172.0	136.7	187.5	141.6
1992/93	172.8	139.7	185.4	138.3
1993/94	174.5	136.5	188.8	132.1
1994/95	180.7	138.7	190.4	131.0
1995/96	192.0	139.0	199.1	141.3

Source: ABS, Labour Force Australia, various years.

Turning our attention to the (relative) fall in employment in Retail trade and especially in Personal & household goods retailing and in Accommodation cafes & restaurants, we are of the view that this can be thought of as 'endogenous'. In other words, it is best seen as the result (not the cause) of the (relative) severity of the recession. However, it is possible that this was exacerbated by the collapse of various financial institutions and especially the Pyramid Building Society.

4. CONCLUSION

The main tool used in this paper was shift-share analysis which has been used to separate out industry-mix and differential growth components of a difference in aggregate employment growth. We have shown that there are a number of alternative decomposition algorithms and that researchers should be mindful of

this whenever they are using shift-share analysis. For the data sets used in this paper all of the methods yielded essentially the same results but there is no reason in principle why this should always be the case.

It would appear that there are two reasons why there was such a large difference in the employment experience of Victoria as compared with New South Wales in the recession which lasted from 1989/90 – 1992/93. One reason is the effect of the tariff cuts in the Textiles clothing & footwear sector which resulted in a massive reduction in employment in firms which were mainly located in Victoria. A second reason lies in the behaviour of, and the circumstances surrounding, both the Cain (and Kirner) Labor government and the Kennett government. The recession was exacerbated by the contraction of the public sector in Victoria relative to that of New South Wales and this was largely due to the policies pursued by the Labour and Liberal state governments and especially the financial and budgetary crises which occurred during the period the Cain government was in office. Another way to put all this is to say that the fall in employment in Victoria relative to that of New South Wales cannot be attributed solely to the behaviour of the state government (of either persuasion). The tariff cuts played an important role.

APPENDIX A: INDUSTRY CLASSIFICATION FOR THE LABOUR FORCE SURVEY

01: Agriculture; 02: Services to agriculture, hunting & trapping; 03: Forestry & logging; 04: Commercial fishing; 11: Coal mining; 12: Oil & gas extraction; 13: Metal ore mining; 14: Other mining; 15: Services to mining; 21: Food, beverages & tobacco; 22: Textile, clothing, footwear & leather; 23: Wood & paper products; 24: Printing, publishing & recorded media; 25: Petroleum, coal, chemical & associated products; 26: Non-metallic mineral products; 27: Metal products; 28: Machinery & equipment; 29: Other Manufacturing; 36: Electricity & gas supply; 37: Water supply, sewerage & drainage services; 41: General construction; 42: Construction trade services; 45: Basic material wholesaling; 46: Machinery & motor vehicles; 47: Personal & household goods; 51: Food; 52: Personal & household goods; 53: Motor vehicle & services; 57: Accommodation, cafes & restaurants; 61: Road transport; 62: Rail transport; 63: Water transport; 64: Air & space transport; 65: Other transport; 66: Services to transport; 67: Storage; 71: Communication services; 73: Finance; 74: Insurance; 75: Services to finance & insurance; 77: Property services; 78: Business services; 81: Government administration; 82: Defence; 84: Education; 86: Health services; 87: Community services; 91: Motion picture, radio & television services; 92: Libraries, museums & the arts; 93: Sport & recreation; 95: Personal services; 96: Other services; 97: Private households employing staff.

Source: Australian Bureau of Statistics (ABS) (various issues), *Labour Force Statistics*. Catalogue No. 6202.0, Canberra.

APPENDIX B: INDUSTRY CLASSIFICATION FOR THE LABOUR FORCE SURVEY

011-042: Agriculture, forestry & fishing; 110-152: Mining; 211-294: Manufacturing; 361-370: Electricity gas & water; 411-425: Construction; 451-479: Wholesale trade; 511-532: Retail trade; 571-574: Accommodation, cafes & restaurants; 611-670: Transport & storage; 711-712: Communication services; 731-752: Finance & insurance; 771-786: Property & business services; 811-820: Government admin & defence; 841-844: Education; 861-872: Health & community service; 911-933: Cultural & recreation services; 951-970: Personal & other services.

Source: Australian Bureau of Statistics (ABS) (various issues), *Wage and Salary Earners*, Catalogue No. 6248.0, Canberra.

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