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**ASSESSING THE SCOPE FOR EFFECTIVE STATE GOVERNMENT  
MACROECONOMIC POLICY: A TASMANIAN EXAMPLE**

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## **ASSESSING THE SCOPE FOR EFFECTIVE STATE GOVERNMENT MACROECONOMIC POLICY: A TASMANIAN EXAMPLE**

### **Abstract**

Between 1986/87 and 1998/99, Tasmania's share of national output declined from approximately 2.3 per cent to 1.9 per cent. At least two forecasters have projected that Tasmania's share of national activity will continue to decline over the period 1999/00 to 2003/04, falling to 1.7 per cent of national activity by the end of this period. This paper investigates whether it is within the power of the Tasmanian government to influence materially this forecast outcome. Two policy packages are investigated using a dynamic two-region computable general equilibrium model of the Australian economy (FEDERAL-F). In the first, the question asked is whether there exists a feasible re-arrangement of the Tasmanian government's revenue raising effort which has the effect of maintaining, over the forecast period, Tasmania's share of national GDP at its 1998/99 level? This is not found to be feasible - the changes in policy instruments required to maintain a constant share of national GDP are excessively large, relative to the original tax bases upon which they operate. Hence, a second and (comparatively) less ambitious policy change is then considered. This involves the gradual but complete elimination of payroll tax over the forecast period, and its replacement with a direct tax on households. Even when such a dramatic tax change as this is considered, the impact on the forecast for Tasmania's share of national activity is not large.

## I. INTRODUCTION

Between 1986/87 and 1998/99, Tasmania's share of national output declined from approximately 2.3 per cent to 1.9 per cent (Access Economics 2000). Access Economics (2000) forecast that Tasmania's share of national activity will continue to decline over the period 1999/00 to 2003/04, falling to 1.7 per cent of national activity by the end of this period. The base-case forecasts for Tasmania used in this paper, although generated using a different methodology to that employed by Access Economics<sup>1</sup>, also forecast that Tasmania will account for 1.7 per cent of national activity by 2003/04.

An interesting question to investigate is whether it is within the power of the Tasmanian government to influence materially this forecast outcome. To this end, two policy packages are investigated in this paper using the FEDERAL-F model, a dynamic multi-regional computable general equilibrium model of the Australian economy. In the first, the question asked is whether, over the forecast period, there exists a feasible re-arrangement of the revenue raising effort of the Tasmania government, which maintains Tasmania's share of national GDP at its 1998/99 level? The judgement of feasibility is made on the basis of an informal assessment of plausibility: are the changes in policy instruments required to maintain a constant share of national GDP excessively large, relative to the original tax bases upon which they operate? This is indeed found to be the case. Hence a second and (comparatively) less ambitious policy change is then investigated. This involves the gradual but complete elimination of payroll tax over the forecast period, and its replacement with a direct tax on households. Even when such a dramatic tax change as this is considered, the impact on the forecast for Tasmania's share of national activity is not large.

The starting point for the simulations are the results of Giesecke and Madden's (1997) ranking of the impacts on Tasmanian gross state product of changes in selected regional government taxes. They found that real gross regional product was most sensitive to changes in the average payroll tax rate, falling as it does directly on the

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<sup>1</sup> See Giesecke (2000) for a detailed discussion of the generation of these forecasts.

producer cost of labour. The taxes that had least effect on real gross regional product were those that directly reduced household income, such as motor vehicle taxes and fees and fines. Hence a budget-neutral re-assignment of some part of the state government's revenue raising effort away from payroll taxes and towards direct taxes had a positive impact on real gross state product.

Payroll tax collections in 1997/98 were the largest source of Tasmanian government own-source revenue, at approximately \$144 m (ABS 1998). In the same year, fees and fines raised approximately \$47 m. On the face of it, the relative sizes of these two tax bases suggest that the scope for changing the revenue raising effort away from payroll taxes and towards direct taxes may be limited. However there are a number of state government indirect taxes, (and which are currently modelled as such in FEDERAL-F) some components or proportions of which could nevertheless be plausibly modelled as changes in direct taxes. For example, an increase in vehicle registration fees and taxes (\$64 m. in 1997/98) and stamp duties on existing vehicle registrations (\$27 m.) would likely largely act as a direct tax in the short run, since the stock of privately owned cars in the short-run is essentially fixed. The state government also has the power to implement levies such as fixed charges on household usage of utilities, which would operate effectively as poll taxes. More ambitiously perhaps, the state government could lobby the Commonwealth Government for the re-establishment of the opportunity granted by the Fraser government for the levying of a state surcharge on the income tax liability of the state's residents. Overall, there is potentially more scope to switch the state's revenue raising effort away from payroll taxes and towards direct taxes on households than is perhaps indicated by a simple comparison of the relative amounts currently raised by these two instruments.

## II. THE MODEL

In this section I present a broad overview of the structure of the FEDERAL-F model. FEDERAL-F is large and detailed, making it impossible to provide a full description of its theoretical structure and database in this paper. The interested reader is referred to Giesecke (2000a) or Giesecke (2000b) for a detailed discussion of the full model. The overview in this paper should nevertheless be sufficient to convey an understanding of

the structure of the model to readers already familiar with the ORANI / MONASH school of CGE modelling in Australia. This is because the starting point for the development of the multi-period model FEDERAL-F was the comparative-static multi-regional CGE model FEDERAL (Madden 1992). FEDERAL, in turn, grew out of the single-region comparative-static national model ORANI (Dixon et al. 1982), converting it into a full bottom-up multi-regional model with a detailed fiscal dimension. During the 1990's ORANI was subject to much development work - both to impart it with dynamic capabilities and to allow it to model structural change over historical periods - thus giving rise to the MONASH model (see in particular Adams et al. 1994 and Dixon and Rimmer 1999). The core of the FEDERAL-F model is essentially an incorporation into the multi-regional FEDERAL model of the key elements of those features of the national MONASH model which relate to its dynamic capabilities and model closure options. Hence FEDERAL-F is a recursive-dynamic multi-regional CGE model, linking a sequence of single-period equilibria via stock-flow relationships. The equilibria thus computed change through time as the values for the model's stock variables change. Flows in previous periods (such as investment, inter-regional migration, and government borrowings) influence the values for the endogenous variables computed in the current period through their contribution to the values of the model's stock variables (such as capital, population, and government debt) in the current period. The implementation of the model employed in this paper features two regions: Tasmania and the rest of Australia. Together, these two regions comprise Australia. Thirty-seven representative cost-minimising firms are identified within each of these two regions. Each of these firms produces one of thirty-seven commodities. Firms are assumed to operate in a perfectly competitive environment. Two-tiers of government are modelled: a regional government within each region, and a federal government operating Australia-wide. A representative, utility-maximising household resides in each region. Foreign demands for domestic commodities are inversely related to their foreign currency prices. A two-region adaptation of Jones and Whalley's (1989) migration theory is used to determine regional populations. The model also evaluates a full set of national and regional income accounts. A full description of the theory, database, and closure options for FEDERAL-F can be found in Giesecke (2000a) or Giesecke (2000b). The model is solved using the GEMPACK suite of computer programs (Pearson (1988) and Harrison and Pearson (1996)).

### III. OVERVIEW OF THE BASELINE FORECASTS

A baseline forecast for the Tasmanian and Mainland economies for the period 1999/00 to 2003/04 was generated using the FEDERAL-F model. Different closures of the model were used for different segments of this time period. The need to use different closures of the model reflected the changing availability of extraneous forecasts relating to the macroeconomy and the government accounts, and the need to model the introduction of the GST. Nevertheless, the broad features of the closure remained unchanged over the forecast period. Space permits here only a general discussion of the approach used to generate these forecasts. A detailed discussion of the forecast simulations and the results therefrom can be found in Giesecke (2000b).

The starting point for the forecast simulations were historical simulations for the period 1992/93 to 1998/99<sup>2</sup>. These simulations involved the exogenous determination of the values for many of the variables for which official statistics provide historical values. These variables included national and regional macroeconomic variables, regional industry level variables such as employment and investment, and commodity level variables such as outputs, exports and prices. This allowed certain unobservable variables, such as rates of primary factor and commodity using technical change, household taste changes, positions of export demand curves, rates of government taxation, and such like, to be determined by the model.

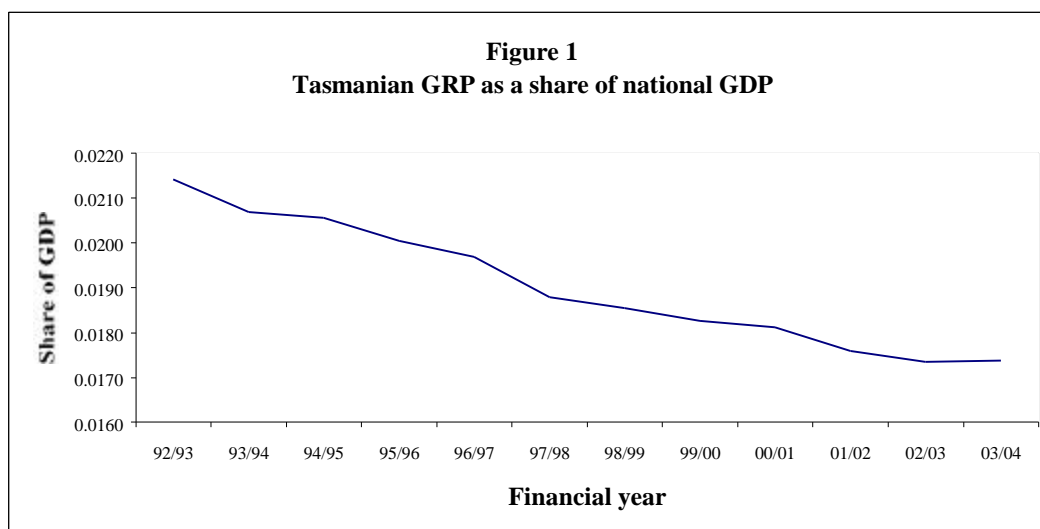
The results for these variables then formed part of the input to the forecasting simulations. I assumed that over the forecast period, the values for these structural variables would be equal to the annual average of their values over the historical period. That is, I assumed that the structural shifts which were calculated to have occurred over the historical period would continue at the same rate over the forecast period. For the introduction of the GST, I undertook - using the method adopted by Dixon and Rimmer (1999) - a separate side simulation to calculate the shocks to indirect tax rates which this policy package implicitly represented. The shifts in tax rates thus calculated then formed part of the forecast simulation for the 2000/01 financial year. I also determined the national macroeconomic variables exogenously

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<sup>2</sup> A detailed discussion of these simulations is contained in Giesecke (2000b).

over the period, setting them equal to their forecast values from Access Economics (2000). Results for Tasmanian macroeconomic variables are calculated endogenously, however. Hence the values attained by the Tasmanian macroeconomic variables in the forecasting simulations reflect both the extrapolated values of the technical and taste change variables from the historical simulations, and the impacts on Tasmania of the exogenously specified national macroeconomic environment.

The results for the forecast simulations show the Tasmanian economy continuing to grow at a slower rate than the Mainland economy. The annual average growth rate in Tasmania's real gross regional product at factor cost is projected to be 2.8 per cent. This can be compared with a forecast Mainland growth rate of 4.2 per cent - a difference of 1.4 percentage points per annum. Hence the forecasts show a continuation of the historical trend of a declining Tasmanian share in national GDP (Figure 1), with only a slight reversal of this trend in the final year of the simulation.



## IV. SIMULATIONS

**Maintenance of a constant share of national GDP**

In this simulation, Tasmania's share of national GDP ( $grp\_sh1$ )<sup>3</sup> is determined exogenously, and the tax which has the most impact on real GRP - the payroll tax ( $frollr1$ ) - is determined endogenously. Under this closure, the average Tasmanian payroll tax rate will adjust in each period to ensure that Tasmania's share of national GDP is equal to the exogenously determined value of  $grp\_sh1$ . The latter variable is shocked equal to 0, thereby imposing maintenance of a constant share of national GDP on the part of Tasmania. The Tasmanian government's borrowing requirement ( $cb1r1$ ) is then not allowed to deviate away from its baseline forecast value. This requires that  $cb1r1$  be determined exogenously, and the shift variable on state government income reducing taxes ( $f\_ytax1$ ) be determined endogenously.

The results of the simulation, for selected Tasmanian and Mainland regional variables, are contained in Table 1. This shows Tasmanian real GSP at factor cost rising from 1.79 per cent higher than forecast in 1999/00, to 7.00 per cent higher than forecast in 2003/04. Relative to the 2002/03 deviation result, the deviation in real GDP in 2003/04 is slightly lower, because in the baseline forecast there is a small rise in Tasmania's share of national GDP in the final year (see Figure 1). Real GSP at market prices rises slightly faster than real GSP at factor cost, indicating that the simulation has stimulated activity in areas attracting indirect taxes. Relative to the growth in employment, the growth in real consumption expenditure is quite subdued. This reflects the increase in Tasmanian government taxation of household income as the average rate of payroll tax falls. Hence, while in the underlying forecast Tasmanian consumption expenditure accounts for approximately 70 per cent of Tasmanian GSP by 2003/04, this falls to 65 per cent in the deviation simulation. While there is some growth in investment (3.01 per cent higher than forecast in the final year), this too is subdued. While investment increases strongly in the traded goods sectors, there is little change in investment in those sectors producing output primarily for household consumption and government, and this depresses the real investment result relative to the real GSP result. With aggregate investment rising



more slowly than real GSP, by 2003/04 its share of GSP also falls relative to its forecast level, from 16 per cent to 15 per cent. Interstate export and import volumes are higher in the deviation simulation by approximately the same percentage amount as real GSP. This leaves the interstate balance of trade deficit as a share of GSP approximately equal to its level in the base forecast. Ultimately, the growth in output is reflected largely in higher foreign export volumes (44.51 per cent higher than forecast by the final year) reflecting the high price elasticity of demand for these commodities. By the final year, this lifts the share of exports in GSP from its value of 27 per cent in the forecast simulation to 35 per cent in the deviation simulation.

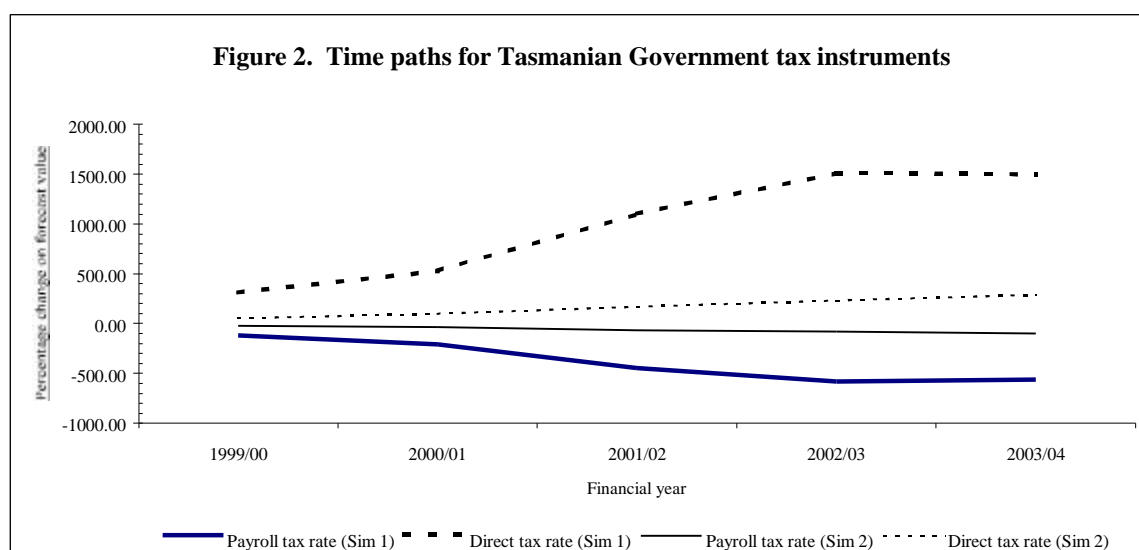
While the results indicate that a combination of direct taxation and payroll taxation exists which maintains Tasmania's share of national GDP, this combination is in no sense feasible. The results for the two Tasmanian government policy variables,  $f\_y\text{tax}_1$  and  $f\text{rollr}_1$ , are also included in Table 1, and are also graphed in Figure 2. In the first year, the average Tasmanian payroll tax rate falls by 120 per cent - that is, it becomes a per-unit labour subsidy. In 1998/99 (the initial solution to the 1999/00 year), the database value for Tasmanian government payroll tax collections was just under \$150 m., representing approximately 2.3 per cent of the total Tasmanian gross labour bill. Hence, in the first year of the simulation, a labour subsidy of \$30m., or approximately 0.5 per cent of the total Tasmanian labour bill, is required to maintain Tasmania's share of national GDP. At the same time, an increase in state government direct taxation of 313 per cent is required. This lifts collections of direct taxes from approximately \$45 m. to \$190 m. The difference between what is disbursed via the reduction in payroll taxes (approximately \$180 m.) and what is received from the increase in direct taxes (approximately \$145 m.) is recouped in higher tax receipts from other sources as the Tasmanian economy expands.

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<sup>3</sup> See Giesecke (2000) for a complete listing and discussion of the FEDERAL-F equation system, and particularly Section 2.12.15 for this particular variable.

**Table 1: Simulation 1: Maintenance of constant share of national GDP**  
*(Deviations from forecast values)*

Variable	Region	1999/00	2000/01	2001/02	2002/03	2003/04
Real GDP (factor cost)	Tasmania	1.79	2.58	5.68	7.20	7.00
	Mainland	-0.01	-0.01	-0.02	-0.05	-0.08
Real GDP (market prices)	Tasmania	1.99	3.00	6.89	8.83	8.54
	Mainland	0.00	0.01	-0.02	-0.06	-0.08
Real investment	Tasmania	1.66	2.08	4.03	4.17	3.01
	Mainland	0.00	0.03	0.04	0.01	-0.01
Real consumption	Tasmania	0.39	0.70	1.31	1.11	0.94
	Mainland	0.03	0.04	0.07	0.07	0.03
Real foreign exports	Tasmania	10.36	14.31	32.10	43.82	44.51
	Mainland	-0.15	-0.20	-0.41	-0.56	-0.58
Real foreign imports	Tasmania	3.11	4.22	9.02	11.51	11.17
	Mainland	0.00	-0.01	-0.02	-0.05	-0.08
Real regional government consumption expenditure	Tasmania	0.00	0.00	0.00	0.00	0.00
	Mainland	0.00	0.00	0.00	0.00	0.00
Real Commonwealth consumption expenditure	Tasmania	0.00	0.00	0.00	0.00	0.00
	Mainland	0.00	0.00	0.00	0.00	0.00
Real interstate exports	Tasmania	1.74	2.55	5.69	7.20	6.88
	Mainland	1.78	2.56	5.47	6.67	6.33
Real interstate imports	Tasmania	1.78	2.56	5.47	6.67	6.33
	Mainland	1.74	2.55	5.69	7.21	6.88
GSP deflator	Tasmania	-1.19	-1.60	-4.23	-5.88	-5.42
	Mainland	0.01	0.00	0.06	0.10	0.08
Employment	Tasmania	2.30	3.30	7.11	8.89	8.56
	Mainland	0.00	-0.01	-0.03	-0.08	-0.11
Capital stock (rental weights)	Tasmania	-0.03	0.00	0.03	0.15	0.27
	Mainland	0.00	0.01	0.02	0.03	0.04
Capital stock (asset value weights)	Tasmania	0.00	0.08	0.20	0.43	0.69
	Mainland	0.00	0.00	0.00	0.01	0.01
Consumer price index	Tasmania	-0.78	-1.09	-2.59	-3.57	-3.50
	Mainland	0.02	0.02	0.05	0.07	0.07
Regional government borrowing requirement	Tasmania	0	0	0	0	0
	Mainland	0	0	0	0	0
Payroll tax rate	Tasmania	-120.4	-208.6	-445.6	-581.5	-562.2
	Mainland	-0.14	-0.10	0.03	0.37	0.71
Federal borrowing requirement		0	0	0	0	0
Average PAYE tax rate		-0.22	-0.35	-0.61	-0.59	-0.46
State direct tax	Tasmania	313.5	526.5	1103	1510	1498
	Mainland	0.00	0.00	0.00	0.00	0.00



Thereafter, continuous reductions in the payroll tax rate, and continuous increases in the direct tax rate are required to maintain the state's share of GDP, until the final year of the simulation period. Recall that in the underlying forecast, there is a small rise in Tasmania's share of the national GDP in the final year. This allows in that year a small increase in the payroll tax, and a small fall in the direct tax, relative to the deviation result for the previous year. If the infeasibility of the package were not apparent from an inspection of the first year's results, it can be in no doubt from the final year's results. In the penultimate year, when the deviations in the tax rates peak, the payroll tax is forecast to be 581 per cent below its forecast level, and the direct tax rate is forecast to be 1510 per cent above its forecast value. In dollar terms, these are equivalent in current (2003/04) dollars to \$-700 m. and \$787 m. respectively. The former figure is equivalent to a per unit labour subsidy of approximately nine per cent of the gross wage bill.

These results are broadly consistent with the findings of Giesecke and Madden (1997), who undertook a comparative-static analysis with a 1992/93 Tasmania / Mainland implementation of FEDERAL. One of the features provided by the dynamic modelling is the provision of an interesting target (maintenance of national GDP) against which to model the scope for regional government policy action. Giesecke and Madden found that the short run impact on real GSP at factor cost from raising \$10 m. in net revenue from an increase in either payroll tax or direct tax, were -0.22

and -0.05 per cent respectively. In Table 1, the required deviation in the Tasmanian growth rate in real GSP at factor cost is approximately 1.8 percentage points in the first year of the simulation. On the basis of Giesecke and Madden's results, we would expect that to close this gap we would need to transfer approximately \$105 m.<sup>4</sup> (in 1992/93 terms) in revenue raising effort from the payroll tax base to the direct tax base. This is equivalent to almost \$140 m. in 1999/00 terms<sup>5</sup>, which is comparable to the result from FEDERAL-F in the initial year of the deviation simulation. In the final year of the deviation simulation, an increase in Tasmanian real GSP at factor cost of 7.00 per cent is required. Again, using the Giesecke and Madden (1997) results, this requires approximately \$410 m. (in 1992/93 terms) in revenue raising effort to be shifted from the payroll tax base to the direct tax base. In 2003/04<sup>6</sup> terms, this equivalent to approximately \$700 m., which is again broadly in line with the results obtained with FEDERAL-F for that year.

#### **A run-down in payroll tax collections to zero**

In this simulation, payroll tax collections are steadily reduced over the forecast period until they are zero in 2003/04. Such a policy is likely to be at the very outer bounds of what would ever be considered politically feasible by a state government. Despite the likely impracticality of the proposal, its extreme nature makes the results of the simulation more interesting rather than less so, since the results will illustrate the limits of the practical influence that a state government can hope to have on aggregate economic activity within its jurisdiction. That is, the outer bounds of the influence of state government macroeconomic policy will have been illuminated.

To simulate this policy, the same closure is used as that in the simulation in the previous section, with one exception. Instead of determining  $grp\_sh_1$  exogenously, Tasmanian government total payroll tax collections ( $sgptr_1$ ) are determined exogenously. In the new simulation, aggregate Tasmanian payroll tax collections are reduced by approximately the same absolute amount in each period. Hence,  $sgptr_1$  is

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<sup>4</sup>  $(1.8 / (0.22 - 0.05)) \times 10$

<sup>5</sup> The nominal size of the Tasmanian economy increased by approximately 30 per cent between 1992/93 and 1999/00.

<sup>6</sup> In the baseline forecast, the nominal size of the Tasmanian economy grows by a little under 30 per cent between 1999/00 and 2003/04.

shocked by -20, -25, -33.33, -50, and -99<sup>7</sup> per cent in each of five years between 1999/00 and 2003/04 respectively.

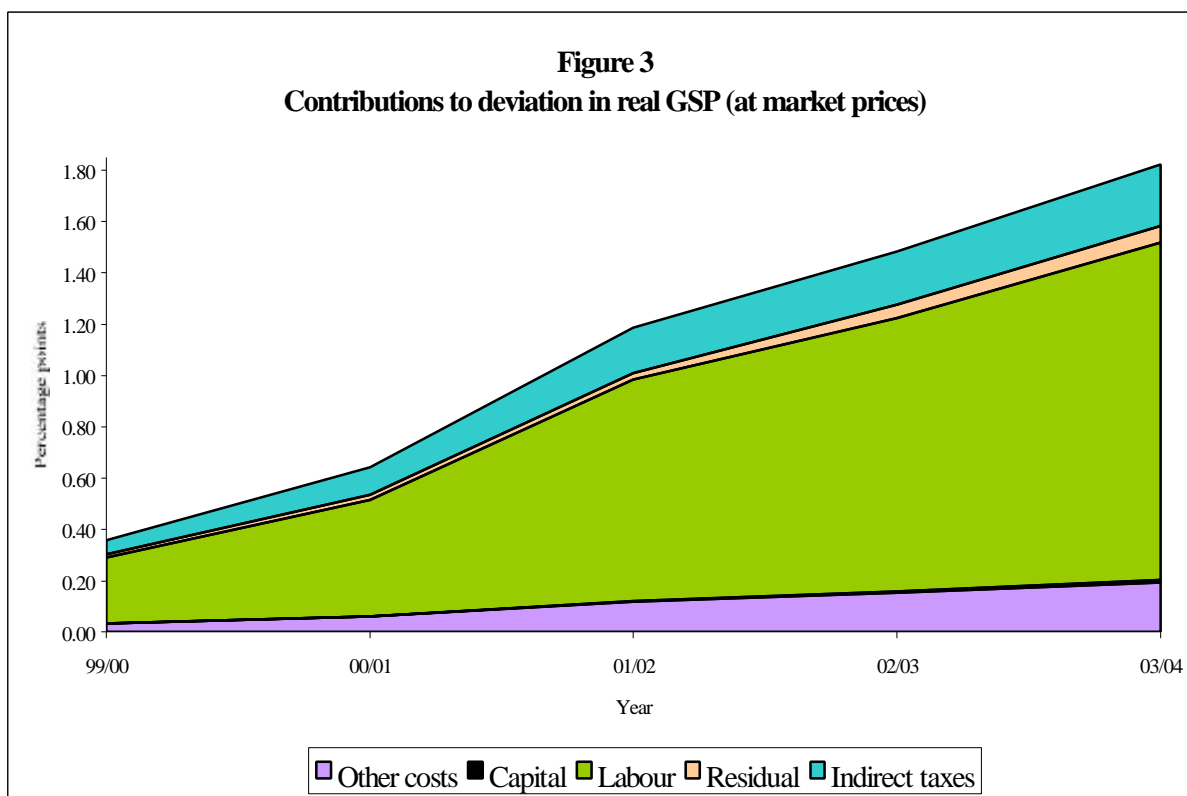
Table 2 contains selected results from this simulation. As one would expect, the directions and relative sizes of the impacts are the same as those in the previous simulation, although of a smaller magnitude. Again, the growth in real consumption and real investment is subdued relative to the growth in real GSP. With interstate exports and imports rising at approximately the same rate as real GSP, the increase in real output is reflected in rising foreign exports, which is facilitated by a decrease in the Tasmanian price level. The percentage changes in the two policy variables away from their forecast values are contained in Table 2 and also graphed in Figure 2. These show the average rate of payroll tax falling steadily over the simulation period, so that by 2003/04 it is less than 1% of its forecast value. Over the same period, the revenue that was raised from the payroll tax is instead raised from a higher rate of direct taxation. This sees the direct tax rate increase by 53 per cent of its forecast value in the first year, and then rise further in each year thereafter until by 2003/04 it is 288 per cent above its forecast value.

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<sup>7</sup> In the final simulation *sgptr<sub>1</sub>* is shocked by -99 per cent to prevent the values for any payroll tax collections passing through zero.

**Table 2: Simulation 2: Elimination of payroll tax**  
*(Deviations from forecast values)*

Variable	Region	1999/00	2000/01	2001/02	2002/03	2003/04
Real GDP (factor cost)	Tasmania	0.30	0.54	1.01	1.28	1.58
	Mainland	-0.01	0.01	0.00	-0.01	-0.01
Real GDP (market prices)	Tasmania	0.36	0.64	1.19	1.48	1.82
	Mainland	0.01	0.03	0.01	0.01	0.02
Real investment	Tasmania	0.25	0.41	0.69	0.75	0.70
	Mainland	-0.02	0.02	0.02	0.01	0.02
Real consumption	Tasmania	0.08	0.18	0.28	0.25	0.30
	Mainland	0.00	0.02	0.02	0.02	0.03
Real foreign exports	Tasmania	1.73	2.91	5.59	7.46	9.63
	Mainland	-0.01	-0.03	-0.07	-0.10	-0.12
Real foreign imports	Tasmania	0.57	0.96	1.80	2.31	2.84
	Mainland	-0.01	0.00	0.00	-0.01	-0.01
Real regional government consumption expenditure	Tasmania	0.00	0.00	0.00	0.00	0.00
	Mainland	0.00	0.00	0.00	0.00	0.00
Real Commonwealth consumption expenditure	Tasmania	0.00	0.00	0.00	0.00	0.00
	Mainland	0.00	0.00	0.00	0.00	0.00
Real interstate exports	Tasmania	0.34	0.53	0.92	1.15	1.39
	Mainland	0.31	0.55	1.01	1.22	1.48
Real interstate imports	Tasmania	0.31	0.55	1.01	1.22	1.48
	Mainland	0.34	0.53	0.92	1.15	1.39
GSP deflator	Tasmania	-0.24	-0.34	-0.70	-0.98	-1.11
	Mainland	-0.01	-0.02	-0.01	0.00	-0.01
Employment	Tasmania	0.38	0.67	1.24	1.54	1.90
	Mainland	0.00	0.00	-0.01	-0.02	-0.02
Capital stock (rental weights)	Tasmania	0.00	0.01	0.02	0.04	0.06
	Mainland	0.00	0.01	0.01	0.02	0.02
Capital stock (asset value weights)	Tasmania	0.00	0.01	0.03	0.07	0.12
	Mainland	0.00	0.00	0.00	0.00	0.00
Consumer price index	Tasmania	-0.14	-0.19	-0.37	-0.52	-0.64
	Mainland	0.00	0.00	0.01	0.01	0.01
Regional government borrowing requirement	Tasmania	0	0	0	0	0
	Mainland	0	0	0	0	0
Payroll tax rate	Tasmania	-20.60	-37.01	-63.35	-82.21	-99.69
	Mainland	-0.07	-0.20	-0.14	-0.06	-0.05
Federal borrowing requirement		0	0	0	0	0
Average PAYE tax rate		-0.06	-0.16	-0.17	-0.16	-0.20
State direct tax	Tasmania	53.01	97.11	169.0	231.8	288.4
	Mainland	0.00	0.00	0.00	0.00	0.00



The processes generating the time paths for the policy variables in Figure 2 can be seen by considering further the results of the first year's simulation. In that year aggregate payroll tax receipts are reduced by 20 per cent, which is associated with a reduction in the average rate of payroll tax of 20.6 per cent. *Ceterus paribus*, this is associated with a rise in employment of approximately 0.5<sup>8</sup> per cent as the producer cost of labour falls. In the 1998/99 database, Tasmania collected approximately \$150 m. in payroll tax. Hence a 20 per cent reduction in these collections is equivalent to a fall in payroll tax receipts of \$30m. However the expansion in economic activity that is induced by the payroll tax reduction causes the Tasmanian government's borrowing requirement to fall by approximately \$5 m.<sup>9</sup> less than the amount of payroll tax revenue foregone. To maintain an unchanged budget position relative to the forecast budget position, the government must raise the remaining \$25 m. from higher direct taxes. The base value for these taxes in the 1998/99 database is \$46m., hence an increase in the direct tax rate of approximately 53 per cent is required. This causes real Tasmanian household consumption to fall by approximately 0.3 per cent. While

<sup>8</sup> This result is not separately reported.

this is associated with a small rise in foreign and interstate exports, total activity and hence employment in Tasmania falls. The increase in the direct tax rate reduces Tasmanian employment by approximately 0.1 per cent. When this is netted against the rise in employment induced by the payroll tax reduction (0.5 per cent), the net employment effect is the expansion in employment of approximately 0.4 per cent reported in Table 2.

Returns to labour account for approximately 68 per cent of Tasmanian GSP at factor cost in 1998/99. Hence in the first year of the simulation period the increase in Tasmanian employment adds approximately 0.26 percentage points to real gross regional product. Aggregate inputs of “other costs” move at the same rate as real GSP at factor cost (0.30 per cent in the first year), and so add another 0.03 percentage points to the deviation in real Tasmanian GSP<sup>10</sup>. The aggregate capital stock cannot deviate from its forecast level in the first period. Hence increases in factor inputs add approximately 0.29 percentage points to Tasmanian real GSP in the first year. However Table 2 reports that real GSP at factor cost increases by 0.30 per cent. The difference is attributable to the fact that the many shocks that underlie and drive the forecast simulations are also administered in the deviation simulation. Since the structure of the economy is changing (relative to the forecast simulation) in the deviation simulation, these background shocks exert a slightly different impact on the economy in the deviation simulation relative to the forecast simulation. This adds approximately 0.01 percentage points to Tasmanian real GSP in the first year of the simulation, leaving Tasmanian real GSP at factor cost 0.30 percentage points higher than its forecast value in 1999/00. The simulation also causes an increase in activity in areas of the Tasmanian economy attracting indirect taxes. This adds approximately 0.06 percentage points to the deviation in real GSP, leaving real GSP at market prices 0.36 percentage points higher than its deviation level.

The various contributions to the deviation in real Tasmanian GSP are graphed in Figure 3. This figure indicates that the bulk of the increase in real GSP arises from increasing employment. Inputs of “other costs” rise in line with the increase in real GSP at factor cost. There is a small increase in real output (rising to 0.07 percentage

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<sup>9</sup> This result is not separately reported.

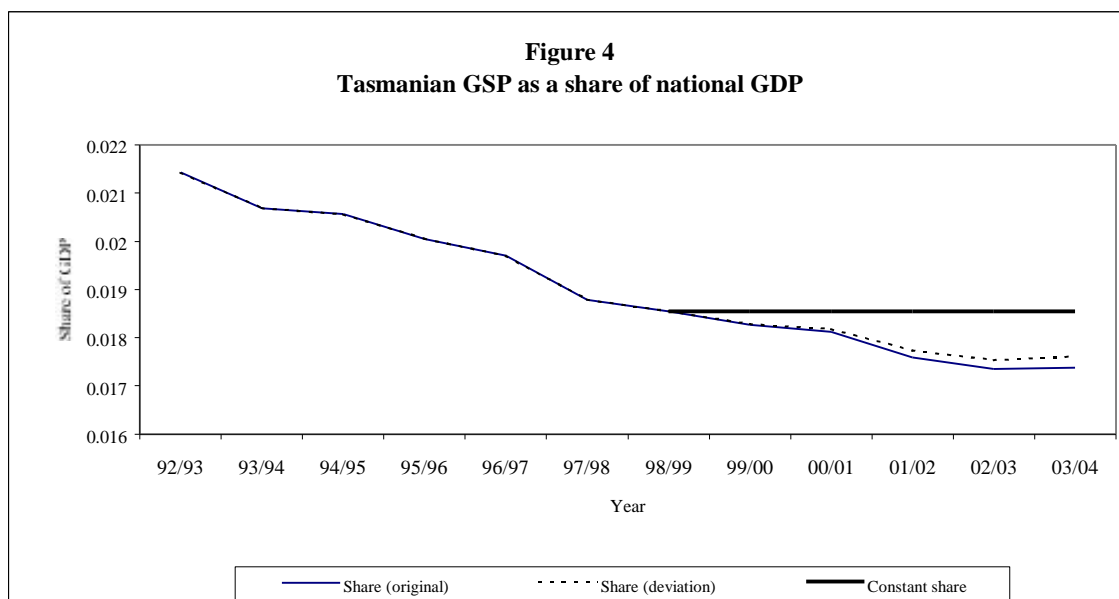


points in the final year) arising from the change in the structure of the Tasmanian economy in the deviation simulation relative to the forecast simulation (labelled “Residual” in Figure 3). The simulation induces a rise in indirect taxes, which account for a relatively constant share (approximately 14 per cent) of the total deviation in real GSP at market prices. There is a small rise in the Tasmanian capital stock over the simulation period, reflecting the rise in investment in the deviation simulation. However even by the final year, this extra investment has only been sufficient to raise the capital stock 0.06 per cent above its forecast value. This contributes only about 0.01 percentage points to the deviation in real GSP in the final year.

For such a significant re-alignment of the Tasmanian government’s taxation effort, it is instructive to now consider what impact this has on Tasmania’s forecast share of national GDP. Figure 4 graphs both the historical and forecast values for Tasmania’s share of national GDP at factor cost. In 1998/99, Tasmania accounted for 1.9 per cent of national GDP. The baseline forecasts have this share declining to 1.7 per cent by 2003/04. In the deviation simulation, Tasmania’s share of national GDP is forecast to be 1.8 per cent by 2003/04. In Figure 4, the path of Tasmania’s share of GDP in the deviation simulation is given by the dotted line. This diagram portrays starkly the conclusion that the capacity of state governments to influence their economy’s growth path is extremely limited. Even when a very large policy package is considered - one at the very limits of what might be politically feasible - the deviation in real GSP is relatively small. In Tasmania’s case, it is unable to make a significant impact on the continued decline forecast for the state’s share of national economic activity.

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<sup>10</sup> Inputs of other costs account for about 11 per cent of Tasmanian GSP at factor cost in 1998/99.



## V. CONCLUSIONS

Against a background of forecasts of continued decline in Tasmania's share of national economic activity, this paper has considered whether the fiscal instruments available to the Tasmanian government are capable of materially influencing this forecast outcome. Two policy packages were examined. In the first, the question asked was whether there exists a feasible re-arrangement of the Tasmanian government's revenue raising effort which has the effect of maintaining, over the forecast period, Tasmania's share of national GDP at its 1998/99 level. Two policy instruments were varied to achieve two targets - a GSP growth target (requiring alteration in the payroll tax rate) and a public sector borrowing target (requiring alteration of the average regional direct tax rate). It was found that there was not a feasible realignment of these two policy instruments, since the sizes of the changes required of these instruments were excessively large, relative to the original tax bases upon which they operate. Hence, a second and (comparatively) less ambitious policy change was then considered. This involved the gradual but complete elimination of payroll tax over the forecast period, and its replacement with a direct tax on households. Even when such a dramatic tax change as this was considered, the impact on the forecast for Tasmania's share of national activity was not large.

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