An Assessment of the Impacts of Restructuring Payroll Taxes

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1. Overview

Payroll tax is the most significant tax levied by the States. While payroll tax regimes vary between States, all have tax-free thresholds which result in firms with smaller payrolls paying lower average payroll tax rates. This paper considers the features of payroll tax and the cases for and against payroll tax-free thresholds. A model of the Australian State and Territory economies is used to simulate the removal of the NSW threshold and a corresponding reduction in the payroll tax rate. Results suggest that removing the threshold would increase the competitiveness of the NSW economy relative to the other States,

boosting State output and employment.

The reform is expected to add $80 million per year to NSW GSP and create employment of 1700 person years. The national results suggest additional economic activity of $140 million per year and employment 3000 person years. The reforms are also expected to have a positive impact on the NSW and Commonwealth budget positions.

These results are consistent with the findings of previous studies that have recommended that reducing the reliance on payroll tax should be achieved by reducing the payroll tax rate rather than increasing the payroll tax-free threshold.

All modeling is carried out over a short-run time frame (say 2 years). The long-run impact of the reform is expected to be less than the short-run impact because in the long run real wages are likely to adjust reducing the employment gains.

The main reason for the payroll tax-free thresholds is simplicity. The small proportion of firms that are liable for payroll tax reduces compliance costs to firms and administrative costs to governments. Tax-free thresholds also encourage small firms to enter the market to compete with larger firms encouraging efficient production.

The case against the use of tax-free thresholds is that they allow inefficient firms to benefit from their preferential tax treatment. The threshold creates a distortion that reduces output and employment. The threshold may also reduce exports. Given that the firms engaged in trade (exports and import competition) are larger than average, taxing large firms more heavily than small firms results in payroll tax being passed on in the most price sensitive markets.

The paper also looks at the reasons for State governments' reliance on payroll tax. The claims that payroll tax is a 'tax on jobs' and a 'tax on exports' are considered and rejected in favour of the argument that the impact of payroll tax is similar to that of a broad based consumption tax. (Back to contents)

Introduction

In recent years the tax reform debate in Australia has focused primarily on Commonwealth taxes, particularly income and consumption taxes. The debate has often failed to recognise that some of the taxes in most need of reform are those under control of the States. Constitutional restrictions and Commonwealth-State financial relations reduce the scope for State tax reform although the potential reform of payroll tax is not affected by either of these restrictions.

The paper analyses the State and national economic impacts of NSW payroll tax reform. The reforms are considered in a multi-regional computable general equilibrium (CGE) framework which individually models eight State and Territory economies. In particular, the paper tests the following hypothesis:

> *'Broadening the NSW payroll tax base will increase the competitiveness of NSW industries and hence increase the output and employment of the NSW economy.'*

The Monash Multi-Regional Forecasting (MMRF) model is used to simulate expanding the payroll tax base by removing the tax-free threshold and reducing the payroll tax rate. Expanding the payroll tax base and reducing other NSW State taxes is also considered.

The modeling results support the hypothesis and suggest that in the short run the reform could increase NSW Gross State Product (GSP) by $80 million per year and result in up to 1700 additional person years of employment in New South Wales. These results are consistent with the findings of previous studies which have recommended that, if the reliance on payroll tax is to be reduced, this reduction should be achieved by restructuring payroll tax. Lowering the payroll tax rate and expanding the base is a more efficient way to reduce payroll tax, than increasing the tax-free threshold and further narrowing the base.

The paper is structured as follows: Section 1 contains a summary of various payroll tax systems operating in Australia's States. Section 2 provides a review of previous Australian studies of payroll tax and examines the efficiency, equity and simplicity of the tax with particular reference to the claims that payroll tax is a 'tax on jobs' and 'a tax on exports'. Section 3 looks at the cases for and against payroll tax-free thresholds. Modeling results and limitations are given in Section 4. (Back to contents)

Section 1: Background

1.1 Australian Payroll Tax Systems

Payroll tax was introduced by the Commonwealth Government in 1941 to partly fund child endowment payments. In 1952 the link with child endowment was abandoned and payroll tax revenue was included in consolidated revenue. In 1971, the power to levy payroll tax was handed to States governments who increased the rate from 2.5 per cent to 3.5 per cent immediately. The transfer of payroll tax powers was accompanied by a nearly matching reduction in Commonwealth Grants.

Since the mid-70s, differences have emerged in the various State payroll tax regimes in terms of rates, tax-free thresholds and deductions. See Table 1.1 below.

Table 1.1: Australian State and Territory Payroll Tax Regimes (as at 1/1/97)

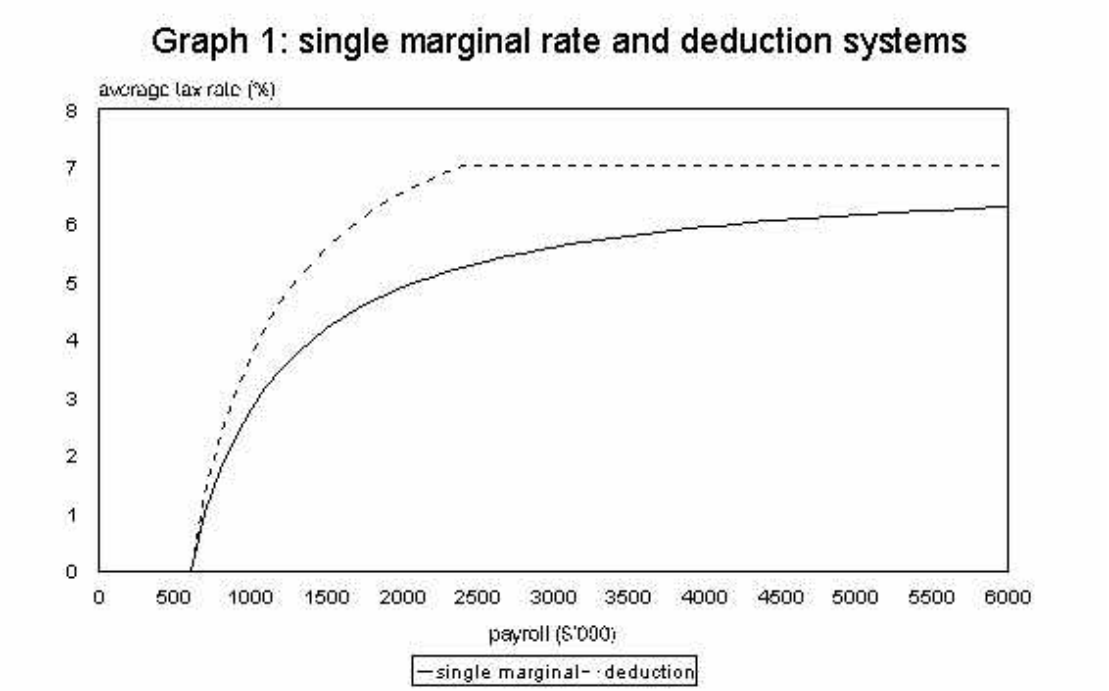
State / Territory	Calculation Method	Threshold	Rate
New South Wales	Single Marginal Rate	$600,000	6.85 %
Victoria	Single Marginal Rate	$515,000	6.5 %
Queensland	Deduction System	$800,000	5.0 %
South Australia	Single Marginal Rate	$456,000	6.0 %

Western Australia	Marginal Rates	$600,000	6.0 %
Tasmania	Deduction System	$565,000	7.0 %
Northern Territory	Deduction System	$520,000	7.0 %
ACT	Single Marginal Rate	$600,000	7.0 %

All Australian States use one of two calculation methods. New South Wales, Victoria, South Australia and ACT use a single marginal rate system where all payroll above the tax-free threshold is taxed at a single rate. In New South Wales, all firms pay no tax on their first $600,000 payroll, all additional payroll is taxed at 7 per cent. Therefore a NSW firm with a payroll of half a million dollars would pay no payroll tax while a NSW firm with a payroll of $6 million pays an average rate of 6.3 per cent.

The other method of calculation, the deduction system, involves a tax-free threshold and a system of deductions that progressively remove the effect of the threshold as payroll increases. A deduction system comparable to NSW's single marginal rate system would see no tax paid by firms with payrolls below $600,000. For firms with a payroll between $600,000 and $2.4 million, taxable payroll would be equal to payroll in excess of $600,000 plus $1 for every $3 additional payroll over the threshold. Under this system the threshold is completely removed once payroll reaches $2.4 million. The deduction system is currently used in Queensland, Western Australia, Tasmania and the Northern Territory.

Graph 1 compares the average payroll tax rates under i) a single marginal rate of 7 per cent with a $600,000 threshold and, ii) a 'three-for-one' deduction system between $600,000 and $2.4 million with a rate of 7 per cent. Under both systems firms with payrolls below $600,000 pay no tax. Once the threshold is achieved the average payroll tax rates increase. Under the deduction system the average rate increases to 7 per cent (when payroll equals $2.4 million) and remains at 7 per cent when payroll exceeds $2.4 million. Under the single marginal rate system, the average payroll tax rate increases more gradually approaching, but never reaching 7 per cent.



1.2 States Reliance on Payroll Tax

The NSW Government rely heavily on payroll tax as a source of revenue. In 1996-97 payroll tax is expected to make up approximately 27.5 per cent of NSW tax revenue, in 1986-87 this figure was 38.5 per cent. The reasons behind State governments' reliance on payroll tax can be summarised in two key points:

i) The transfer of income taxing powers from the States to the Commonwealth Government which occurred with the Uniform Income Tax Act of 1942. The Australian Constitution does not preclude State governments from levying income tax however previous Commonwealth-State financial relations were such that revenue raised by a State income tax could be deducted from that State's Commonwealth grant.

ii) Section 90 of the Australian Constitution which does not allow State governments to 'impose duties of customs and excise'. The High Court initially adopted a narrow interpretation of excise as a discriminatory tax on production, and later broadened their interpretation to cover any tax on the production, distribution and sale of goods. This appears to be in conflict with the original intention of Section 90 which was to facilitate free interstate trade by avoiding discriminatory State tariffs and has all but ruled out State broad based consumption taxes.

Without access to broad tax bases such as personal income and household consumption, State governments have turned to company payroll as the broadest tax base available to them. (Back to contents)

Section 2: Economic Assessment of Payroll Tax

2.1 Review of Payroll Tax Studies

The traditional criteria for taxation assessment is:

- Efficiency
- Equity
- Simplicity.

- ***Efficiency***

Efficiency in taxation is achieved when the imposition of a tax causes the least change to producer or consumer choices (unless such a change is the intention of the tax, for example taxes on petrol or cigarettes). Inefficient taxes alter economic choices by changing relative prices, leading to the misallocation of an economy's resources. It is often suggested by industry critics that payroll tax changes the price of labour relative to the price of capital and that this causes a significant substitution of capital for labour.

In times of low unemployment it was sometimes suggested that the alleged 'substitution effect' of payroll tax could foster more efficient production technologies and raise labour productivity. In times of persistently high unemployment the 'substitution effect' of payroll tax is the basis of most arguments against the tax. Crossman, Gschwind and Skinner (1995) present several points to counter this argument including:

- Substitution between capital and labour is constrained by technology and the production process
- Payroll tax will also increase the price of domestically produced capital goods reducing relative price differences between labour and domestically produced capital
- Substitution towards capital is offset by taxes on capital inputs that do not apply to labour (for example land tax and fuel taxes).

Mishan (1969) describes this substitution effect as a 'popular economic fallacy'. Taxes such as payroll tax initially increase the cost of employing labour and decrease the demand for labour. In a flexible labour market, decreased demand for labour reduces wages, returning the relative price of labour to its original level. The cost to the firm of employing a unit of labour has not changed but the wage payed to the employee has decreased. The distortion created by the tax is on the employee's decision to work or not to work rather than the firms choice between labour and capital.

Mishan's thesis draws the distinction between the economic incidence of payroll tax which in the long run, he argues, is borne by labour and the legal incidence which is borne by the employer. Firms are able to shift the tax burden backwards reducing wages and possibly employment, or forwards to consumers though increased prices. Reduced returns to shareholders is the third possible area of incidence. The distribution of the incidence of a tax between employees, consumers and shareholders, depends on the characteristics of the labour, product and equity markets.

While incidence analysis of payroll tax is contentious, Bently, Collins and Rutledge (1979) identify two observations that are generally accepted:

- To the extent that payroll tax can be passed forward to consumers through higher output prices, the net effect of the tax is comparable to a consumption tax.
- To the extent that payroll tax can be passed backwards to employees as lower wages, decreasing disposable income, the impact of the tax is similar to personal income tax.

Warren (1988) concluded that under the most likely assumptions, in the long run, payroll tax

is shifted in approximately equal proportions to consumers and wage earners.

The most popular efficiency criticisms of payroll tax are that it is i) *a tax on jobs* and ii) *a tax on exports*. Both claims appear to be without economic basis and are examined in more detail below.

'A Tax on Jobs'

The net long-term employment effect of a move away from payroll taxation is unlikely to be of the magnitude proposed by the advocates of such a move. Although surveys often indicate that businesses would consider hiring more staff if payroll tax were abolished, a large part of the cost reduction is likely to be absorbed by other price adjustments. Given the well documented similarities between a payroll tax and a broad based consumption tax, it is not obvious why the business community so vehemently oppose the former and champion the latter.

Chapman and Vincent (1986, 1987) claim that replacing payroll tax with income tax would lead to a short-term boost to employment of 175,000 jobs. This result is at odds with the principle of tax incidence analysis that there can be no significant behavioural differences between the effects of taxes of equivalent scope but imposed on different sides of a transaction. Chapman and Vincent achieve their result by assuming that the benefits of lower payroll tax go to employers (through lower labour costs) and the burden of higher income tax is borne by employees (through lower disposable incomes).

Chapman and Vincent, in effect, assume a reduction in the real wage and ignore the possibility that some of the payroll tax reduction would be shifted backwards resulting in higher wages or that increased income tax would raise the reservation wage. These assumptions may be appropriate in the short run, particularly if the reform has not been anticipated by labour markets, but long-run wage adjustment is likely to significantly reduce the employment impacts.

'A Tax on Exports'

There is also an argument that 'origin' based taxes, such as payroll tax, are taxes on exports, while 'destination' based taxes such as VATs are not. The basis of the argument appears to be the explicit inclusion of domestic export producers, and explicit exclusion of import producers, in the payroll tax base. The arguments against payroll tax have been often expressed in terms of the benefits associated with alternative tax systems such as VATs. These arguments ignore the role of flexible exchange rates on import and export prices. On this matter Kesserlman (1994) states:

> *'The export-augmenting claims for a destination based value added tax are among the most enduring mythologies of taxation policy.'*

and OECD (1988) states:

> *'The question has been raised as to whether reliance on consumption taxes is likely to affect a country's international competitiveness. There seems, however, to have emerged a consensus ... that this is not an important issue.'*

- ***Equity***

An exact definition of equity has eluded public economists, but the concept is generally related to the ability of taxpayers to meet tax liabilities. Horizontal equity implies that 'similar' individuals face 'similar' tax liabilities while vertical equity implies that 'different' individuals face appropriately 'different' tax liabilities.

It should be noted that equity is a notion that refers to individuals, not firms. Individuals should be treated equitably and firms should be treated efficiently. It is meaningless to talk about the equitable treatment of firms.

Vertical equity appears unlikely to be achieved by shifting payroll tax costs to consumers or employees because individuals in product and labour markets with different abilities to pay will face the same tax liability. The exemption of small businesses from the payroll tax base complicates horizontal equity issues. Consumers and employees of small businesses may incur a smaller tax liability than 'similar' consumers and employees of large businesses.

There appears to be little that can be said of the equity impacts of payroll tax other than, in the long run, its impact is similar to that of a proportional income tax or a flat-rate consumption tax. This outcome may be desirable for as Brennan (1977) illustrates equity concerns are most efficiently addressed by national governments rather than State and local governments because of the tendency for individuals to move between jurisdictions in search of the tax system that best suits their income. (The rich move to the least progressively taxed region, the poor move to the most progressively taxed region.)

- ***Simplicity***

A tax can be called 'simple' if for each dollar of revenue raised, both administration costs to government and compliance costs to taxpayers are low.

In 1986-87, NSW payroll tax administration cost was reported to be 0.2 per cent of payroll tax revenue. This figure compares favourably with other revenue sources such as land tax where administration cost account for 2.6 per cent of revenue.

The relatively low administration cost of payroll tax is due to the small number of firms subject to the tax. A revenue neutral adjustment to the tax-free threshold that doubled the number of liable firms and halved the average payment per firm would result in an increase in administration costs.

The compliance cost of payroll tax, estimated to be 3.6 per cent of revenue raised compares favourably with other revenue sources such as net personal income tax (10.8 per cent), company tax (22.0 per cent) and fringe benefits tax (10.6 per cent). Again, the low compliance cost is due to the small number of firms liable for the tax. A revenue neutral expansion of the payroll tax base would result in a significant increase in compliance costs. Clearly, compliance cost is an important consideration when determining the appropriate size of a payroll tax-free threshold. However expansion of the payroll tax base could be achieved with little increase in *marginal* compliance cost by defining the payroll tax base as exactly the same as the PAYE income tax base.

The incidence of payroll tax's compliance cost should be analysed in the same way as the direct tax liability. In the long run, compliance costs can also be shifted forwards or backwards to consumers or employees in the same way as the tax itself. (Back to contents)

Section 3: Tax-Free Thresholds

The most important recent development to payroll tax regimes within the States has been the expansion of payroll tax-free thresholds. Every payroll tax system in Australia operates with a significant tax-free threshold. At $600,000 the NSW threshold is second only to Queensland in size (see Table 1.1). The continued rise in the NSW threshold from $120,000 in 1983 to its present value has concentrated the payroll tax burden on an ever reducing proportion of firms.

The rapid expansion of payroll tax-free thresholds in Australia is partly due to the competitive pressures of Australia's federal system of Government. Competition between States to attract investment has lead to the increased use of payroll tax exemptions either through tax-free thresholds for small firms or through 'incentive packages' for large business looking to relocate to a particular State. The result has been that States have further narrowed their already narrow tax base. The competitive forces of the Australian federal system appear to have resulted in a competition to narrow the payroll tax base rather than lower the payroll tax rate.

In 1986-87 the exemption of small firms was estimated to have cost New South Wales $400 million in foregone revenue. That is, for every $5 of payroll tax revenue collected, $1 was foregone through exemptions to small firms. Since then exemptions have increased to such an extent that if, in 1994-95, the 7 per cent marginal rate had been applied to all wages, salaries and supplements in New South Wales, total payroll tax revenue would have increased by 117 per cent. In revenue neutral terms, the same level of payroll tax revenue could have been collected with a flat rate of 3.2 per cent.

3.1 The Case For Payroll Tax-Free Thresholds

The most obvious rationale for payroll tax-free thresholds is **simplicity**. The **compliance costs** of many taxes tend to fall disproportionately on small firms. A study of New Zealand's GST found that the smallest firms face proportional compliance costs 500 times those of the largest firms. Extending the payroll tax base to include small firms accompanied by a revenue neutral rate reduction is likely to significantly increase compliance costs as a proportion of payroll tax revenue as total revenue would be unchanged but more firms would incur the compliance costs.

The **administrative costs** to governments of levying very small taxes on a large number of small firms can be prohibitive. In the case of many small firms the costs associated with collecting, processing and enforcing payroll tax may be greater than the revenue collected.

The case for the tax-free threshold is often stated in terms of the unique role of small business in the economy. For example:

Encouraging Market Entry: Taxing the small business sector may reduce the likelihood of new (small) firms entering the market to take advantage of profit opportunities left unexploited by established firms. Barriers to market entry can reduce competition in product markets, leading to inefficient production.

Seedbed Role: Most big businesses start out as small businesses. It is argued therefore that small business plays a vital seedbed role as the birthplace for successful big businesses. However, an Australian study which tracked small businesses from 1973 found

that 32 per cent of small business fail in the first year and only 8 per cent survive in perpetuity. The seedbed role appears overstated as very few small businesses ever become big businesses. Rather they tend to replace other failed small businesses.

Innovation: It is sometimes argued that the small business sector plays a vital role in the area of innovation. Reduced bureaucracy and flatter management structures allow small firms to more quickly adapt to markets and take advantage of new opportunities. However, big firms spend considerably more on research and development (R&D) than small firms and growth in R&D spending over the past nine years has been much greater for big firms (22.7 per cent) than for small firms (15.8 per cent). (The absence of managerial innovation from the ABS definition of R&D may understate the contribution of small business.)

3.2 The Case Against Payroll Tax-Free Thresholds

The main argument against payroll tax-free thresholds is that it creates a **distortion** resulting in reduced output and employment.

When all firms are taxed at the same rate, the most efficient firms are able to produce at the least cost, charge the lowest price and survive in a competitive market. Under this system scarce labour and capital resources are allocated to the most efficient firms and the total output produced from these resources is maximised. When firms are taxed at different rates, less efficient firms are able to sell their products at an artificially low price, due to their preferential tax treatment. The result is that resources are over allocated to the firms receiving preferential tax treatment and total output is reduced.

The existence of a threshold also **reduces the incentive for small firms to grow** and reach their true optimal operating size. A small firm with a reduced tax liability to pass on to consumers and employees may find it more profitable to remain small rather than expand to reach its true optimal operating size. Cost savings from expanding or merging may be cancelled out by the increased tax liability.

It is also possible that the threshold system **reduces exports**. If there is a positive correlation between payroll size and propensity to export, then payroll tax will be concentrated on exporting firms. An established finding of public finance is that the distortion created by a tax is minimised when the tax is levied in inverse proportion to the commodity's elasticity of demand (Ramsey's Inverse Elasticity Rule). That is, in order to minimise the distortion of a tax, commodities with demand that is less sensitive to price should be taxed more heavily than commodities with demand that is more price sensitive.

If export markets are more price sensitive than domestic markets, then the threshold system will create a greater than necessary distortion. It is possible that shifting the payroll tax from exporting firms to firms supplying the domestic market will lead to an overall increase in national and State output. This claim is considered in Section 4. (Back to contents)

Section 4: Simulation

4.1 Discussion

Section 2 presented arguments supporting the assertion that the *long-run* impact of a comprehensive payroll tax is similar to a flat-rate consumption tax or proportional income tax. The purpose of this section is to examine the *short-run* impact of payroll tax reform by

testing the hypothesis that:

> *'Broadening the NSW payroll tax base will increase the competitiveness of NSW industries and hence increase the output and employment of the NSW economy.'*

This hypothesis is tested by simulating the removal of the payroll tax-free threshold accompanied by a revenue neutral reduction in the marginal payroll tax rate. The simulation is conducted using the MONASH Multi-Regional Forecasting model (MMRF).

A discussion of the likely short-run impacts of expanding the payroll tax base and reducing or abolishing *other* NSW State taxes is given in Section 4.5. This section also includes a brief comment of the possible *long-run* impacts of payroll tax reform. However, given the similar long-run incidence of a comprehensive payroll tax, a proportional income tax and a broad based consumption tax, the simulation and discussion focus on short-run impacts.

MMRF does not recognise the size of firms in each industry, however industries can be characterised by their relative proportion of small or large firms. Industries with a high proportion of large firms, such as mining, finance and public utilities, pay a higher average rate than industries with a low proportion of large firms, such as agriculture, construction and personal services. The public services industry is not included in the payroll tax base. The community services industry pays a very low average rate of payroll tax as many of the 'firms' in this industry are payroll tax exempt for reasons other than size (for example, charities).

Table 4.1: New South Wales Payroll Tax Rates by Industry

Industry	**actual rates**	**new rates**	**shocks**
Agriculture	1.0 %	4.0 %	298.1 %
Mining	5.5 %	4.0 %	-26.9 %
Manufacturing	3.8 %	4.0 %	5.8 %
Public Utilities	5.8 %	4.0 %	-32.1 %
Construction	1.9 %	4.0 %	119.3 %
Domestic Trade	3.9 %	4.0 %	1.6 %
Transport & Communications	2.8 %	4.0 %	43.1 %
Finance	6.5 %	4.0 %	-39.0 %
Public Services	0.0 %	0.0 %	0.0 %
Community Services	0.4 %	0.4 %	0.0 %
Personal Services	2.8 %	4.0 %	44.3 %
Total New South Wales	**3.1 %**	**3.1 %**	

Table 4.1 shows the 'actual' average rates of payroll tax paid by each industry as given in the MMRF 1990-91 database. The 'new rates' indicate the payroll tax rates required when the

base is expanded to include all firms. The 'shocks' column shows the percentage change in the payroll tax rates required for such a reform. The changes to the NSW payroll tax regime are *ex-ante* revenue neutral. That is, the average rate of payroll tax across the NSW economy remains unchanged at 3.1 per cent.

The shocks range in size from a 298 per cent increase (agriculture) to a 39 per cent decrease (finance). While the percentage changes are large the actual changes to the payroll tax rates are relatively small. The two industries mentioned undergo tax rate changes from 1.0 per cent and 6.5 per cent respectively, to a common rate of 4.0 per cent.

4.2 Methodology

The methodology employed involves calculating the required changes to NSW payroll tax rates (as given in Table 4.1) and 'feeding' them into the MMRF model as exogenous shocks. The model then determines the economy-wide impact of the shocks.

The MMRF model includes a multi-regional input-output database. The database is assumed to represent the economy in equilibrium. The exogenous shocks cause a shift from the initial equilibrium to a new one. In this case the exogenous shocks are changes to NSW payroll tax rates. The results represent the change in the value of variables between the two equilibria: that is, the short-run, economy-wide impact of the payroll tax reform.

4.3 Modeling Assumptions

Real public consumption is indexed to real private consumption for all governments. The simulation is conducted under short-run conditions (two-year time frame) to show the impact of the reforms on employment. **Capital does not have time to adjust** to clear the market and **real wages are fixed**. All prices are relative to the nominal exchange rate numeraire which is assumed fixed. Under these short-run assumptions the typical long-run incidence result (that a comprehensive payroll tax is similar to a proportional income or broad-based consumption tax) is unlikely to be achieved as firms are unable to pass the tax on to employees as lower wages.

All **tax rates are fixed** and **budget deficits absorb any changes in government fiscal positions**. The assumption of fixed tax rates is appealing when governments are unwilling to increase taxes and demand for services makes reducing taxes difficult. However, a more neutral assumption may be to allow tax rates to adjust to achieve a constant real budget outcome. There is no strong reason to prefer one assumption over the other. The fixed tax rates assumption has been adopted so as to identify the impact of the reform on budgets.

4.4 Simulation Results

All results are 'comparative static'. They represent the change in the value of variables above or below what would have occurred in the absence of the payroll tax reforms. That is, the results isolate the effect due only to the change in payroll tax rates. The figures are not forecasts or growth rates as they do not indicate the future values of any variables.

- *Macroeconomy*

Table 4.2: NSW and Australian Economies

Macro Variable	NSW %	Aust %
GSP / GDP	0.057	0.033
Real Private Consumption	0.105	0.036
Employment	0.079	0.051
Export Volumes	0.281	0.061
Trade Balance: $ billion	0.017	0.014
Real Wage	0.000	0.000
Consumer Prices	-0.095	-0.040

The results show that in the short run, real NSW GSP is predicted to be 0.06 per cent higher than it would otherwise have been. This is equivalent to more than $80 million in 1995-96 GSP. The predicted national GDP increase is 0.03 per cent or over $140 million in 1995-96 GDP. The results indicate that almost half of the additional activity occurs outside New South Wales. Private consumption expenditure, which can be used as a proxy for welfare, increases by 0.11 per cent in New South Wales and 0.04 per cent nationally. NSW employment is predicted to be 0.08 per cent higher than it would otherwise be. The increase in demand for labour is equivalent to 1700 full-time, person years in 1995-96 employment figures. The national employment increase of 0.05 per cent is equivalent to over 3000 person years.

As expected, the major source of growth in the NSW and national economies is exports. The payroll tax reforms have the short-run effect of shifting some of the tax from large exporting firms such as those in the mining industry, to smaller firms operating in 'domestic' industries, such as construction and personal services. In highly competitive export markets demand is assumed to be more price sensitive than in domestic markets. The competitive advantage gained by exporting firms from reduced payroll tax rates translates into a significant increase in export demand and a $14 million improvement to the national trade balance. NSW's international trade balance improves by $17 million. The increase in export activity more than offsets any losses caused by increased taxation on smaller domestic producers.

Consumer prices decrease relative to the nominal exchange rate by 0.10 per cent in New South Wales and by 0.04 per cent nationally over the short-run time frame. The decreases should be thought of as a once-off shift in prices rather than a decrease in the rate of inflation. The results are consistent with the hypothesis that broadening the payroll tax base, by abolishing the payroll tax-free threshold, would lead to an increase in output and employment.

- *Industry Results*

Table 4.3: NSW Employment and Output by Industry

Industry	Output %	Employ %
Agriculture	-0.634	-1.040

Mining	0.854	1.184
Manufacturing	0.135	0.169
Public Utilities	0.207	0.422
Construction	0.009	0.011
Domestic Trade	0.076	0.092
Transport & Communication	-0.284	-0.399
Finance	0.195	0.351
Public Services	0.073	0.081
Community Services	0.127	0.139
Personal Services	-0.029	-0.043

In most cases the performance of individual NSW industries is consistent with the direct changes in the average payroll tax rate paid by each industry. Mining, public utilities and financial services all expand after receiving a significant reduction in their payroll tax bill. Agriculture, transport and communications and personal services decline due to the higher average payroll tax rates in those industries.

Industries such as manufacturing, domestic trade and community services undergo virtually no change in their average payroll tax rate but all increase output and employment. The construction industry manages modest increases in output and employment despite an increased average payroll tax rate. Industry results at the national level display a similar pattern to the NSW results.

- *Government Finances*

Table 4.4: NSW and Commonwealth Government Finances

Government Finance Variables	**NSW State**	**C'wealth**
Government Prices	-0.059	-0.036
Real Indirect Tax Revenue	0.215	0.016
Real Payroll / Income Tax Revenue	0.525	0.026
Real Public Expenditure:	0.105	0.036
Real Budget Outcome: $ million	3.532	34.729

The NSW Government's price index decreases by 0.06 per cent while Commonwealth Government prices decline by 0.04 per cent. There is no increase in the cost to governments of providing services as the payroll tax rates in the public services and community services industries are unchanged. NSW and Commonwealth Government consumption increases by 0.11 per cent and 0.04 per cent respectively in line with real private consumption. The payroll tax rate changes imposed on the model were *ex-ante* revenue neutral, however the expansion in output and employment leads to increased payroll tax revenue in New South

Wales of 0.53 per cent. Commonwealth income tax revenue increase by 0.03 per cent.

Increased tax revenue results in an improvement in NSW's real budget position equivalent to $3.5 million ($1990-91), despite modest growth in public consumption. The Commonwealth Government is able to improve their budget position by $34.7 million due to their broader tax base.

4.5 Limitations of Modeling

- *Sensitivity to Assumptions*

Economic models rely on assumptions that reduce the economy to a level of simplicity so that it can be analysed. Most of the theory assumptions employed in MMRF originate from neoclassical economics. Assumptions such as perfect competition in product markets, labour market equilibrium, zero pure profits and constant returns to scale production functions are not always valid for Australia's State economies. It is important to consider whether these assumptions may have a significant impact on the modeling results.

The assumption of perfect competition is especially relevant to payroll tax reform. If markets are imperfectly competitive, having a small number of large firms using their market power, results may be significantly different. Shifting payroll tax from large firms to small firms may only further concentrate market power on a few dominant firms resulting in undesirable pricing games. If barriers to market entry are high there will be no new firms to compete away the excess profit of the incumbent firms. Under these conditions, the benefits of broadening the payroll tax base may be less than those reported. The MMRF model is not capable of quantifying this loss.

- *The CGE Framework*

The CGE framework is by no means universally accepted as the ideal framework for analysing tax reform. Microsimulation models offer superior data at the household and firm level and do not suffer from the industry and regional aggregation problems of CGE models such as MMRF. Microsimulation has further appeal in that it requires minimal economic theory and assumptions. On these matters Blundell (1992) concludes that the impact of tax reform on labour supply can not be analysed without microsimulation. The advantages of microsimulation over CGE are at least partially negated by microsimuation's limited ability to model behavioural responses to relative price changes.

- *Compliance Cost*

The MMRF results do not take into account the additional compliance and administrative costs from expanding the payroll tax base to cover small firms. Even if compliance costs are past on to employees and consumers these costs represent a welfare loss that has not been quantified.

- *Long-Run Impacts*

The simulations are conducted over a short-run time frame. It is likely that over a long-run time frame some of the national benefits of the reform will disappear as wages and prices adjust. If, in the long run, increased demand for labour results in higher real wages rather than increased employment, some of the predicted additional output will not eventuate. Under the standard MMRF long-run assumption of fixed national employment, with real wage

adjustment resulting in labour market equilibrium, long-run impacts of the reform would be smaller than short-run impacts at the national level.

- *State Tax Modeling*

In its current level of development, MMRF is reasonably well equipped to model payroll tax reform, but its ability to model other State taxes is limited by the lack of a detailed State tax specification. This shortcoming has no implication for results reported in this paper but it does restrict the model's ability to simulate reforms involving other State taxes. MMRF is currently receiving theoretical and data base modification which will allow for more detailed State tax modeling.

If, rather than lowering the payroll tax rate, the expansion of the base was accompanied by the reduction or abolition of other NSW State taxes, results may vary from those reported in Section 4.1. Preliminary modeling results (not reported in this paper) indicate that in the short run, expanding the payroll tax base and reducing other NSW State taxes is likely to have a negative impact on the NSW and national economies.

The result is heavily influenced by the assumption of fixed real wages in the short run. Increasing payroll tax increases the cost of employing labour. Insufficient flexibility in the real wage prevents the incidence of the tax being passed backwards to wage earners resulting in reduced employment. The reduced tax on other inputs lowers non-labour costs but there is insufficient time for the relative prices of labour and other inputs to adjust to account for the tax changes.

- *Firm Size*

MMRF models industries, not individual firms. It has been assumed that all broadly defined industries pay the same average rate of payroll tax. This is not the same as assuming all firms pay the same rate of payroll tax. The impact of the reforms on large exporting firms in industries dominated by small firms is lost. So is the impact on small non-exporting firms operating in industries dominated by large firms. It is not clear whether this shortcoming would systematically bias results in either direction. A greater level of industry disaggregation in the model would reduce the scope for this effect. (Back to contents)

Section 5: Summary and Conclusion

State governments' reliance on payroll tax as a major source of revenue has lead to the tax being described as a 'tax on jobs' and a 'tax on exports'. These claims are evaluated by considering previous studies into the efficiency of payroll tax. Both claims appear to be without any serious economic underpinning.

The purpose of this paper was to test the hypothesis that:

> *Broadening the NSW payroll tax base will increase the competitiveness of NSW industries and hence increase the output and employment of the NSW economy.*

The results show that expanding the payroll tax base to cover all firms, by reducing the payroll tax-free threshold and the payroll tax rate, improves the NSW economy in terms of

output, employment and consumption in the short run. These benefits coincide with an improvement in the real budget positions of the NSW and Commonwealth governments. The result is due to reducing the tax rate on industries that operate in price sensitive export markets, and thereby improving Australia's export performance.

The long-run impact of payroll tax reform is likely to be of a smaller magnitude than the short-run impact as adjustment in the real wage occurs in response to new tax rates. Nevertheless, the short-run results suggest significant gains from payroll tax reform.

These results are generally consistent with previous studies of payroll tax that have concluded that reducing the reliance on payroll tax is most efficiently achieved by lowering the rate of payroll tax and expanding the tax base rather than by increasing the payroll tax-free threshold and further narrowing an already narrow tax base. (Back to contents)

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