Tax reform and the natural resource industries

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Tax reforms passed by Federal Parliament in June 1999 include rationalising indirect taxes, a tax mix change, and a smaller fiscal surplus. The impact or first-round effects on the natural resource industries indicate large gains. Important second-round reactions, particularly a real currency appreciation, erode most of, and in some cases more than all of, the first-round gains. A complete assessment requires the use of general equilibrium models.

1. Introduction

In June 1999 Federal Parliament passed a package of tax reforms for Australia involving a partial rationalisation of indirect taxes at Commonwealth and State levels, a much lower personal income tax rate schedule partly funded by income base-broadening measures, a tax mix change away from income to consumption, and an overall reduction in the budget surplus. The reforms were motivated by concerns with the existing tax system in terms of revenue security, non-neutrality and inefficiency, vertical and horizontal inequity, and complexity and high compliance costs.[1] This article provides a framework for assessing the impact of first-round effects, and importantly the second-round price and cost changes, of the tax reforms on the absolute and comparative advantages of the agricultural, mining and other natural resource-based industries. It emphasises the importance of second-round effects, especially a likely currency appreciation, and the need to use a general equilibrium analytical framework as illustrated by Dixon and Rimmer (1999), Murphy (1999) and Johnson, Freebairn and Scutella (1999).

2. Tax reform package

Table 1 recasts key components of the 1999 tax reforms in a structure useful for analysing second-round economy-wide reactions of prices and quantities

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[1] For more detailed criticisms of the present taxation system see, for example, Pender (1997), Johnson *et al.* (1997), Abelson (1998) and Costello (1998).

Table 1 Some characteristics of June 1999 taxation reform package

Fiscal change	Estimated revenue impact* A$ billion, 2001–2
1. Indirect taxation	
Add 10% GST	28.16
Indirect taxes abolished:	
WST	−17.75
State FID and market security stamp duty	−2.39
Net reduction in diesel fuel rebates	−0.89
Net changes in excise, franchise fees and wine	
equalisation tax	−1.02
Other (luxury car, bed tax, gambling tax)	−0.41
Net increase in indirect taxation	5.70
2. Income taxation	
Personal income tax rate reduction	−12.35
Base-broadening measures:	
Abolish savings rebate	2.14
FBT changes	0.76
Business tax	0.97
Administration measures	2.03
Net reduction in income taxation	−6.45
3. Increased social security	5.11
4. Net reduction of budget surplus	−4.64

Note: * A positive denotes a gain in revenue and a negative a loss
Source: Compiled from Costello (1998) and Treasury (1999)

to the changes. Indicative numbers for the revenue changes are given for the year 2001–2.

Changes to indirect taxes include a partial rationalisation of existing indirect taxes. About 8 of the 10 percentage points of the new goods and services tax (GST) is used to replace existing indirect taxes, including the wholesale sales tax (WST), financial institutions duty (FID) and stamp duties on marketable securities, and to fund lower taxation on diesel fuel for rail transport and for long-distance road transport. Proposals in the original Costello (1998) package also to replace the debits tax and other business stamp duties have been deferred to at least July 2005. The current narrow-based and inefficient payroll tax system and stamp duties on a number of household transactions remain. The GST is a broad-based tax on final consumption expenditure, although basic food, health, education, charitable and religious services and some child care are tax free or zero rated. Businesses receive a credit for GST on all inputs, except financial services.

By contrast, the replaced indirect taxes have a heavy initial incidence on some business inputs,[2] and they have narrow tax bases with high and variable tax rates when compared with the GST.

The partial rationalisation of indirect taxes results in a broader and more secure revenue collector, in particular because the rapidly growing service sector is brought into the tax net; it removes many distortions to business production decisions; it provides a more neutral pattern of consumption taxes; and it likely adds to horizontal equity (Johnson *et al.* 1998). To an important extent the replaced indirect taxes have origin-base characteristics, in the sense of falling on the production costs of exports but not of imports, whereas the GST is a destination-base tax falling on imports with exports being tax free. The removal of some indirect taxes on business inputs and the shift from an origin-base to a destination-base tax in the first round raises profitability of the natural resource industries. On average, cost savings are estimated at around 3.5 per cent (Costello, 1998). But, as argued below, these first-round effects initiate a set of second-round price responses which work to erode most of the apparent first-round gains.

Considerable changes in the process of taxation of petroleum, alcohol and tobacco products are included in the 1999 tax reforms.[3] State business franchise fees are to be combined with Commonwealth excise and other special taxes, in the process achieving some simplification. The combined effect of these changes and introduction of the GST is to raise the overall tax burden on alcohol by about 2 per cent, a deliberate 15 per cent increase in taxation of tobacco, no change in the consumer price of petroleum products, a significant drop in the tax burden on diesel fuel used for rail transport and long-distance road transport, and a fall in petroleum tax for other business users (because the GST is a refundable input tax credit).

In net, the 1999 indirect tax reforms collect more revenue. For 2001–2 the estimated increase of indirect tax revenue is A\$5.7 billion, about a 7.5 per cent increase, or roughly a 1.5 per cent addition on household consumption expenditure.

The income tax reforms of 1999 broaden the income tax base, reduce personal income tax rates, and in net collect less revenue. The base-broadening measures include abolition of the savings rebate, adding

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[2] Johnson *et al.* (1998) estimate that 52 per cent of the WST falls initially on business inputs, such as motor vehicles and paper products, and 80 per cent of FID falls initially on business.

[3] In part the relatively high tax burdens on these products are justified as a user fee for road construction and maintenance in the case of petroleum products, and as an externality-cost tax for the three products. However, the reform process did not question the current *ad hoc* system of special taxation nor the appropriate rates of special taxation.

superannuation and fringe benefits to group certificates, tightening access to fringe benefits, more consistent tax treatment of different business entities, streamlining and bringing forward the payment of business taxes, and more effective tax administration. These measures are estimated to collect nearly another A$6 billion in 2001–2. It is likely the Ralph Report on business taxation (released in September 1999) will recommend further changes to the business income tax base. Even then, other studies, including the tax expenditure statements prepared by Treasury (1997), indicate that the income tax reforms are still a long way from yielding a comprehensive income base. Remaining concessions include superannuation, fringe benefits, work-related expenses, and capital gains.

Personal income tax collected will be reduced by a combination of adjustments in the tax brackets and lower tax rates. For example, the tax-free threshold rises from A$5400 to A$6000 and the top bracket from A$50 000 to A$60 000, and the 34 and 43 per cent marginal tax rates fall to 30 per cent. The A$12 billion a year, or 13 per cent, fall in income taxation revenue benefits employees, employers, the self-employed and the income earned on savings.

Combining the income base-broadening measures and the lower personal income tax rate schedule, income tax revenue falls. In 2001–2 the net reduction is estimated to be about A$6.5 billion, or 5.6 per cent of total income tax revenue. This average reduction hides a diverse pattern of individual outcomes. Those unaffected by the base-broadening measures pay 10 per cent or more less income tax. Some heavily affected by the base-broadening measures may pay more income tax.

The 1999 tax reform package involves a tax mix change, with less income taxation and more indirect taxation directed primarily to consumption. Effectively the tax mix change increases incentives to save rather than consume, and it reduces the tax wedge between the pre-tax return earned by investors and the after-tax return received by savers. These incentive changes will induce changes in decisions by businesses and households and thereby lead to second-round price and cost change effects of tax reform.

An important political constraint behind the acceptable 1999 tax reform package passed by Parliament was a perception that there be no losers when due consideration is given to the overall package of changes. Higher average consumer prices are to be compensated for by personal income tax cuts, increases in social security benefits and pensions, and special rebates. The cameos of net financial outcomes for different households in Costello (1998) for the original proposals and in the press for the proposals passed by Parliament in June 1999 show everyone being a winner. This extraordinary set of outcomes flows primarily because the cameos assume no one loses from the income base-broadening measures or from the smaller budget

surplus, in total a 'free feed' of over A$10 billion a year. Only net efficiency gains provide a 'free feed', and the sum of A$10 billion exceeds all serious estimates. Nonetheless, Parliament, most lobby groups and the general public appear to have accepted the reform proposals as meeting acceptable social equity goals.

An important characteristic of the 1999 tax reform package is its net fiscal cost, estimated for 2001–2 at nearly A$5 billion or 1 per cent of GDP. A fiscal stimulus of this magnitude almost certainly will have second-round effects on incomes, prices and quantities which, in turn, will have second-round effects on the natural resource industries.

3. Indirect tax rationalisation

While the first-round effects of using a GST to replace the WST and the FID, and to fund some reduction of excise on petroleum products, clearly improve profitability of the natural resource industries, the indirect tax rationalisation sets in train a number of second-round price and quantity responses which reduce the first-round gains and in some cases may turn them into losses. The second-round responses are driven by competitive pressures and by upward forces on the exchange rate as a set of origin base taxes is replaced by a destination base tax.

An important first-round effect of the indirect tax rationalisation is a reduction in taxes on business inputs. A large part of the WST and FID, and all of the diesel excise to be reduced, fall initially on business inputs. By contrast, the GST allows business to claim a fully refundable credit for GST paid on inputs, with the exception of financial services. In net, indirect taxes on business inputs in 2001–2 are estimated to fall by A$12 billion, effectively a cost saving for businesses,[4] including the natural resource industries. This first-round gain in business profitability represents a move from a starting equilibrium. The disequilibrium initiates behavioural reactions which differ between non-traded goods and services and traded products, including most natural resource industries.

For the non-traded products, forces of competition lead to a process of output price reductions which will continue until normal profits are returned. Effectively, the input cost reduction associated with abolition or reduction of existing business input taxes is passed forward to buyers as lower output

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[4] The estimated business cost savings are based on 58 per cent of WST at $10.3 billion, 77 per cent of FID and stamp duty at $1.8 billion and the $0.89 billion reduction of diesel excise (using data on business shares from Johnson *et al.* 1998 and on tax paid from table 1), partly offset by $1.3 billion of input taxes on financial services (using data from Murphy 1999, table 1).

prices. Assuming, as seems likely for most of the economy in the long run, that average costs are close to being constant around the current levels of production, the cost savings will be passed forward in full. By the same reasoning, the 10 per cent GST will be passed forward as higher consumer prices for non-traded goods and services. Competitive behaviour, together with official monitoring by the ACCC and unofficial headline hunting by the media, are likely to ensure symmetric responses of price increases for introduction of the GST and price decreases with withdrawal of WST and FID and reduction of diesel excise.

For traded goods and services, both exports and import substitutes, the second-round adjustment process is different. To illustrate the process, assume for simplicity that Australia is a small country and that the law of one price holds. Initially, in the same way as the non-traded sector, the traded goods and services gain when the indirect tax rationalisation reduces input costs in the same way as the non-traded sector. No GST is levied on exports, and the GST applies equally to imports and Australian-produced substitute imports. Against given world prices and the initial nominal exchange rate, the traded sector at first appears to avoid the profit-eroding effect of competition driving down producer output prices.

However, given that the pre-tax reform situation represented an equilibrium, the first period effect boost to profitability of the traded sector is not sustainable. Two sets of reactions to restore equilibrium may occur, or a combination. First, with profitability of the traded sector rising relative to the non-traded sector, competition for labour, capital and other resources to move into the traded sector will in due course drive up input costs and inflation. The extent of cost increases will depend on macroeconomic circumstances. Second, increased profits in the traded sector will lead to more exports and a reduction of imports, both reducing the current account deficit from what it otherwise would be. In turn, there will be an increase in demand for A\$, and under a floating exchange rate the Australia currency will appreciate.[5] A combination of inflation and lower A\$ prices for exports and imports, that is a real currency appreciation, will reduce profit levels in the traded sector, both absolutely and relative to the non-traded sector.

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[5] For simplicity it is assumed that most of the effects of the indirect tax rationalisation are on the current account side of the balance of payments with relatively smaller, if any, changes to net international capital flows on the other side of the balance of payments or to the balance of aggregate domestic saving and investment. If anything, the tax mix change and smaller budget surplus characteristics of the 1999 tax reform package discussed below suggest these characteristics will further push the A\$ appreciation.

In practice the magnitude of the second-round appreciation of the A$ will vary with key assumptions and elasticities, about which there is much uncertainty.[6] These include elasticities of export demand and import supply, the link of domestic and world prices, and the mix of inflation and nominal exchange rate appreciation.

The exchange rate appreciation has significant second-round effects on the incidence of the proposed indirect tax changes, and particularly on the natural resource industries. First, the appreciation is part of the process to restore an equilibrium in the production sector where businesses continue to earn normal, rather than above normal, returns on resources employed. Second, for the traded sector as an aggregate, the first-round gains in lower indirect taxes (WST, FID, diesel, etc.) on business inputs is on average eroded by a currency appreciation lowering output prices in A$ terms received by business.

Third, however, particular natural resource industries can be net winners or losers. Those which directly and indirectly pay relatively high business input taxes in the way of WST, FID, stamp duties and diesel excise for long-distance transport, gain more from the input cost reductions than they lose from the output price fall caused by the currency appreciation. Conversely, other natural resource industries which currently pay relatively small indirect taxes on inputs will experience larger output price reductions than cost reductions, and in due course they will lose resources to other industries.

Fourth, the exchange rate appreciation driven by the indirect tax rationalisation reform will lead to a second-round set of changes in producer input costs and consumer prices. The appreciation means lower A$ prices for imports and exports than otherwise. For business, for example, the appreciation means lower prices for imported machinery and materials; and lower prices for exports also lower input costs for coal, wheat and so forth used for further Australian production. That is, business input costs throughout the economy will fall further because of the second-round effects of a currency appreciation, and competition will result in these extra cost savings being passed forward to buyers.

For consumers, the currency appreciation means lower prices for export products, for example meat, for import products, such as motor vehicles and clothing, and the second-round reduction of input costs mean lower prices also for non-tradeable goods and services. Clearly these second-round price

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[6] For example, of the available estimates from general equilibrium model studies of the Costello (1998) reforms, Treasury (in Costello 1998) estimates a 3.5 per cent appreciation, and this is assumed by Dixon and Rimmer (1999). Murphy (1999) estimates a 4.1 per cent appreciation, and Johnson, Freebairn and Scutella (1999) estimate 3.8 per cent.

reductions involve long production chains and inter-industry linkages. Via these price reduction mechanisms the currency appreciation associated with the rationalisation of indirect taxes transfers apparent large first-round gains for the traded sector, including the natural resource industries, to Australian households and consumers.

4. Tax mix change

The increase in indirect taxation and fall in income taxation shown in table 1 effectively reduce the tax burden on saving and investing in Australia. Kay and King (1983), Boadway and Wildasin (1984) and Benge and Albon (1991) provide formal analyses of the effects of changes in incentives of this type. The purpose here is to consider likely effects of a tax mix change on the natural resource industries.

It is likely that the 1999 tax reform package will have very little effect on the Australian private savings rate. For most taxpayers the reduction of marginal income tax rates is 4 percentage points or less. Already a majority of saving is subject to consumption tax treatment, including housing, or will not be affected by the reforms, particularly superannuation, or receives other income tax concessions, including savings earning capital gains (see Pender and Ross 1993 and 1995), and after-tax returns on these forms of saving will not be altered by the proposed tax reforms. The income base-broadening measure of abolishing the savings rebate, at a budget cost of over A\$2 billion a year, removes an incentive to save.[7] Then, the net increase in incentives to reduce consumption and to increase saving is small. At the same time, recent detailed studies of saving behaviour in the United States report a low elasticity of the quantity of savings with respect to real after-tax returns (Auerbach 1997; Engen and Gale 1997; Hubbard 1997). It is likely that the low elasticity applies also to Australia.

Proposed changes to the Australian taxation system should stimulate investment in two ways. First, the lower personal income tax rates reduce the tax wedge between before- and after-tax returns on investment for domestic savers. But, as noted above, the hybrid tax system means this effect is partly muted for many investment options. Also, current reform proposals will not benefit overseas investors, and arguably the proposal to require franking of all dividends will actually increase the tax wedge faced by foreign investors. The Ralph Report and subsequent business tax reforms may well result in other changes.

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[7] There is, however, doubt about the effect of the savings rebate on the level of saving. In particular, because there is a ceiling on the allowable deduction, for many savers the rebate affects intra-marginal rather than marginal savings.

Second, the reduction of indirect taxes on business inputs is estimated to reduce the costs of investment by 7.5 per cent in Costello (1998), and this reduction will be enhanced by the currency appreciation already discussed. This lower-cost-of-investment effect lies behind the significant investment booms in the simulations reported by Dixon and Rimmer (1999), Murphy (1999) and Johnson, Freebairn and Scutella (1999). As capital-intensive industries, the natural resource industries, especially mining, gain some comparative advantage from the reforms.

Most of the extra investment, given the much smaller increase in domestic saving, has to be funded by the inflow of additional foreign savings. The greater attraction of investment in Australia draws in the foreign savings. The associated increase in net capital inflow increases the demand for Australian dollars and pushes the A$ higher. Only a part of this currency appreciation pressure will be offset by increased imports of overseas capital equipment. The currency appreciation means lower A$ prices for exports of the natural resource industries and a flow-on to lower prices for domestic sales.

The longer-term effect of the tax-reform-driven investment boom on the exchange rate is ambiguous. To the extent the investment leads to a larger GDP than otherwise, the higher income generates more domestic saving. The increased inflow of foreign savings has to be repaid at some stage, and interest or dividends paid raise the net foreign income outflow. These forces work to depreciate the currency. At the same time, the increased returns on investment in Australia represent a long-term structural change requiring a larger capital stock than otherwise and more investment funds from overseas than otherwise. Model assumptions about, and parameters in, savings and investment functions, the response of GDP to the investment stimulus, and the modelling identities on the balance of payments and for the flow of funds for saving and investment will influence the estimated longer-term exchange rate effects of the tax mix change.

5. Smaller fiscal surplus

The tax reform proposals passed by Federal Parliament in June 1999 involve a sustained net fiscal stimulus beginning in July 2000 of about A$5 billion a year, or just under 1 per cent of GDP. Only under special and unlikely circumstances will the fiscal push have zero second-round effects on the natural resource industries.

An initial effect of a smaller budget surplus than otherwise is a fall in Australian saving. If nothing else changes, including investment and private saving, the draw on foreign savings will rise. In turn, the increase in net capital inflow has to be balanced by a deterioration of the current account deficit, with a real currency appreciation driving the required

contraction of the traded sector. This set of extreme reactions which are particularly harmful to the traded sector is one expression of the twin deficit hypothesis.

Income tax reductions and higher social security payments in aggregate exceed the increase of indirect taxes so that on balance real disposable incomes of most Australians rise. Via multiplier and accelerator processes the increased disposable income generates a higher GDP. In turn, the higher GDP brings more private saving, more tax revenue for more public saving, and an increase of imports, all of which exert pressures for a currency depreciation; the higher GDP also brings more investment with the opposite effect. But, a part of the aggregate demand increase will go to inflation. Given the magnitude of the fiscal stimulus in what will be the eighth year of a cyclical upswing, very special macroeconomic circumstances are required for there to be no inflationary push.

Then, the overall fiscal stimulus characteristic of the tax reform package will induce a real currency appreciation driven by a combination of a higher exchange rate and higher inflation than otherwise. The magnitude of the effect will vary with different model assumptions and parameters. Natural resource industries, being primarily in the traded sector, will lose from the second-round real currency appreciation effects of the net fiscal stimulus compared against a revenue-neutral tax reform package.

6. Conclusion

Assessment of the effects of the June 1999 tax reform package which focus on the first-round effects and ignore the second-round effects indicate that the agricultural, mining and other natural resource industries will be the main winners from the reforms. These industries share in the reduction of indirect taxes on business inputs, including lower excise on diesel fuel, exports are free of the GST, and the lower tax burdens on saving and investment favour capital-intensive industries, which include many natural resource industries. However, these first-round gains result in disequilibrium situations which are not sustained.

A number of macroeconomic second-round effects will erode most, and in some cases all, of the apparent first-round benefits of the taxation reforms on the natural resource industries. In particular, a combination of a higher exchange rate and higher inflation than otherwise will follow the tax reforms. The higher real exchange rate will be driven by replacing origin-base indirect taxes (the WST, FID, some stamp duties and some fuel excise) with a destination-base indirect tax (the GST), by an investment boom largely funded by an increased flow of foreign savings, and by the crowding-out effects on the traded sector of a smaller fiscal surplus than otherwise.

General equilibrium models are required to allow for the first- and second-round effects of the tax reform proposals in order to provide a satisfactory assessment. Even then, reasonable difference of views about model structure, model closure and key parameters will mean estimates of magnitudes of first-round plus second-round effects of tax form will vary from model to model. Nonetheless, the directions of net effects, and the importance of the second-round effects relative to the first-round effects, are robust results from available studies.

Much of the political debate for tax reform in Australia has been about who wins and loses, including outcomes for the natural resource industries. Apart from minimising the numbers of losers, the main economic arguments for tax reform are not about redistribution. Rather, they are — or should be — about reforms which will provide greater certainty of future revenue, which will reduce distortionary costs, and which will reduce tax compliance costs.

References

Abelson, P. 1998, *The Tax Reform Debate*, Allen and Unwin, Sydney.

Auerbach, A. 1997, 'The future of fundamental tax reform', *American Economic Review*, vol. 87, no. 2, pp. 143–6.

Benge, M. and Albon, R. 1991, 'Saving and taxation', in Stemp, P. (ed.), *Saving and Policy*, Centre for Economic Policy Research, ANU, Canberra, pp. 161–92.

Boadway, R. and Wildasin, D. 1984, *Public Sector Economics*, 2nd edn, Little, Brown and Co., Boston.

Costello, P. (1998), *Tax Reform — Not a New Tax; A New Tax System*, AGPS, Canberra.

Dixon, P. and Rimmer, M. 1999, 'The government's tax package: further analysis based on the MONASH model', *Senate Select Committee on A New Tax System, First Report*, Parliament House, Canberra, pp. 171–247.

Engen, G. and Gale, W. 1997, 'Consumption taxes and saving: the role of uncertainty in tax reform', *American Economic Review*, vol. 87, no. 2, pp. 114–19.

Hubbard, R. 1997, 'How different are income and consumption taxes?', *American Economic Review*, vol. 87, no. 2, pp. 147–50.

Johnson, D. *et al.* 1997, *A Stocktake of Taxation in Australia*, Report No. 1 of Tax Reform: Equity and Efficiency, Melbourne Institute of Applied Economic and Social Research, The University of Melbourne, Melbourne.

Johnson, D. *et al.* 1998, *Indirect Taxes: Evaluation of Options for Reform,* Report No. 2 of Tax Reform: Equity and Efficiency, Melbourne Institute of Applied Economic and Social Research, The University of Melbourne, Melbourne.

Johnson, D., Freebairn, J. and Scutella, R. 1999, 'Evaluation of the government's tax package', *Taxation Reform: Equity and Efficiency Project,* Report No. 4, Melbourne Institute of Applied Economic and Social Research, The University of Melbourne, Melbourne.

Kay, J. and King, M. 1983, *The British Tax System*, 3rd edn, Oxford University Press, Oxford.

Murphy, C. 1999, 'Modelling a new tax system (ANTS) — comparing MONASH and MM303', *Senate Select Committee on A New Tax System, First Report,* Parliament House, Canberra, pp. 250–304.

Pender, H. 1997, *The Joy of Tax*, Australian Tax Research Foundation, Sydney.

Pender, H. and Ross, S. 1993, *Income Tax and Asset Choice in Australia*, EPAC Research Report 3, AGPS, Canberra.

Pender, H. and Ross, S. 1995, *Business Taxation in Australia and Asia*, EPAC Research Report 4, AGPS, Canberra.

Treasury 1997, *Tax Expenditure Statement, 1995–96*, AGPS, Canberra.

Treasury 1999, 'What the measures will cost', reported in *The Weekend Australian*, 19–20 June, p. 6.