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Changing the Tax Mix

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1. Introduction

A potential taxation reform option for Australia over the next decade or so is to
further shift the mix of taxation from income to consumption, or what roughly
amounts to the same thing from capital income to labour income. The tax mix shift
could be approximately revenue neutral, and this particular example helps to focus
discussion on the comparative tax efficiency and equity effects, or the reform package
could add to or reduce aggregate revenue collected. In effect, the tax reforms of 1999
with the introduction of a GST, which taxes consumption but not income saved,
involved a small tax mix change with revenue equal to two percentage points of the
ten per cent GST used to fund lower income taxation (and an increase in social
security payments), which falls on income both consumed and saved, in a net revenue
cost package (of about $6 billion). Shifting the mix of funding of retirement incomes
through aged pensions funded from general tax revenue, which is dominated by
income taxation falling on both capital and labour incomes, to a greater dependence
on compulsory superannuation, which effectively is a tax on labour income, is a more
subtle form of ongoing structural change in the Australian tax mix. This paper seeks
to evaluate the comparative effects of a further tax mix change on tax efficiency and
national productivity, and on tax equity and distribution, in the specific context of
Australia as a small country in a highly integrated global economy.

A number of different strategies for changing the structures of direct and indirect
taxes have been canvassed to effect a change in the tax mix. The general idea and
specific examples for shifting the tax mix from income to consumption have been
around for many decades in both the academic literature, including, for example, Mill
(1895), Fisher (1937), Andrews (1974), Zodrow (1997) and Bradford (2001), and in

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official advisory reports for governments, including for example, the British Institute of Fiscal Studies (1978), US Department of the Treasury (1974), Canadian Department of Finance (1987), and more recently the US Council of Economic Advisers (2004 and 2005). Proponents of a tax mix change point to the double taxation of saving under a general income tax relative to a consumption tax base or a labour income tax base, to the distortions and productivity losses associated with the current system of different effective tax rates on different saving and investment choice options, and they have an equity preference for taxing what people take out of the tax system rather than what they put into production. Those in favour of an income tax base system point to the necessary higher taxation of labour income, and to the inequity of exempting saving or capital income which tend to be over represented with the more affluent. When the discussion is extended from a closed economy model which underlies the foregoing pro and con arguments for a tax mix change to an open economy model, a new set of arguments pro a tax mix change appear. In an open economy model where the supply of capital to the Australian economy becomes more elastic, and especially relative to labour with more restricted migration, optimal tax efficiency arguments favour a relatively higher tax burden on the immobile factor labour, and in the final tax incidence most taxes initially levied on both capital income and labour income are passed onto labour income.

The rest of the paper is organized as follows. Section 2 describes some key background information on the present taxation system, and on relationships between the different tax bases for applying a tax mix change. The relevance and structure of an open economy model for evaluating the effects of the different tax bases on business decisions and on the final economic incidences of the different taxes are provided in Section 3. Taking the current arrangements as the base or starting point, Sections 4 and 5 consider, respectively, the likely efficiency and equity effects of aggregate revenue neutral reforms which further shift the Australian tax mix from income to consumption, or from capital income to labour income. More details on some of the options for changing the Australian tax mix, playing on both direct and

indirect tax changes, are explored in Section 6. A final Section 7 provides conclusions.

2. Taxation in Australia

In 2004-05, taxes of all forms by the three levels of government collected $279 billion or about 31.6 per cent of GDP. Together, general income taxes and general taxes on expenditure, account for over 75 per cent of all Australian taxation. As shown in Table 1, income taxes represent 58.4 per cent of all taxes, and taxes on general consumption and payroll taxes represent 16.8 per cent of the total. If we were to add in the 9 per cent compulsory superannuation levy as having a similar economic incidence as social security system taxes in many other OECD countries (and this issue was debated in the report by Warburton and Hendy, 2006), both the total tax take increases and the tax mix moves more in favour of a higher weight on labour income taxes. The general area of a tax mix change considered in this paper is to reduce the relative importance of income tax and increase the burden on consumption and/or labour income.

To better understand the tax mix options, and the mix of current Australian taxes, by way of background consider first the relationship between the different tax bases, or taxable sums. For simplicity, we initially assume comprehensive bases with minimal special exemptions and deductions. Income, Y, can be decomposed into its factor sources of labour income, Y_l, mainly wages, salaries, superannuation (as deferred or future income) and fringe benefits, and capital income, Y_k, which includes interest, dividends, retained profits and capital gains, which is the return on past investment and saving. Or, this same income, Y, can be decomposed into how it is allocated as current consumption, C, or saved, S, to fund investment, I, and then ultimately consumed some time in the future. Formally,

$$Y = Y_l + Y_k \text{, or} \tag{1}$$

$$Y = C + S. \tag{2}$$

Table 1: Taxes Collected in 2004-05 by Category of Tax and by Level of Government

($ billion)

Category of Tax	Commonwealth	State & Local	Total
Income tax	163		163
General expenditure taxes:			
GST	35		35
Payroll		12	12
Special expenditure taxes:			
Excises	23		23
Gambling		4	4
Motor vehicles		5	5
Turnover taxes:			
Conveyance duties		10	10
Taxes on insurance		4	4
Other stamp duties		1	1
Wealth taxes:			
Land tax		4	4
Municipal rates		8	8
Other taxes:			
Tariffs	6		6
Other	2	1	3
Total tax revenue	229	50	279

Source: Compiled from ABS, Tax Revenue 2004-05, Catalogue 5506.0

One observation from the above definitions is that given non-zero levels of capital income and of savings, it is evident that a labour income tax base or a consumption tax base is smaller than a comprehensive income tax base. Then, for the night after effect, changing the tax mix means moving to a smaller tax base in the first instance. However, as will be argued later, the implicit assumption of a constant level of Y, and by implication and also of Y_1 and C, in the future under a tax mix change is not justified.

Under special circumstances, changing the tax mix by moving from taxing income, Y, to taxing consumption (and exempting saving) or to taxing labour income (and exempting capital income) can be shown to be equal, although the time and initial location impact at which tax is paid varies between the two tax mix change strategies. Equivalence requires strong assumptions of given and constant proportional tax rates

on wages and on consumption, and no inheritances and bequests. Most texts on public finance, for example Stiglitz (2000), provide a proof with a model of consumption choices between now and the future. Importantly, this proof also establishes that either a tax on income saved or on the capital income earned on the saving, as happens with an income tax base, results in double taxation on, and hence a distortion against, future consumption relative to current consumption. Relatedly, from the perspective of investment decisions, Goode (1997) shows that the value of an investment in a capital asset is the same whether the saving to fund the investment is tax free or if the earnings on the asset are tax exempt.

There are some important and significant differences in the transition effects of changing the tax mix from an income tax base towards one which either exempts saving or one which exempts capital income. The consumption tax option will involve double taxation of savings previously taxed under an income tax and then spent. On one side, such double taxation on past saving decisions, which are sunk cost decisions, involves no efficiency loss. However, it has adverse equity implications, and if compensation is provided, the necessary higher consumption tax rate (or higher other taxes) to fund the compensation payments brings efficiency losses. Using the capital income tax exemption option avoids the double taxation effect on past saving.

In the context of a trading nation (which we consider important in the Australian debate, and more on this in the next section), the options of placing more weight on a consumption base or on a labour income base to achieve a tax mix change have different location incidence effects. A consumption base tax, at least in a GST form, is a destination base tax falling on Australian products sold domestically and on imports, but it exempts exports. By contrast, a labour income tax base is an origin base tax falling on production for export as well as for the domestic market, but it does not fall on imports. To restore a balance of payments equilibrium, introduction of the labour tax option will require an exchange rate depreciation relative to the consumption tax option.

The reality is that while the Australian income tax system is fairly comprehensive for labour income (with the exception of concessions for FBT on motor vehicles and for some lump sums), it is more a hybrid or mixed system for the taxation of capital income. At the low tax treatment end of the spectrum, the taxation of saving and investment in owner occupied housing is close to a capital income exempt tax system: the initial savings come from after-tax income, and the earnings in the form of imputed rent and capital gains are not taxed (and expenses are not deductible). At the other extreme, the income earned on saving via financial deposits and debt funded business investment are given a (nominal) income tax treatment. The tax treatment of business investment funded through equity capital varies with the business structure and income distribution strategy. For example, the income of unincorporated enterprises and corporate income distributed as dividends to domestic investors receives an income tax treatment, but retained corporate income faces a flat 30 per cent rate and a capital gains tax (CGT) at a half rate on any realized share sales. Income earned on investments taken as capital gains, including property other than owner occupied homes and shares, receive a partial capital income tax exemption resulting in an effective tax burden part way between a consumption tax treatment and an income tax treatment because of the halving of the income tax rate for capital gains and because the CGT is delayed in being applied not on accrued gains but only at the time of sale. Taxation of superannuation is another mixed system, and even here the effective tax burden varies between employee versus employer contributions, and before July 2007 on whether the funds are withdrawn as an annuity or as a lump sum. The effective tax rate on superannuation is less than an income tax treatment, and for most it is higher than if a consumption tax applied, although after July 2007 for high income earners the effective tax rate may be less than that of a consumption tax treatment. Turning from the taxation of physical capital to human and intellectual capital, in many cases education expenses are not deductible income tax items but the higher wages are taxed, and R&D investments (and other forms of intellectual property) often are expensed as they would be under a consumption tax. There is no generally agreed set of efficiency or equity arguments for the current diverse pattern

of different forms of taxation of different types of capital income, and the resulting different effective tax rates on different forms of saving, investment and business organization.

The GST in Australia has exemptions for basic food, most health and education, and charitable services which mean it has a broad base, but not a comprehensive consumption base. The NZ GST, by comparison, is very close to a comprehensive general consumption tax base. The Australian GST has a single flat rate of 10 per cent, which places it at the lower end when compared with most European countries, but ahead of general consumption base tax rates in the USA, Japan and other East Asian countries.

Payroll taxes levied by the states have extensive exemptions, especially for small businesses, so that the actual tax base is about a half of a comprehensive labour income tax base. Most states have a constant marginal payroll tax base, but the rate varies across the states.

3. Australian Taxation in a Global Economy

In analyzing both the likely efficiency and equity effects of a tax mix change for Australia of the future, it is important to recognize the nature of linkages in the labour and capital input markets for Australia as a small trading country into the global economy. In particular, differences in the relative global mobility of the labour and capital production inputs, and by implication their relative factor supply elasticities, affect the final incidence of different taxes and the deadweight or efficiency costs of taxes levied on income versus consumption, or on labour income versus capital income tax bases.

In the case of labour, with the exception of high skilled labour, most actual and potential Australian employees are immobile internationally. This global immobility reflects strict immigration laws, and a raft of social and political factors associated with nationality and belonging to your country of birth. For the domestic labour force,

most reported estimates of the labour supply elasticity (for example, Killingsworth, 1983, Doiron, 2004, Creedy and Kalb, 2005) find that the estimate is low for males and career minded females, and while higher for sole parents and married women, even for these groups most estimates are below 0.5. Further, the labour supply elasticities are less than the labour demand elasticities. Then, in a longer run partial equilibrium model of the labour market, most of the taxes on labour will be passed back to employees as lower take-home pay than otherwise, and there will be only small effects on the equilibrium employment level.

In the case of capital, whether supplied by Australian saving or by savings supplied from other countries, the story is very different when compared with labour. In the current Australian economy, capital is highly mobile internationally seeking out the highest after tax return. Further, in the context of a closely integrated global capital market, Australia as a small player essentially is a price taker. As a net capital importer, Australia faces a highly elastic capital supply function. While some have advanced arguments to the contrary, associated with peculiarities of domestic institutions, laws and regulations, a preference for portfolio bias for the home country, and greater uncertainty about exchange rates and political actions, together with empirical studies of a high correlation between saving and investment rates across countries (for example Feldstein and Horioka, 1980), studies of the supply of capital to Australia by the Industry Commission (1991) point to a highly elastic supply function.

As a price taker, the relevant capital market return variable is the after-tax return required by international investors. Here, details of international tax arrangements are important. In the cases of a tax credit system (ie if Australian tax is paid the international home country imposes no further home tax) or if a double tax system applies (ie, much as in the spirit of a classical system of corporate taxation the home country imposes its home tax ignoring tax paid in Australia), a change in Australian capital income taxation will require an equivalent change in the pre-tax return on the investment in Australia to return the same after-tax return to the international saver.

In a system where the source international country regards the Australian tax paid as a pre-payment credit for the home country tax liability, so long as the Australian tax rate exceeds that of the international country, a change in the Australian capital income tax rate also will involve a similar change in the required pre-tax return; if the Australian rate is lower, all that happens is a shift in the treasury which collects the tax revenue. Since Australia has double tax treaties with tax credit provisions with most of the larger capital source countries, a high proportion of changes in taxes on Australian and international source savings invested in Australia will require changes of a similar magnitude in the required pre-tax investment return.

Then, in a partial equilibrium model of the capital market for Australia, there is a close to perfectly elastic supply of international source saving at the required after-tax return, and there are domestic investment demand and saving supply functions. At the required pre- and after-tax returns, domestic investment demand exceeds domestic saving supply, and the gap is filled by a net capital inflow of foreign saving. A rise in the Australian tax rate on capital income requires an increase in the pre-tax return, to maintain the after-tax return required by international investors. This rate rise means less investment in Australia, and it just compensates domestic savers for the tax rise. In the final economic incidence, the capital income tax is fully passed forward to Australian investers, and the magnitude of the investment fall depends on the elasticity of investment demand with respect to the higher pre-tax return.

Consider now the more useful general equilibrium model with both labour and capital inputs and where there is some substitutability between the two inputs in producing output. To simplify, take the extreme assumptions where labour as the internationally immobile input is in perfectly inelastic supply and where capital as the internationally mobile input is in perfectly elastic supply. In this world, increasing (decreasing) the tax on labour income is passed back as lower (higher) after-tax wages, and there is no change in employment, investment or production. This is the same result as the above partial equilibrium model. But, an increase (decrease) in the tax on capital income is passed forward as a higher (lower) pre-tax return on capital resulting in a fall (rise) in

investment. Then, the lower (higher) investment reduces (increases) capital per worker, which in turn leads to a fall (rise) in both total output and in output per worker, and the later leads to a fall (rise) in both pre-tax and after-tax wages. That is, the change in taxation of the internationally mobile capital input ultimately is passed back to the immobile labour input. Further, this general equilibrium model illustrates the key message of optimal tax theory (as initially developed by Ramsey, 1927, and explained in texts such as Stiglitz, 2000) aimed at minimizing the efficiency costs of taxation, that is to tax more heavily the decision choices which are least sensitive to price changes, in this case the immobile labour, relative to the internationally mobile capital input. These equity and efficiency effects represent a strong conceptual argument for changing the Australian tax mix away from capital income to labour income.

In an econometric study using panel data for 72 countries over the period 1983 to 2003, Hassett and Mathur (2006) building on an earlier study by Rodrik (1999) find strong empirical support for the above model. In particular, they find that market (or pre-tax) wage rates are not sensitive to changes in median or average income tax rates, but that market wages are significantly inversely related to corporate tax rates, which are a proxy for capital income tax rates.

A potential important limitation of this small economy model of taxation is an assumption that other countries, including big countries, will not embark on the same strategy. For most countries, in the context of a global economy, their dominant tax structure strategy in choosing a tax mix to maximize national wellbeing is to tax labour income, or consumption, more highly than capital income, or saving, for the reasons argued above. The resulting Nash equilibrium outcome of relatively high taxation of labour income and low taxation of capital income is unlikely to be a cooperative global optimum tax mix. However, the slow pace of international cooperation on taxation design issues to date casts doubt on reaching cooperative solutions in the near future.

4. Efficiency Effects of a Tax Mix Change

Against the background of the current system and context of Australian taxation described in the previous two sections, this section considers the likely efficiency or national productivity effects of further reductions in taxation of income funded by approximate aggregate revenue increases in the taxation of one or both consumption or labour income. Positive gains are expected from a more productive mix of the different saving and investment options, a reduction in the distortions to inter-temporal consumption choice decisions, and an increase in investment in Australia, by both Australians and overseas investors, leading over time to a larger economy with higher pre-tax wages. In the short run, there will be some increase in the distortions to labour versus leisure choice decisions. The optimal tax arguments suggest that after a few years for adjustment the net gains of a larger economy will dominate any short run losses.

A tax mix change by reducing the tax burden on saving or on the capital income earned on those savings reduces the differences in effective tax burdens on different saving and investment choice options. In particular, the relatively high effective tax burden on income taxed options, including saving via financial instruments and business equity investments distributed as dividends, will fall, while the effective tax burden on current low taxed options, such as saving and investment in owner occupied housing, will not change. As other examples, the current tax concessions associated with options yielding capital gains, and those which allow unlimited negative gearing, would fall with lower income tax rates; and, different tax treatments and associated distortions to the choice of business decisions to distribute or retain profits and to incorporate or not would be modified. The benefit to national income and society of a more level tax playing field for different saving and investment choice options will come in the form of a more productive mix of the different saving and investment options, and from decisions based on the intrinsic economic benefits of the different options rather than from tax minimization schemes.

Unfortunately, not enough is known for Australia about the key elasticities of substitution between the different saving and investment choice options, or of the elasticities of supply of different saving options and elasticities of demand for different investment options, to be able to quantify the efficiency gains of a more level tax playing field for the different options. Again, available computable equilibrium models are not suitable for such estimation without considerable further development. However, given available estimates of the magnitudes of differences in effective marginal tax rates on some of the different options, it is reasonable to hypothesise that the efficiency gains of a tax mix change which results in a more productive mix of saving and investment will be important.

Changing the tax mix will reduce, and at the extreme of a complete move from an income tax to a consumption tax, or to a capital income exemption tax, it will fully remove, the double tax effect of income taxation on saving and in the process remove the distortion favouring current consumption over saving and future consumption. The magnitude of the distortion, and its efficiency cost, with the current system is not known. In part, the uncertainty arises because with the hybrid taxation of different saving options, the effective marginal tax rate on saving at an aggregate level is itself unclear, both in theory and empirically. In addition, there are no robust estimates of the inter-temporal consumption elasticity of substitution or of the compensated savings supply elasticity.

Upon recognition of Australia's close link to the international capital market and the discussion of Section 3 above, it is unlikely that a tax mix change will have much, if any, effect on aggregate Australian saving. This is because the gain in a lower tax burden on saving, or on capital income, will be offset by a similar fall in the pre-tax rate of return, so that the after-tax return changes little, if at all.

In the context of an approximate revenue neutral reform package, and also for the short run situation of little change in the size of the economy (an assumption to be reconsidered below), a change in the tax mix reduces effective take-home pay for

employees, either via the higher prices associated with a higher consumption tax rate reducing the purchasing power of disposable income or via an increase in the tax rate on labour income reducing disposable income. That is, the tax burden on employment, or the tax distortion to work versus leisure distortions, would increase with a tax mix change. Campbell and Bond (1997) estimates the deadweight cost of income tax distortions to labour decisions at about 20 cents per dollar of tax revenue. For the specific example of a tax mix change funded by a broad based consumption tax and with compensation for household incomes, Apps (1997) estimates adverse affects on work decisions of second income earners with significant efficiency costs.

In a closed economy context, the relative magnitudes of the trade-offs with changing the tax mix to reduce distortions in capital market decisions but to increase distortions with labour market decisions are not resolvable in simple theoretical models or by robust empirical modeling and data analysis according to Zodrow (1997).

However, in an open economy context described in Section 3 above, the assumption that a tax mix change will have little effect on the size of the economy, and the magnitudes of its associated tax bases, and on the real wage, is not a valid one over the intermediate and longer term. To recap, and as shown formally for a specific model in the Appendix, a lower tax rate on capital income means a lower pre-tax return is required to attract Australian and overseas savings and still maintain a required and given world after-tax return, Australian investment increases and expands the capital stock, and in turn the aggregate economy and real market wages rise with the increase in capital intensity. From the perspective of optimal tax theory to minimize the distortionary costs of taxation, most tax should be on the low supply elasticity input, the internationally immobile labour, and very little if any tax should be on the highly elastic supplied input, capital which is internationally mobile.

There is a growing body of empirical evidence to support the above model predictions, both for the individual links of the model and for the model predictions as a whole, and to suggest the magnitude of the macroeconomic effects of a tax mix

change. The key linkages are: the effect of a tax mix change on the required pre-tax return on investment; the response of the desired capital stock through the capital stock demand function, and then investment, to the change in the required pre-tax return; and, then with the larger capital stock, and a constant labour input, the responses of output and of wages.

By way of illustration and to gain some guide to the magnitude of longer run macroeconomic effects of a tax mix change, consider the following which draws on a more formal model in the Appendix. As noted by comments on particular assumptions, the estimates of this illustrative model likely place an upper bound on the long term comparative static effects of a tax mix change on key Australian macroeconomic outcomes. Production technology is given by a Cobb-Douglas production function which assumes constant returns to scale and a unit elasticity of substitution between labour and capital. In a competitive market framework, labour and capital are paid their marginal products, labour is in fixed supply and fully employed, and with the small country assumption capital is in perfectly elastic supply at an internationally determined after-Australian-tax return. Suppose initially that the current Australian pre-tax return on capital is 10 per cent, and Australian tax is 30 per cent to give the required international after-Australian-tax return of 7 per cent.

Consider an Australian tax mix change which reduces the tax on capital income from 30 per cent to 20 per cent. This would reduce the required pre-tax return on Australian capital from 10 per cent to 9 per cent, or by 10 per cent, to retain the required international after-Australian-tax return of 7 per cent. Because of the hybrid nature of Australia's income tax system treatment of different investment choice options, arguably a 10 per cent reduction in the effective tax rate on capital would take a larger cut in the statutory tax rate than used in this example. Using the capital demand function derived from the production function and assuming competitive behaviour, which gives an elasticity of capital with respect to the pre-tax return of -1/ a, where a is the share of labour costs in total (labour plus capital) costs, and using a value of a = 0.7, the desired long run capital stock increases by 14 per cent. This

magnitude of response is a bit on the high side of the econometric estimates summarized in de Moij and Sjef (2003) who find an elasticity of greater than unity. This difference between the simple model capital response elasticity and the econometric evidence could be associated with a lower than unity elasticity of substitution between labour and capital, and with various legal, regulatory and perception factors that reduce the free flow of funds between different countries. Clearly, and as illustrated by the current mining boom, it would take many years of increased investment before the actual capital stock increases to the much larger desired capital stock.

With a larger capital stock, in the long run real output rises, capital per worker rises, and with the higher productivity of labour real wages also rise. Given our assumed production function, competitive behaviour, and a fully employed fixed labour supply, in the long run both output and the market wage rate have elasticities with respect to the change in the required pre-tax return on capital of $-(1-a)/a$, which for a labour share $a = 0.7$ yields a value of -0.43. Interestingly, this model derived estimate is smaller than the -0.8 estimated by Hassett and Mathur (2006) for a panel of countries. That is, the 10 per cent reduction in the required pre-tax return on capital invested in Australia ultimately leads to about a 4.3 per cent increase in both real output and real pre-tax wages.

5. Equity Effects

Changing the tax mix clearly will have redistributional effects, and if the package is constrained to be revenue neutral at least initially there will be some losers. Given the tyranny of the effects of the current system and to garner political acceptance for change, redistribution changes relative to the present tax system have to be the principal base point of comparison. It is important to focus on the economic incidence of taxes after market prices and quantities have adjusted to changes in incentives, rather than the initial incidence or who sends the tax cheque to governments. Also, it is important to consider not just "the night after tax change" redistributive effects

based on assumed constant tax bases, but to also assess the redistributive effects after the tax bases change as the economy responds over time to the new set of incentives.

There has been a long and unresolved debate, and ultimately an unresolvable debate, about the relative equity merits of an income tax base versus a consumption tax base. Proponents for a consumption base argue that capacity to pay tax should be assessed in terms of what one takes out of the economic system, that is, consumption, whereas proponents of an income base assess capacity to pay on what one contributes to the economy, that is, income. In general, either income or consumption can be considered imperfect measures of a more abstract term "capacity to pay". Others want to distinguish between active earned income from labour versus passive income earned from savings. Another layer of debate clouding these philosophical views is the time period over which tax is paid and distribution of the tax burden is considered. In this context, many advocate the desirability of using a life-time tax incidence framework rather than a year time interval, and then the longer the time interval the closer aggregate consumption over that period equals aggregate income over the period. Some in proposing a consumption tax would want to add a wealth tax, or a system of death and gift taxes, to capture inter-generational transfers as deemed consumption to equate consumption and income over a taxpayer's life.

In the case of the night after redistribution effects of an aggregate revenue neutral tax mix change package in which tax bases are assumed to remain unchanged, the total tax take is a zero sum game and certainly there will be winners and losers. However, depending on the package of changes, the magnitudes of redistributional effects easily can be exaggerated. Given the general empirical observation from ABS, HILDA and other data surveys that the better off tend to save more and that they have a higher proportion of their income as capital income, it is reasonable to suggest that replacing a progressive income tax with a flat rate consumption tax or payroll tax will redistribute the tax burden from the richer to the poorer segments of the population. But, the reform package could include making the remaining income tax rate schedule even more progressive to offset these regressive effects, or the tax mix

change could involve a version of a progressive direct consumption tax (discussed in the next section) rather than a flat rate consumption or payroll tax. Even though such a package could retain vertical across broad categories of tax payers, within each broad category of individuals or households, the reality that different members within each group have different expenditure and income source patterns means a tax mix change will alter the distribution of the night after tax burden.

An important message from the preceding sections of the paper is that a key rationale for a tax mix change in a small open economy such as Australia is that over the medium and longer term it provides incentives for a much larger economy, and in particular one with higher market wages. Such a positive sum game effect provides the opportunity for everyone to be a winner. Further, changes in the relative importance of the different tax bases can change the relative shares of the aggregate tax burden borne by different categories of taxpayers.

To illustrate, consider the illustrative example of the previous section (and described in more detail in the Appendix). A reduction in the taxation rate on capital income from 30 per cent to 20 per cent was estimated over the long term to raise both the income base Y and the labour income tax base Y_1 by 4.3 per cent; and by implication the consumption tax base C also would increase by 4.3 per cent. Under an aggregate revenue neutral tax mix change package, for the night after assessment with constant tax bases, the lower tax rate on capital could be funded by an increase in the tax rate on labour income of 4.3 percentage points (for a 70:30 split of Y into labour and capital income). The expanded capital stock of 14 per cent almost recoups the initial drop in capital income taxation. Further, with the expanded labour income tax base of 4.3 per cent, the labour income tax rate can also fall, and for some model and parameter configurations it could fall below its initial level. That is, disposable labour income would increase relative to the current situation from both a higher market wage and a lower average tax rate on labour income. While the long run labour income tax rate fall benefit likely is model and data specific, the effect that aggregate

disposable labour income rises from the increase in market wages net of the labour income tax rate change is a robust result.

An important challenge to the political salability of the redistributive effects of an aggregate revenue neutral tax mix change package becomes one of how long does it take the investment increase to increase the capital stock and labour productivity, and then to flow into higher market wages. Clearly, this is a worthwhile area for further research.

6.   Tax Mix Change Reform Options

There are a number of options for changing the tax system to shift the tax mix away from income to consumption or from capital income to labour income. The options can work on indirect taxes, usually with flat rates, or direct taxes where progressive rate schedules can be applied, and the options can embrace partial or complete shifts in the tax mix.

One option is to raise the GST rate and use the extra revenue to fund a reduction in the income tax schedule, much as was done in the 1999 reform package. Given that the current Australian rate of 10 per cent is below that of many other countries, with some European countries with a rate of 20 per cent, this option has precedents, although the political process for change is challenging. Specific design details of a tax mix change package could vary about the extent of the tax mix change, and, for example, about also expanding the GST base, about whether to make the remaining income tax rate schedule more progressive, about compensating increases in social security payments, and about compensating the value of accumulated savings for a one-off general consumer price increase.

Another set of options to achieve a tax mix change using indirect taxes is to increase the tax burden on labour income to fund reductions in the income tax rate, and in the package reduce the tax rate on capital income. Raising the relative importance of state payroll taxes is one option, and this could be achieved through a combination of

broadening the base and raising the rates. A related option is to further increase the superannuation guarantee levy from its current rate of 9 per cent to finance a higher share of future retirement incomes, and to use the revenue saved from less outlays on government aged pensions to fund lower income tax rates in the future. In both cases, a flat rate tax is being used to fund a lower burden on the progressive income tax, and consideration may be given to making the smaller remaining income tax more progressive (which might be done through the tax rate schedule and/or by removing the special deductions and exemptions which generally are used more by those on higher incomes).

A direct tax option is to proceed further with exempting capital income from the present hybrid income tax base. As noted earlier, already capital income on owner occupied housing is exempt, the CGT rate is at half the income tax rate and the effective tax burden is even lower because the payment of tax is deferred by being levied only on realized capital gains, and superannuation is taxed lightly. These types of exemptions and deductions could be extended to other forms of capital income. In this vein, proposals by Gruen (2006) and others to lower the corporate tax rate would lower the Australian tax burden on overseas savings invested in Australia, and on that part of corporate income funded by Australian saving that is retained for reinvestment in the company. However, it would not lower the tax burden on saving and investment in unincorporated firms or for the proportion of returns on equity funded corporate investments by Australians which are distributed as dividends (because of the way the imputation system works) resulting in distortions to the choice of business structure and income distribution strategy. Another option with more general application to all forms of capital income is the European scheduler tax system whereby capital income faces a different, and lower, tax rate schedule than labour income. In all these types of proposals, an important issue is how to divide the income of the self employed and other unincorporated businesses between labour income and capital income.

A number of proposals have been developed in the literature for a direct consumption based tax. However, with the exception of very partial and short term experiments in Sri Lanka and an Indian state, no country has implemented the idea. The early and obvious proposal involved a measure of taxpayer consumption as income less a measure of saving, and then a tax rate schedule which would be progressive and could vary with household and other demographic conditions applied to measured consumption. Income would be measured very much as under the current tax system (with all its exemptions, deductions and complexities), and saving would be measured by net movements in and out of approved savings accounts. Complementary tax withholding arrangements for the taxation of business enterprises usually are included along with the taxation of individuals or households as a part of a tax system, with different proposals for a real tax base or a financial tax base. A key feature of the proposed business consumption tax base is the immediate expensing, or cash flow treatment, of all capital outlays rather than depreciation allowances of an income base system.

A different version of a direct consumption based tax system is the X-tax system proposed by Bradford (2001), which builds upon the flat tax model developed earlier by Hall and Rabushka (1985). The basic idea is as follows: using the GST tax base, and preferably a comprehensive measure, labour remuneration expenses, as well as business outlays on materials and capital items as now, would be deductible in determining a capital income tax base, and this would be taxed at a flat rate close to the maximum rate, and labour remuneration would be taxable in the hands of the employee at a progressive rate schedule (which also could be adjusted for family and other demographic circumstances); and the present income tax system would be replaced. In effect, only abnormal capital returns (above a time discount rate factor) to capital would be taxable, and so the X-tax becomes primarily a labour income base tax with a progressive tax rate schedule. The X-tax model is commented upon favourably as a serious option for tax reform by the US Council of Economic Advisers (2005).

7. Conclusions

In the context of Australia as a small open economy well integrated into the global capital market, changing the tax mix to place less taxation on savings or on capital income is a significant win-win strategy when taking a medium and long term view. Important characteristics of this type of economy are that the supply of the internationally immobile labour input is relatively inelastic when compared with the internationally mobile capital input. Given these properties, the final economic incidence of most taxes, whatever the tax base, is on labour either as lower market wages or lower take-home pay, and from optimal tax theory the least distorting tax mix is one with a low initial incidence on saving or capital income. Then, a shift in the Australian tax mix will lower the required rate of return on investment, the lower return supports more investment and an increase in the capital stock, and the enlarged capital stock with a similar number of workers results in an increase in both output and in market wage rates. There is a growing body of empirical research supporting each of the key links of this model. Using a simple model it was estimated that a reduction of the tax rate on capital income from 30 per cent to 20 per cent could over the long run lead to a rise in GDP and of market wages by as much as 10 per cent. In addition, a tax mix change by reducing the differences in tax burdens on different saving, investment and business choice options will increase the productivity of the investment aggregate. The expanded tax bases allow for lower rates to collect the same revenue, and workers gain from the higher market wages, and for some situations also by lower labour income tax rates.

However, for the short run, or what often is referred to as "the night after" effects where the tax bases are assumed to be constant, inevitably in this zero sum game context a tax mix change will imply a significant number of tax losers and winners. It will require some skillful spin doctoring and political courage, or a fairly large fiscal deficit in the early years, to successfully implement a tax mix change. In part, further economic modeling to better understand the dynamic adjustment paths would be desirable.

Appendix: A Model of the Effects of a Change in the Required Rate of Return on Capital

Production technology is given by a Cobb-Douglas production function

$$Y = A \, L^a K^{1-a}$$

where, Y is output, L is labour input, K is capital input, and a is the share of labour costs (or income) in total costs (or income).

L is given with the wage rate w determined to clear the market, and the supply of capital is perfectly elastic at the world required rate of return, r.

For a small trading country, price is given, and for convenience normalized to be unity.

Assume a competitive market in which the marginal product of each input, namely the derivative of the production function Y with respect to K and L inputs, is set equal to the rate of return r and the wage rate w.

Then, to obtain the effect of a reduction in r on K, from the marginal productivity conditions for capital

$$r = (1-a) \, AL^a K^{-a}$$

and solving for K = f(r) gives

$$K = [(1-a) \, A]^{(1/a)} L r^{(-1/a)}$$

Then, the elasticity of K with respect to r is (-1/a)

To assess the effect of K on w, again with L given, from the marginal productivity condition for the labour market

$$w = aA \, (K/L)^{1-a}$$

The elasticity of the w with respect to K is 1-a.

Using the chain rule, the elasticity of w with respect to r is the elasticity of K with respect to r times the elasticity of w with respect to K, which gives –(1-a) /a.

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