Issues in Tax Design with Special Reference to Agriculture

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Taxation of agriculture has to be assessed in the context of the wider total economy system. A progressive income tax rate schedule is required to meet social goals of vertical equity. Efficiency properties of taxation of agriculture are difficult to assess because some capital income is taxed according to an expenditure base, some to a real income base and some to a nominal income base.

1. Introduction

Evaluation of the current system of taxation of the agricultural sector, and analysis of reform proposals, necessarily has to be seen in the wider context of taxation of alternative investments, jobs, locations, etc. in the rest of the economy. This economy wide perspective is important when taxation of agriculture is evaluated against any one or a combination of the traditional criteria of revenue collected, tax equity and distribution, tax neutrality and efficiency, and of tax simplicity and costs of administration and compliance. The objectives of this paper are to provide a sketch of the mess that is the current Australian taxation system; and, to highlight some difficulties which recognition of taxation in the rest of the economy should impose on any evaluation of taxation of one constituent sector, in this case agriculture.

Income taxation of the farming sector primarily involves unincorporated business enterprises. Here taxable income and tax rate schedules are applied to individuals each annual accounting period. While only a small proportion of the farming sector is represented by corporations, the corporation with wage earners and shareholders is the predominant structure in industries supplying inputs to farming and in industries providing further storage, transport, processing and distribution of outputs from the farm sector. Corporations have a major tax role in the measurement of taxable income and they act as a withholding tax agent, PAYE for labour and corporate income tax and franked dividends for capital, against the incomes of employees and shareholders.

2. Australian Taxation and Revenue Criteria

Taxes levied by Commonwealth, state and local governments in 1992-93 collected $115 billion, equivalent to about 28.5 per cent of GDP. To a large extent the aggregate revenue collection is required for and determined by levels of government expenditure on goods and services and for redistribution. Contrary to much public comment, Australia is a low taxed country when compared with other OECD countries, but it is highly taxed when compared with the rapidly developing countries in Asia. Given an aggregate revenue constraint, to reduce taxes in one area, activity or sector of the economy necessarily means increases elsewhere.

Table 1 reveals a diverse set of taxes in Australia. The Commonwealth government collects about 77 per cent, the states about 18 per cent and the local government about 5 per cent. The table includes a rough categorisation of the taxes by type of tax base system, namely income base, indirect expenditure base and wealth base. On this categorisation, income taxes are most important and collect about 54 per cent of revenue, then the indirect taxes with 40 per cent and wealth taxes at 6 per cent. Unfortunately, these aggregate categories disguise much more diversity.

Even though income taxes are collected under the auspices of the *Income Tax Assessment Act*, when it comes to the taxation of income from investment and saving, the reality is a hybrid or mongrel system with many tax bases (Albon). The appendix provides more detail on the characteristics and points of comparison between real income, nominal income, and expenditure (or consumption or cash flow) tax bases. Over a half of Australian investment is taxed according to the principles of an expenditure tax. This includes investment in owner-occupied housing, in which capital in-

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Table 1: Taxes Levied by Australian Governments by Level of Government and by Tax Base, 1992-93 ($ million)

Tax Base and Type of Tax	Level of Government*	Revenue Collected
A. Income Base		
Individual	C	47,328
Enterprises	C	14,902
Non-residents	C	850
B. Indirect Expenditure Base		
Payroll	C and S	5,981
Excise	C	10,178
Wholesale sales tax	C	9,252
International trade	C	3,336
Gambling	S	2,256
Insurance	S	1,347
Motor vehicles	C and S	2,814
Financial & capital	C and S	4,900
Franchise taxes	S	3,394
C. Wealth Base		
Immovable property	C and S	6,699
Excise on crude oil, LPG	C	116
Resource rent taxes	S	n.a.
D. All Taxes	C	87,600
	S	27,669
Total		**115,269**

* C denotes Commonwealth and S denotes State and Local.

Source: Compiled from ABS, *Taxation Revenue Australia*, 1992-93, catalogue No. 5506.0.

come in the form of imputed rent and capital gains is exempt; repairs and maintenance, research and development, product promotion and business expenditure on human capital, where outlays receive an immediate write-off even though often some of the investment income is generated in the future and is taxed when it is realised many years ahead; and the deferment of capital gains tax until realisation represents more of a consumption tax than an income tax treatment. Most business investment in plant and equipment, buildings and inventories is accorded a nominal income base tax treatment. However, the highly accelerated depreciation schedule, shown in table 2, by bringing forward the time at which depreciation can be claimed, represents a significant departure from a comprehensive income base tax; and, in most but not all cases the accelerated depreciation reduces effective tax burdens. The capital gains tax uses a real income base for assessing gains, but, asymmetrically, it allows only nominal losses as a deduction. In the case of savings channelled through superannuation funds, a major component of private saving, an expenditure base system is used for fund deposits and withdrawals, and a flat 15 per cent income tax is levied on the income earned by the fund.

The hybrid tax base system applied to Australian investment and saving has at least three important implications for any study of taxation, including of the agricultural sector. First, different tax burdens resulting in different effective tax rates are levied on different saving and investment options; with the dif-

Table 2: Allowable Depreciation Allowances for Fixed Capital

Item and Effective Life	Allowed Depreciation: Rate (%)	Allowed Depreciation: Implied write-off life (years)
Plant & Equipment:		
<3 years	100	1
3<5 years	60	2.5
5<6.7 years	40	3.75
6.7<10 years	30	5
10<13 years	25	6
13<30 years	20	7.5
≥30 years	10	15
Commercial Buildings	2.5	40
Other Structural Improvements	2.5	40

Source: Keating, P. J. , *One Nation*, AGPS, Canberra, 1992

ferences being some tens of percentage points (see table 4 and the text below).

Second, it is not clear what should be the benchmark for evaluating the current system of taxation of agriculture and for evaluating various proposed reform options. Should the assessment be against a real income base, a nominal base, or an expenditure base? While Treasury, for example in its *Tax Expenditure* publications, and others refer to a nominal income base as a benchmark, the case for an expenditure base as a benchmark is equally as plausible or implausible.

Third, the hybrid base taxation system, together with the variable pattern of tax rates on different saving and investment options, gives rise to the classic second best situation in evaluating proposals for changes in taxation of agriculture. That is, with some choice options highly taxed, some options lightly taxed, and some in between, an analyst has difficulty determining whether a change in the taxation of agriculture will represent a net step forward or backward. Ultimately the answer becomes an empirical problem, and the required modelling requires values for various elasticities for which we have at best poorly defined estimates.

Indirect taxes are levied by the Commonwealth government, including the wholesale sales tax and excise on petroleum, tobacco and alcohol products, and by the States, including payroll tax, and taxes on financial services, motor vehicles and gambling. In part, some of these taxes are crude means of user pays charging for government services provided, for example, part of the petroleum products excise and franchise fees is directed to road construction and maintenance. In part, some of the indirect taxes are crude adjustments for externality effects, for example petroleum products and pollution, and taxes on the vices of alcohol, tobacco and gambling. However, the rates rarely have been justified to balance marginal external costs. Then, a large share of the indirect taxes can be justified as general forms of revenue raisers.

In the context of a mechanism of general revenue raising, Australia's indirect tax system has many deficiencies (Freebairn). It has narrow tax bases, only about a half of goods are taxable and most services are tax exempt. Tax rates are high and highly variable, and more than a half of the initial incidence is not on final consumption but on a subset of business input purchases. Relative to most other countries, Australia's indirect tax system is characterised by the absence of a broad based consumption tax with a single, or at most a couple, tax rates. Effective tax rates on different input purchases vary widely, and the final incidence on consumer purchases varies from product to product.

Wealth taxes are a very minor part of Australian taxation. Municipal and shire rates (taxes on immovable property in table 1) are a crude way of financing a part of local government expenditure. Gift and death duties were phased out over the 1970s.

3. Equity and Redistribution

The general ideals of horizontal equity and vertical equity are important goals of Australian taxation, even if the terms and criteria are poorly defined in a specific sense. They impose political constraints on achievable reform options. The individual is the taxpaying unit, but various allowances are made for differences in family and regional circumstances. Ability to pay and distributional equity are assessed primarily in terms of measured taxable income with some reference to expenditure, very little to wealth, and no reference to non-market activities.

A major difficulty in assessing the distributional effects of taxes is to determine the economic incidence of different taxes. Clearly statutory incidence often is very different to the economic incidence once market prices and quantities have adjusted. For example, while business often is the statutory payer of tax, including PAYE tax, ultimately individuals bear the tax as higher consumer prices, as lower returns to labour, as lower returns to capital, or some combination. A general equilibrium model is the preferred method of analysis for tracking through the final incidence of different taxes.

To illustrate the complexity of analysis required to evaluate the economic or final incidence of taxes consider two examples. Rural lobbyists, and those in the traded sector generally, complain that they suffer *de facto* taxes on exports because of the input taxing of Australia's indirect taxes on fuel, motor vehicles, financial services and other inputs. This may well be the first round effect. However, the subsequent fall in exports and increase in imports caused by indirect taxation of products produced by the traded sector means a larger current account deficit than otherwise. Then, other major changes aside, such as the balance of national saving and investment, the real exchange rate will need to depreciate to reverse the increase in the current account deficit. The currency change will offset the average effect of the 'export taxes' and restore the initial international competitive position. As a second example, particular sector tax breaks, like most other subsidies, become capitalised into fixed asset values. The initial recipients of the tax breaks gain. However, subsequent purchasers of these assets do not; the tax break which shows up as higher expected after-tax returns is offset by the higher asset purchase cost. In practice, economists make assumptions, and sometimes fairly arbitrary assumptions, in describing the economic incidence of different taxes on individuals.

Table 3 provides one picture of the vertical distributional effects of Australian taxes compiled by ABS. The estimates assume indirect taxes are fully passed forward onto higher consumer outlays and that income taxes are fully absorbed as reductions in after-tax wages, dividends, and unincorporated enterprise income. These are the conventional assumptions, but they are still debatable assumptions. The income tax is progressive, indirect taxes are regressive, and all taxes show a U-shaped distribution pattern.

An important implication of the current economic incidence of Australian taxation, especially given the strength of political pressures for only small changes from the status quo, is the requirement for continuation of a progressive personal income tax rate schedule.

Table 3: Redistributional Effects of Personal Income Tax and Indirect Taxes on Households Classified by Gross Income, Australia 1988-89

Gross Income Decile	Tax as a Percentage of Gross Income: Income Tax (%)	Indirect Tax (%)	Total Tax (%)
Lowest 10%	0.4	20.5	20.9
Second	1.6	14.8	16.4
Third	3.4	13.7	17.1
Fourth	11.8	13.4	25.2
Fifth	15.8	13.3	28.1
Sixth	18.6	11.3	29.8
Seventh	20.0	10.6	30.6
Eigth	22.2	10.2	32.4
Ninth	23.8	9.6	33.3
Highest 10%	26.9	7.6	34.5
Average	20.2	10.4	30.6

Source: Computed from ABS, *The Effects of Government Benefits and Taxes on Household Income, Household Expenditure Survey, Australia, 1988-89*, Catalogue No. 1537.0, table 34.

In turn, maintenance of a progressive tax rate schedule has several implications for assessments of taxation of agriculture. First, those with variable income streams, an important characteristic of agriculture, but not just agriculture, will face higher average tax rates than the wage and salaried workforce on more stable incomes. This raises concerns about horizontal equity as well as efficiency. Then, the debate on income averaging, income equalisation deposits, farm management bonds, and so forth must continue. That debate will consider, as did Curran, Minnis and Freeman, and Preston, the issues of averaging period and method, after-tax income stability, eligibility.

Second, the tax free threshold (currently $5400 per year) is the most important component of the current progressive income tax rate schedule. Such a large tax free area encourages and rewards income splitting to reduce household aggregate tax paid. Taxpayers in agriculture, along with other small business enterprises, can more readily organise income splitting than can the majority of wage and salary earners. Such legal income splitting behaviour may be seen as offending goals of horizontal equity, and at a more extreme concern it may be seen as tax avoidance.

4. Tax Neutrality and Efficiency

Tax neutrality means taxation does not alter the after-tax pattern of relative prices on different choice options when compared with the pre-tax pattern of relative prices on the same choice options. With some important caveats, tax neutrality then is consistent with minimising the efficiency losses caused by taxation. Important caveats include the absence of market failures associated with positive and negative externalities, public goods and the selected exercise of monopolistic power. In general, such market failures are best countered by explicit and direct policy instruments rather than by adjustments to general revenue raising taxes.

Australia's income tax system is approximately neutral in its taxation of labour decisions, apart from the well-known distortion in favour of leisure and of non-market goods and services which are free of tax. The fringe benefits tax, while complex and a source of much debate and controversy, serves to place most forms of non-wage and salary remuneration on approximately the same tax burden as wages and salaries. However, Australian taxation of capital income is far from a level playing field. As a result, taxation distorts saving and investment decisions, and especially decisions affecting the composition of saving and investment. Further, few efficiency arguments can be mounted to support the directions of the distortions, let alone the magnitudes. The different tax burdens placed on different saving and investment choice options arise because of the hybrid tax system, with some items receiving an expenditure base treatment, some a nominal income base treatment, some a real income base treatment and some mixed bases, because of measurement errors caused by inflation, because of various concessions such as accelerated depreciation and investment allowances, and because of different tax rate schedules for different business structures. These distortions induce changes in the choice of investment between agriculture and other sectors of the economy, and they alter the choices of investment alternatives within agriculture.

A brief run through of some estimates of effective tax rates levied on different investment options compiled by Pender and Ross illustrates the diversity of tax burdens on different choices. The effective tax rate is measured as tax paid per dollar of real income. Table 4 reports estimates for funds invested in an interest bearing deposit, one's own home, a negatively geared rental property, an unincorporated business enterprise such as a farm, a company listed on the Australian stock exchange, and an overseas company, and in the case of business investments estimates are shown for machinery, buildings and inventory. As the estimates reflect the case of a statutory tax rate of 39 per cent, both for the individual and the company, a neutral tax system would show a common effective tax rate for all choice options. The results in table 4 describe a very unlevel playing field, with effective tax rates being negative for investments in negatively geared rental property and unincorporated business investment in machinery, and the effective tax rate exceeds 62 per cent for interest bearing deposits and for investments abroad.

The effective tax rate on investment in interest bearing deposits exceeds the statutory tax rate in times of inflation, and the table 4 estimates assume 3 per cent inflation, because nominal interest rather than real interest is taxed. The higher inflation, the more severe is the penalty.

Table 4: Effective Tax Rates for Selected Investments (%)

Asset	Real Effective Tax Rate (%)
Interest bearing deposit	62.4
Owner occupied housing	11.4
Negatively geared rental property	-0.8
Unincorporated business enterprise	
machinery	-2.8
buildings	26.8
inventory	48.8
average	23.0
Locally owned company listed on ASX	
machinery	42.5
buildings	27.6
inventory	31.8
average	36.6
Investment abroad	62.9

The effective tax rates are based on a statutory personal and corporate tax rate of 39 per cent, assume inflation at 3 per cent, that investments are geared 10 per cent in the case of owner occupied housing, 50 per cent for rental property, 18 per cent for unincorporated enterprise, 50 per cent for local company and ungeared for investment abroad.

Source: Drawn from Pender, H. and Ross, S. (1993), "Income Tax and Asset Choice in Australia", *EPAC Research paper No. 3,* Canberra, AGPS, tables 4 and 6.

Investment in owner-occupied housing is tax preferred because of its expenditure base treatment. That is, income in the form of imputed rent and capital gains is tax exempt, but debt interest payments are not deductible.

The tax burden on investment in negatively geared property is low, and often negative as shown in table 4, because of the deduction of nominal interest expenses, taxation of real capital gains, and then only when they are realised, and because of accelerated depreciation on buildings.

On average, business investment by both unincorporated business enterprises and corporations bears a lower effective tax burden than the statutory rate, but the effective tax rate for different investments by business varies widely. The overall concessional taxation stems primarily from the accelerated depreciation provisions shown in table 2. Depreciation concessions are more valuable for machinery, and especially short life machinery, than for buildings. Inflation erodes some of the benefits of accelerated depreciation, but provides concessions through tax deductibility of nominal debt interest expenses. Inflation places a relatively heavy tax burden on the holding of inventories with the LIFO accounting system. In the case of an unincorporated business enterprise, the benefits and burdens flow directly to the owners. By contrast, in the case of a corporation, transmission of the benefits and burdens of taxation of corporate investments to shareholders depends on the financing method and on the dividend payout policy. The imputation system modifies, and in general it partly 'washes out', some of the initial benefits of taxation concessions to investment by a corporation when the income is received by shareholders. Operation of the imputation system favours the unincorporated structure over the corporate structure in taking full advantage of any tax concessions, such as investment allowances and accelerated depreciation.

Investment overseas is heavily taxed because foreign country tax paid cannot be used as franking credits for dividends paid to Australian residents.

A few cautionary comments restraining direct transferability of the results from table 4 to taxation of agriculture should be made. The estimates assume all deductions from taxable income can be offset against taxable receipts in the year of deduction at a fixed tax rate. In fact, many businesses, including in agriculture, encounter years of measured tax losses. Nominal losses can be carried forward, but this has the effect of reducing the present value of tax concessions and raises the effective tax rate above those shown in table 4. The variation of taxation income, together with a progressive income tax rate schedule, will break the constant tax rate assumption. This means that taxable receipts and tax deductions over the life of an investment project may well face different marginal income tax rates.

The likelihood of different marginal tax rates over the life of an investment project may have large implications for the taxation of agriculture. For example, as Douglas, Peterson, Kokic and Parameswaran note, accelerated depreciation could be tax ineffective, relative to economic depreciation, if it moves deductions from higher income tax rate years to lower income tax rate years.

The hybrid taxation system, with its wide range of tax burdens on different investment options, has several implications for the way in which an evaluation of the efficiency properties of rural taxation should be assessed. First, there is no clear benchmark against which to compare current taxation and reform options. While the income base typically is the point of reference, the prevalence of an expenditure base treatment of investment together with some intellectual appeal for an expenditure base over an income base, especially removal of the double taxation of savings, means an equally compelling case could be made for the expenditure base as a benchmark.

Second, and somewhat allied, the effective tax rate on most investments in the economy is below the statutory income tax rate, and in some cases by a very wide margin. Then, reforms to the taxation of agriculture to achieve a comprehensive income tax will result in heavier taxation of investments in agriculture relative to most other investments elsewhere in the economy. For example, debate on the appropriate tax treatment of livestock necessarily is confused by what is the appropriate benchmark. If the benchmark is a real income tax base, then the present treatment is concessional and in need of reform. However, moving to a comprehensive income base would lead to a relatively high tax burden on livestock when compared with other investment options in agriculture and outside agriculture. Alternatively, under an expenditure base, expenses on livestock would be deductible as incurred and income from livestock sale and livestock products would be taxable only when realised. The present tax treatment is somewhere between the extremes of a pure income base and a pure expenditure base.

Third, as illustrated by the livestock example, tax reform analysis to achieve efficiency is set in a second best world of many other tax distortions. In this context, it becomes unclear as to whether proposed changes represent a net improvement. Further, the associated uncertainty is fertile ground for different points of view, and ultimately judgement has to accompany any formal analysis.

Fourth, explicit allowance has to be given to the fluctuations of taxable incomes in agriculture, and more generally throughout all sectors of the economy, in evaluating the efficiency properties of taxation. At one level this means recognising higher lifetime tax burdens when a progressive tax rate schedule applies, unless special provisions such as averaging and IEDs are used. But also, analytical work should look not just at static average situations, but also it should include an assessment recognising fluctuations due to market and seasonal conditions over the life of investments facing individual taxpayers in different circumstances.

5. Tax Simplicity and Costs

Resources devoted by governments to tax administration and by taxpayers to tax compliance are resources diverted from the production of other goods and services. About 1 per cent of tax revenue is used by the Australian Tax Office in administering the Commonwealth tax system. Compliance costs incurred by taxpayers are very much higher, in absolute dollars, as a percentage of tax revenue, and compared to costs estimated for (a limited number of) other countries (Pope). Compliance costs for individuals on average are estimated at between 8 per cent and 10 per cent of revenue collected, about double the burden estimated in other countries using the same methodology.

Among individuals, those with business enterprises incur higher costs than PAYE wage earners. It is difficult to find anyone willing to defend the Australian tax system as a simple system. Pope argues that sensible reforms could cut compliance costs in half or even better.

A number of options for simplifying the taxation system generally, and that applying to agriculture specifically, might be considered. Tax design is fundamental. In general, tax systems with broad, comprehensive tax bases and single rates are simple and low cost. This particularly means an end to special concessions and different treatment of different forms of income and business structures. In addition, such a system will involve the collection of records which can be used for the dual purposes of business management and of tax compliance. Continuity of measurement of the tax base, but not necessarily of the tax rate, consistency in application of legislation and regulations, and presentation of the act and regulations in unambiguous plain English (and appropriate translations) will mean lower costs than frequent changes, extensive use of administrative discretion and the current historical collection of legalese.

Agriculture, with its predominance of small scale self-employed, partnerships and other unincorporated enterprises, has much to gain from greater simplicity in the structure of the tax system and in its administration. Potential savings in costs may be as high as about 5 per cent of the tax now paid.

6. Conclusion

The general tax system applying to the Australian economy imposes a number of constraints on the analysis of the efficiency, equity, simplicity and revenue raising properties of the taxation of agriculture.

Social equity goals require a progressive personal income tax rate schedule. This requirement, together with the wide variability of agricultural incomes, raises a number of issues. These include a *prima facie* case for some form of income averaging and/or IEDs, not only for agriculture but also more generally, for equity and efficiency reasons. It also suggests the need for analysis of the variation of individual taxpayer circumstances over a number of years as well as the assessment of average situations.

Quite different effective tax rates are imposed on different saving and investment choice options in Australia. The non-neutrality arises from the use of different tax bases, measurement errors, special taxation concessions, and different tax rate schedules. The wide range of effective tax rates raises several difficult questions in assessing tax efficiency and especially in ranking tax reform proposals. Conventional use of the real income base as a benchmark is questionable since more than a half of Australian investment is given an expenditure base treatment, and the latter avoids the double taxation of savings problem. Recognition of problems of second best comparisons is likely to lead to over-taxation of selected investments in agriculture if reform options are assessed against a real income benchmark. Until the general taxation system for all Australian investment and saving is reformed to more closely reflect either a comprehensive income base or a comprehensive expenditure base, considerable judgment and room for legitimate controversy will accompany proposals for changes to the taxation of agriculture.

Tax compliance costs for taxation in Australia in general, and for agriculture in particular, are high and deserving of serious evaluation.

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Appendix: Different Tax Base Taxation Systems

A simple comparison of the different tax bases is as follows. The distinction between an income base tax and an expenditure (or consumption or cash flow) base tax is given from the expenditure identity Y = C+S, where Y is income, C is consumption and S is saving. The income base taxes both C and S, whereas the expenditure base taxes C only. A nominal income base uses historical or nominal cost measures. A real income base corrects for the effects of inflation on measures of depreciation (current or replacement cost versus historical cost), interest receipts and expenses (real interest versus nominal interest), capital gains, and inventories. An expenditure base may be applied in several ways which have the same long run equilibrium implications, but with different short term effects. The simplest version subtracts saving from income, hence a consumption tax. In the case of business enterprises the same effect is achieved with a cash flow tax in which all revenues are taxable and all outlays, including on capital items, are deductible. Under a pre-paid consumption tax, income earned on investment is a deductible item.