

Tax Compliance Costs: Research Methodology and Empirical Evidence from Australia

Abstract - The issue of tax compliance costs continues to attract public attention throughout the OECD. This is particularly true in Australia, where major tax reforms are taking place. This paper reports on an ongoing research project on federal tax compliance costs conducted by a research team from the Australian Taxation Studies Program (ATAX) of the University of New South Wales. The focus of this paper is on the methodology of estimating taxation compliance costs. Some aggregate empirical findings, based on several large-scale mail surveys of over 10,000 personal and business taxpayers, will be reported. Major differences between the Australian and U.S. tax systems, as well as comparison with results obtained in previous UK and U.S. studies, will also be highlighted.

INTRODUCTION

The imposition of taxes represents a transfer of resources from households and businesses to the government. This transfer generates three broad types of social costs: efficiency, administrative, and compliance. Efficiency costs (alternatively referred to as deadweight losses or excess burdens), arising from tax-induced changes in relative prices, distort consumer and producer choices, and cause losses in overall output.¹ Administrative costs are the costs to the government of collecting taxes; and compliance costs are the value of resources expended by taxpayers in meeting their tax obligations. The sum of administrative and compliance costs is often referred to as the operating costs of a tax system. Operating costs of a tax system are conceptually analogous to transaction costs of market activities. The modern principle of tax simplicity, first expounded by Adam Smith (1776; Book Five, Chapter II) as the certainty, convenience, and economy canons of good tax policy, seeks to minimize the operating costs incurred in raising a given level of tax revenue.

Unlike efficiency costs, compliance costs have for a long time been treated as 'hidden costs' of taxation. The first attempt to measure tax compliance costs (Haig 1935) only took

**Binh Tran-Nam,
Chris Evans, &
Michael Walpole**

*Australian Taxation
Studies Program
(ATAX), University of
New South Wales,
Sydney, NSW 2052,
Australia*

Katherine Ritchie

*Business School,
Manukau Institute of
Technology, Auckland,
New Zealand*

National Tax Journal
Vol. LIII, No. 2

¹ In the presence of a negative externality, a Pigouvian tax may be efficiency improving.

place a little over 60 years ago, in spite of the fact that the issue of tax compliance costs was explicitly discussed at the birth of modern economics. There are several reasons for this relative neglect:

- tax compliance costs have been thought to be insignificant
- there is no neat and formal model for compliance cost minimization
- tax compliance cost estimates typically require painstaking research involving collection of large amounts of data not available from published sources.

However, there has been a steady growth of international interest, particularly among OECD countries, in tax compliance costs, both by academic researchers and by governments. Sandford (1995) identifies a number of reasons for the growth in interest in compliance costs. These include:

- changes in technology (facilitating large-scale computer driven surveys)
- the introduction of value added tax (VAT) regimes in a number of countries (with high and visible compliance costs)
- the growth of enterprise cultures involving the small business sector (where compliance costs are particularly onerous)
- the increasing complexity of tax systems.

In the past few years, new research has been conducted in the U.S., the UK, Canada, Germany and the Netherlands, while empirical studies have recently been

undertaken for the first time in Ireland, Switzerland, Australia, New Zealand, Spain, Sweden² and, more recently, Singapore (Ariff, Loh, and Talib, 1995).

The empirical findings suggest that tax compliance costs are quite significant, tend to be highly regressive, and show great variation among different types of taxes. As international competition for foreign investment intensifies, it is also expected that there will be a rapidly growing interest in tax compliance costs among newly developed and developing Asian countries (Heij 1995).

The new wave of studies has stimulated considerable public interest, particularly from the business sector, which appears to bear most of the burden of tax compliance. In response to this public awareness and concern, the governments of the UK, Australia, and New Zealand have all agreed to accompany new tax legislation with some form of compliance cost impact statement (CCIS).³ For example, Recommendation 26 of the Australian Parliament Joint Committee of Public Accounts (1993, p. xxvii) requires that "all future tax legislation be supported by a Taxation Impact Statement which details the impact on taxpayers of the legislation, including total compliance costs . . ." In response to this recommendation, the Revenue Analysis Branch (RAB) of the Australian Taxation Office (ATO) commissioned a research team from the Australian Taxation Studies Program (ATAX) to conduct a national study of tax compliance costs.

The ATAX team was initially commissioned by the ATO to report upon incremental compliance costs of taxes collected by the ATO. At the outset of the project, the objectives of the research were stated by the ATO as follows:

² For a summary of recent studies on tax compliance costs please refer to Vaillancourt (1987), Allers (1994, Appendix B) and Sandford (1995, Parts III and IV). Vaillancourt and Sandford summarize international studies published in English only while Allers considered many non-English studies as well.

³ See Sandford (1995, p. 3). In the UK these are now termed Regulatory Impact Appraisals. The term Tax Regulation Impact Statement is used in Australia, and Compliance Cost Impact Report in New Zealand. For a review of the use and usefulness of such statements in the OECD see Evans and Walpole (1999).

- to provide advice on the RAB's proposed methodology to estimate the cost of taxpayer compliance to change in the taxation field
- to provide appropriate values and information to use in calculating the cost of taxpayer compliance.

Thus, a primary aim of the research was to identify the variables that cause tax compliance costs to change as a result of legislative amendments. The full results of the incremental cost study, based on three large-scale mail surveys, were made public in Australia in 1996 (Evans, Ritchie, Tran-Nam and Walpole 1996).

The team was asked to estimate the magnitude and incidence of total compliance costs in Australia during the 1994–5 financial year, and to compare those costs with those encountered in other OECD countries. When the report on the total compliance costs was officially released in early 1998 (Evans et al. 1997), it generated considerable interest among academic researchers as well as business people. This was mainly due to the concern for tax simplification by the Australian business community and the impact of the Coalition Government's proposed Goods and Services Tax (GST)⁴ on tax compliance costs. More recently, the ATO has again commissioned the ATAX team to conduct an annual updating of total tax compliance costs in Australia for the fiscal years 1997–8 to 1999–2000.

This paper is concerned with the ATAX research on total tax compliance costs. The study has refined and implemented many of the world's best ideas and practices in the tax compliance cost area. It has also taken the practice forward by developing the methodology for estimating costs and establishing some offsets that should be taken into account when compliance costs are calculated (such as the value of cash

flow benefits and the tax deductibility of certain compliance costs). The focus of this paper is on the methodology of estimating taxation compliance costs. Some aggregate empirical findings and comparison with previous studies in the UK and U.S. will be reported. Some major differences in the Australian and U.S. tax systems affecting compliance costs will also be highlighted.

There are now a variety of approaches to, and numerical estimates of, tax compliance costs in the literature. Like any other economic or accounting measures, accurate and dependable numerical estimates of tax compliance costs must be based upon a sound and consistent conceptual basis, a proper framework for quantification, and availability of appropriate and reliable data. These three issues will be discussed later in this paper. We will also present some broad estimates of tax compliance costs in Australia during the 1994–95 financial year, together with some relevant international comparisons. Some concluding remarks will then be given.

Note that the paper focuses on compliance costs. Compliance and administrative costs together define the operating costs of the tax system. Although these costs tend to be analyzed separately in empirical studies, it is well known in the literature that there is considerable scope for transfer between them (Sandford et al. 1989). For example, a government may place responsibility for some aspects of tax collection on either the private sector or its own tax authority. Also, individual income tax may be partly or wholly self-assessed or revenue-assessed. While this paper concentrates on compliance costs, their interdependence with administrative costs should not be overlooked in future research in the area.

⁴ As in the case of New Zealand and Canada, Australia's GST is a VAT.

SOME CONCEPTUAL ISSUES

Social versus Taxpayer Compliance Costs

The term 'tax compliance cost' is capable of different interpretations; a consensus as to the precise meaning and measurement of compliance costs only began to emerge in the literature about 25 years ago. According to the most authoritative source, tax compliance costs are defined as those costs "incurred by taxpayers, or third parties such as businesses, in meeting the requirements laid upon them in complying with a given structure and level of tax" (Sandford, Godwin and Hardwick, 1989, p. 10). In the same source, the cost of tax compliance is also referred to as a private sector cost.

An important convention in this vein of literature, which is relevant to this paper, is the distinction between gross and net compliance costs where net compliance costs are equal to gross compliance costs minus the value of tax compliance benefits. The main quantifiable form of tax compliance benefit is the cash flow advantage which arises when businesses have the use of tax revenues for a period before they must be remitted to tax authorities (Sandford et al., 1989, pp. 13–14). It may thus be written as

$$[1] \quad \text{Net compliance costs} \equiv \text{Gross compliance costs} - \text{Cash flow benefits}$$

The problem with the above approach is that it does not clearly distinguish between *social compliance costs* (i.e. costs to the economy) and *taxpayer compliance costs* (i.e. costs directly borne by taxpayers). It is easy to see that tax compliance activities undertaken by taxpayers generate some offsetting benefits to them.⁵ These benefits include the following.

Managerial benefits

Managerial benefits provide a basis for improved business or individual decision making. These can be brought about by the need to have stringent record keeping in order to comply with the requirements of the tax laws. These benefits theoretically exist but are difficult to quantify, and are typically omitted in empirical studies. Important exceptions include Sandford et al. (1981) and National Audit Office of the UK (1994), which suggest the values of managerial benefits can be quite considerable.

Cash flow benefits/costs

Cash flow benefits arise:

- (1) when income is not taxed (either at all or in sufficient amount) and remitted at the point at which it is received, and taxpayers (both individuals and firms) have the use of the tax revenue for a period before the tax is paid to the tax authority
- (2) from the lawful delay in the remittance of tax revenues collected by businesses on behalf of the government (e.g. PAYE or sales tax).

Note that cash flow benefits to taxpayers can be negative if taxpayers either overpay their income tax liabilities during the tax year or have to remit tax revenue to the tax authority before collection. The idea of cash flow benefits as an offsetting benefit of tax compliance to business taxpayers was first popularized by Sandford and others in the early 1980s (Sandford et al. 1981, pp. 75–89). This idea has become quite established in the literature and been applied in many empirical studies outside the UK (Allers 1994; Hasseldine 1995; and Pope, Fayle and Chen 1994).

⁵ By the same reasoning, the administrative activities undertaken by tax authorities also generate managerial benefits and improved data for the construction of national accounting to the government.

In Australia, the magnitude of cash flow benefits/costs to taxpayers can be quite substantial, as will be shown later. In the U.S., these benefits/costs are minimized by the estimated tax payment (ETP) for both individuals and corporations. Generally the ETP system requires taxpayers to estimate their tax liabilities for the current tax year and make quarterly payments which are equal to at least 100 percent of their tax liabilities in the previous year or 90 percent of their liabilities in the current year. Taxpayers who do not meet these conditions and fail to pay ETP by due dates are subject to interest penalties.

Cash flow benefits enjoyed by taxpayers can be viewed as costs to tax authorities. This may be written as:

$$[2] \quad \text{Cash flow benefits to taxpayers} \\ = \text{Cash flow losses to tax authorities}$$

Equation 2 means that cash flow benefits to taxpayers represent a transfer within the economy, which reduces the compliance costs to taxpayers, but not the economy.⁶

Tax deductibility benefits

The income tax systems in most developed countries recognize some tax compliance cost activities as a source of legitimate tax deductible expenses. The benefits of the tax deductibility of compliance activities to taxpayers were considered in some detail in an early study by Johnston (1963). However, his distinction between before- and after-tax compliance costs has been virtually neglected until the 1990s.

This neglect, particularly by the North American researchers (Slemrod and Sorum 1984; and Vaillancourt 1989), is not surprising. Like cash flow benefits, tax deductibility benefits represent a transfer within the economy, which does not reduce the social compliance costs,⁷ and economists typically focus on the opportunity costs to the society as a whole.

Tax deductibility may thus be written as:

$$[3] \quad \text{Tax deductibility benefits to taxpayers} \\ = \text{Revenue losses to tax authorities}$$

In Australia, personal (individual non-business) taxpayers can deduct the costs of paid tax advisers and tax-related incidental expenses from their taxable income. In the U.S., after the *Tax Reform Act of 1986*, if individual taxpayers itemize their deductions, then they can deduct from their taxable income the portion of their miscellaneous expenses account (including tax preparation fees, safe deposit box rental, custodial accounting fees, etc) exceeding 2 percent of their adjusted gross income. As a result, very few individual taxpayers in the U.S. meet these stringent conditions.

Combining equations 2 and 3 we may now write:

$$[4] \quad \text{Social compliance costs (SCC)} \\ \equiv \text{Direct monetary outgoings incurred} \\ \text{by taxpayers} + \text{Imputed costs of time} \\ \text{and resources spent by taxpayers} \\ \text{on their tax affairs} - \text{Managerial} \\ \text{benefits to taxpayers}$$

⁶ Strictly speaking, equation 2 holds if and only if taxpayers and tax authorities face the same rate of interest. Sandford et al. (1989, p. 23) noted that "whilst the total cash flows cancel, the benefits and detriments may not precisely cancel because of the different terms on which public and private sectors can borrow and lend."

⁷ This is based on the assumption that if tax compliance is costless, then the taxable resources previously employed in tax compliance can easily and fully move to other productive uses in the long run. Otherwise, tax deductibility benefits to taxpayers do not cancel out the revenue losses to the tax authority. For example, deductible expenses typically include fees paid to professional tax advisers. While these deductible expenses reduce taxpayers' tax liabilities, they at the same time increase tax advisers' tax liabilities by a corresponding amount. If tax advisers can find work elsewhere in the absence of tax compliance activities, then tax deductibility benefits to taxpayers and the corresponding revenue losses to the tax authority will cancel out. Otherwise, the losses of tax revenue will equal the allowable tax deductions multiplied by the difference in the marginal tax rates of the taxpayers and tax advisers.

- [5] *Taxpayer compliance costs (TCC)*
 ≡ *Social compliance costs – Cash flow
 and tax deductibility benefits to
 taxpayers*

Note that cash flow and tax deductibility benefits to taxpayers reduce tax revenue and can thus be regarded as costs to tax authorities. The loss in tax revenue reduces government expenditure or results in higher taxes or borrowing and will thus affect taxpayers and non-taxpayers alike.

Equations 4 and 5 provide the conceptual framework for measuring tax compliance costs in the ATAX study. In adopting this conceptual framework, the ATAX researchers were attempting to incorporate as comprehensive a categorization as possible into their model. However, it is accepted that even this framework does not embrace all aspects involved. For example, to be comprehensive, the model would need to take into account what have been referred to as psychic costs (stress, anxiety, frustration, etc experienced by taxpayers, especially the elderly) in complying with their tax obligations. To date, no studies have managed to successfully incorporate psychic costs, although research in this area is taking place (Woellner et al. 1998).

A tax may also cause an additional element of social costs in the form of inconvenience and cost to the public. For example, when a higher VAT rate on a narrow range of products was introduced in the UK, some retailers discontinued selling the goods subject to the higher rate to keep their tax affairs simpler. This reduced availability meant that some buyers had to travel further to get them. It is felt that these costs provide an example of a borderline between compliance and efficiency costs where high compliance costs may induce taxpayers to change their behaviour. Once again, the ATAX research has not attempted to incorporate these distortionary costs in its model.

In view of equations 4 and 5, it can be seen that while gross compliance costs can be taken to mean the social compliance costs, the net compliance costs defined in equation 1 correspond to neither social nor taxpayer compliance costs. In fact, the net compliance costs provide an underestimate of the social compliance costs and an overestimate of the taxpayer compliance costs. Unfortunately, as mentioned previously, equation 1 has been applied in a number of recent empirical studies. An example is a research on compliance costs of companies' income taxation in Australia for the 1990-91 financial year by Pope, Fayle and Chen (1994). In this study, despite being aware of tax deductibility benefits, they subtracted cash flow benefits from the gross compliance costs to arrive at the net compliance costs.

Allers (1994) appeared to be the first to take account of both tax deductibility and cash flow benefits in his calculation of the compliance costs for Dutch business taxpayers in 1989. However, he did not provide a general treatment of the legal incidence of tax compliance costs and did not apply the same idea to tax compliance costs of Dutch individual taxpayers in 1990. The ATAX research is, to the best of our knowledge, the first study to provide clear and consistent conceptual and estimating frameworks for social and taxpayer compliance costs.

The distinction between social and taxpayer compliance costs has more than pedagogic relevance. It gives rise to a divergence of views between tax researchers and tax policy makers. Most tax researchers, especially public finance economists, would consider the social costs of tax compliance as relevant for policy considerations while, from the tax authorities' narrower perspective, it is quite legitimate for them to regard the taxpayer compliance costs as appropriate for CCISs.

Computational versus Tax Planning Costs

Compliance costs are sometimes divided into computational (unavoidable or involuntary) and tax planning (avoidable or voluntary) costs. This distinction, first made in the literature by Johnston (1963, pp. 67–70), has caused a controversy which has not yet been (and possibly will never be) fully resolved in the tax compliance literature. Many tax lawyers and policy makers continue to insist that only computational costs constitute legitimate measures of tax compliance costs that should be included in CCISs.

The ATAX research team belongs to the majority of tax researchers who prefer a comprehensive definition of tax compliance which includes both computational and tax planning costs. Our view is that the line between avoidable and unavoidable costs will always be blurred and it would be impossible to fully distinguish activities and costs related to tax planning from those related to satisfying the compliance demands of the tax system. Both sorts of expenses are legitimately incurred by taxpayers in complying with legislative requirements.⁸

Tax planning is undertaken by taxpayers because the costs of tax planning are presumably lower than the resulting reductions in their tax liabilities (assuming that taxpayers are rational maximising agents). Thus, the equation for taxpayer compliance costs should be modified slightly to reflect the benefits of tax planning to taxpayers:

$$\begin{aligned}
 [5'] \quad & \text{Taxpayer compliance costs (TCC)} \\
 & \equiv \text{Direct monetary outgoings incurred} \\
 & \quad \text{by taxpayers} + \text{Imputed costs of time} \\
 & \quad \text{and resources spent by taxpayers on} \\
 & \quad \text{their tax affairs} - (\text{Managerial benefits} \\
 & \quad \text{to taxpayers} + \text{Cash flow benefits to} \\
 & \quad \text{taxpayers} + \text{Tax deductibility benefits}
 \end{aligned}$$

to taxpayers) – Reduction in tax liabilities due to tax planning

Note, however, that tax planning is wasteful from the societal viewpoint, as tax-planning benefits to taxpayers will be matched by a reduction of the same magnitude in government tax revenue, so that equation 4 remains valid. Reliable estimates of the reduction in taxpayers' tax liabilities due to their tax planning activities are extremely difficult, if not impossible, to obtain. So although we have adopted a relatively comprehensive definition of tax compliance costs, equation 5 has been used to estimate taxpayer compliance costs, keeping in mind that such practice will overestimate the true magnitude of taxpayer compliance costs.

Commencement versus Recurrent Costs

Compliance costs can also be divided into commencement (once-only) and recurrent (regular) costs (Sandford et al., 1989, pp. 16–17). Since tax legislation tends to change continuously, both commencement and recurrent costs exist simultaneously for the tax system as a whole. The presence of commencement costs complicates the analysis of tax compliance in two different ways.

First, compliance costs are not unlike production costs and have to be treated similarly. Economic theory and accounting practice suggest that some commencement costs, particularly the costs of durable assets (e.g. a new computer or cash register), should be spread over a number of periods, rather than be treated as a cost solely at the time incurred. In practice, it is extremely problematic to identify commencement costs, let alone allocate such costs over time. Secondly, commencement costs make intertemporal comparisons of tax compliance costs difficult. A researcher may well overestimate compliance costs if they investigate them

⁸ The scope of tax planning should be, in principle, broad enough to cover tax avoidance activities. However, the social compliance costs should exclude tax evasion activities as these do not comply with the tax legislation.

during a period when a new tax is introduced or an existing tax is amended significantly, as costs will decrease in future periods.

In practice, we are not aware of any academic studies that report on empirical estimates of commencement and recurrent costs separately. Like all previous studies, the ATAX research does not distinguish between commencement and recurrent compliance costs of ATO taxes during the 1994-95 financial year. The ATAX study is concerned with the Australian federal tax system as a whole, and the resources required for measuring commencement and recurrent costs of the Australian federal tax system would simply be prohibitive. However, such an effort may be justified in a future study that focuses on a particular type of tax or tax collection mechanism.

DEVELOPING AN ESTIMATING MODEL

In order to translate the above conceptual framework into an estimating model, it is necessary to:

- derive precise formulae for computing *SCC* and *TCC*
- obtain sample data
- generalize on the basis of sample data obtained.

The collection of data is further discussed in the next section, and some of the outcomes are reported in the final section. This section gives some details about the development of an estimating model that was sufficiently robust to provide a reasonable estimate of compliance costs arising from the federal tax system. These include:

- components of tax compliance costs
- components of tax compliance benefits
- tax coverage

- disaggregation of taxpayers
- accounting/taxation overlap
- valuation of time spent on tax activities.

Each of these determinants will be discussed in turn.

Components of Tax Compliance Costs

The three major areas of opportunity costs applicable to tax compliance activities are:

- time spent by taxpayers, unpaid helpers and (internal) paid employees
- (external) paid tax advisers
- non-labor costs (i.e., tax-related personal incidental expenses or business overhead costs) such as equipment, computers, stationery, photocopying, postage, telephone, facsimile, electricity, specific travel, etc.

Some of these costs are explicit, involving direct payments (e.g. paid employees or external tax advisers and non-labor costs) while others are implicit (e.g. taxpayers' own time and that of unpaid helpers).

The treatment of non-labor costs of business taxpayers represents one of the most difficult and neglected areas of tax compliance cost research. It has been suggested in Sandford (1995, p. 396) that these costs can be practically ignored in studies involving only small business taxpayers. However, omission of non-labor costs will underestimate compliance costs of large business taxpayers. In the ATAX study, an attempt was made to collect data on the tax-related incidental costs for personal taxpayers. It was, however, felt that it was too difficult to disentangle overhead costs relating to taxation compliance and, consequently, no attempt was made to collect data on non-labor costs of tax compliance for business taxpayers.

This omission is an area which requires further consideration in future empirical studies.

Components of Tax Compliance Benefits

As has already been noted, the offsetting benefits of tax compliance to taxpayers include managerial benefits, cash flow benefits and tax deductibility benefits.

Managerial benefits (both to personal and business taxpayers) have proved too difficult to quantify, and typically have been excluded in empirical studies.

Cash flow benefits/costs (cash flow benefits may be negative for some individual taxpayers, in which case they are referred to as cash flow costs) are a critical component in arriving at an estimate of taxpayer compliance costs. The relative importance of cash flow benefits/costs to taxpayers depends crucially on the tax system under consideration. In Australia, cash flow benefits/costs are significant and arise from a number of taxes:

- **cash flow benefits to personal taxpayers:** provisional tax and tax debit assessment (personal taxpayers who had not had sufficient taxes deducted from their income during the year in which it is derived)
- **cash flow benefits to business taxpayers:** provisional tax, tax debit assessments, company tax instalments, superannuation fund tax instalments, Fringe Benefits Tax (FBT), Wholesale Sales Tax (WST), PAYE, Prescribed Payments System (PPS) and Reportable Payments System (RPS)⁹

- **cash flow costs to personal and business (mostly sole trader) taxpayers:** tax refunds (taxpayers who overpay tax during the course of the financial year).

Note that in Australia, taxpayers do not normally pay interest or penalties on tax underpayments within a financial year. (However, some provisional taxpayers may have to pay a penalty tax if their own estimated taxable income is ultimately more than 15 percent below their actual taxable income for that year.) Similarly, the ATO does not pay interest on tax overpayments within a financial year by taxpayers. Very recently, the ATO has begun to consider paying interest on overpayments during the tax year.

In estimating cash flow benefits/costs to personal taxpayers, the ATAX study has built on the work of Sandford et al. (1989, pp. 76–7). The value of cash flow benefits/costs to taxpayers depends on the amount of tax revenue involved, the average duration of cash flow benefit/cost period, and the average rate of interest (which in turn depends on how cash flow benefits/costs are assumed to be used/financed).

While the amounts of tax revenue for different types of tax involved and the average interest rates can be obtained from published sources, it is necessary to make appropriate assumptions regarding the average duration of the cash flow benefit/cost periods for different tax types. The full list of assumptions is given by Evans et al. (1997, pp. 14–15).

Tax deductibility benefits also need to be taken into account in determining taxpayer compliance costs. The tax deduct-

⁹ FBT is a tax imposed on employers for providing employees with non-cash benefits (e.g., the use of a car). WST is a federal, single-stage sales tax imposed at the wholesale level on a small number of goods (not services). Its tax base is narrow and its rates are variable. It is to be replaced, from 1 July 2000, with a GST. The PPS is designed to ensure that the persons making 'prescribed payments' in certain industries (e.g., construction) deduct tax from those payments at source, before paying balance to the payees. PPS thus perform an analogous function to those self-employed persons to that which the PAYE performs for employees. The RPS is a supplement to the PPS which requires payers of 'reportable income' to deduct tax at the highest rate (48.5 percent) from those payees who do not quote their tax file numbers.

ibility of some compliance activities drives a wedge between *SCC* and *TCC*. Yet very few studies have explicitly taken it into account. The methods of estimating tax deductibility benefits in the pioneering work of Johnston (1963) and in a later study by Allers (1994) were rather crude and some refinements were introduced in the ATAX research. The underlying assumption of tax deductibility benefits is that taxpayers are optimising and well-informed so that they will always claim the full amount of allowable tax deductions in order to minimize their income tax liabilities. Under this assumption, the value of the tax deductibility benefit to taxpayers depends upon:

- the portion of taxpayers' compliance costs which is tax deductible
- the taxpayers' marginal income tax rates
- whether taxpayers are income taxable or not.

In Australia, professional tax adviser fees and incidental expenses incurred by personal taxpayers are tax deductible. For business taxpayers, all tax compliance costs incurred (with the exception of time spent on business tax affairs by self-employed owners and unpaid helpers) are regarded as legitimate business expenses and are therefore tax deductible in principle. The ATAX team recognized that taxpayers face variable income tax rates and consequently disaggregated personal taxpayers by reference to their income levels, and business taxpayers by reference to their size and legal forms in order to obtain an accurate dollar estimate of tax deductibility benefits to taxpayers.

It is easy to see that businesses with positive taxable income can fully benefit from the tax deductibility of compliance

costs. Non-taxable businesses introduce some complications to the calculation of tax deductibility benefits. For example, many non-taxable businesses are not, in fact, in loss. They are in the position of no profit or loss, as the accounting surplus for the year has been entirely paid out (as earnings or otherwise) to directors/proprietors. Such firms will therefore have received the benefit of tax deductibility in respect of their tax compliance costs. Some loss-making businesses can still benefit from part of the deductibility of their compliance costs if, excluding tax compliance costs, they have positive taxable income. Alternatively, since loss-making businesses can carry their losses into the future, some will eventually benefit from tax deductions provided that they will be making some profits in the future. (Even so, their tax deduction benefits will not be as high as profit-making businesses as business losses are not indexed.)

Faced with all these possibilities for non-taxable businesses, and in the absence of appropriate information upon which to base more precise calculations, the ATAX study conservatively assumed that businesses that were not taxable were able to derive an estimated 50 percent of the full benefit of tax deductibility.

Tax Coverage

The ATAX study is unique in its attempt to capture the compliance costs of the whole Australian federal tax system (as administered by the ATO) in one study relating to the same financial year. The taxes under consideration are income tax, Capital Gains Tax (CGT), FBT, Superannuation Guarantee Charge (SGC) and WST, and various tax collection mechanisms such as PAYE, provisional tax, PPS and RPS.¹⁰ In Australia, State Govern-

¹⁰ SGC is a tax levied on employers who fail to provide their employees with 'minimum' level of superannuation support. Various excises (such as those on tobacco, alcohol and petroleum) have recently been transferred from the Australian Customs Service to the ATO. Under Australian Federal Government's tax proposals, the ATO will be responsible for collecting GST as well as excises.

ments do not impose income or general sales tax. They rely on a range of narrow-based indirect and land taxes, and the payroll tax is one of their main sources of revenue. Previous research investigated distinct aspects of the tax regime, rather than the whole, although Pope's five separate surveys (1995) and the Bath survey program directed by Professor Sandford (Godwin, 1995) come close to providing a comprehensive picture over the course of a number of years. Other studies in the UK have covered the whole tax system in a series of related studies which were then adjusted to relate to a single financial year (Sandford et al., 1989). The ATAX study of all federal taxes collected by the ATO thus takes into account the fact that different tax types are often too interrelated to be successfully examined in isolation.

Disaggregation of Taxpayers

The ATAX study breaks taxpayers down into two main categories—personal taxpayers and business taxpayers. A personal taxpayer is an individual taxpayer whose greatest single source of income is derived either from employment (wages and salaries, and with income from other sources of less than \$1,000) or from property income (and with no business, trust or partnership income). These taxpayers are sometimes referred to as 'individuals non-business' by the ATO.

Business taxpayers comprise the balance of taxpayers, and include sole traders (individuals with business income or loss who are not salary and wage earners or property income recipients), partnerships, companies, trusts, and superannuation funds. Government trading enterprises have been included in the research as a result of the operation of tax equivalent regimes.¹¹ However, the budget sec-

tor of federal, state, and local governments has been excluded, as have non-profit organizations. This is not to suggest that such entities do not have taxation compliance costs through, for example, the operation of aspects of the tax system such as PAYE or FBT. However, such entities are not part of what might usually be termed the business taxpayer community.

Previous studies of income tax compliance costs have typically considered individual taxpayers as a whole. One of the innovations of the ATAX study is to separate individual taxpayers into personal and business taxpayers. (Note that personal taxpayers and sole trader taxpayers together constitute the entire population of individual taxpayers.) This is based on two main considerations. In the first place, individual business taxpayers face a range of federal, state, and local taxes in the conduct of their businesses. In 1994–95, Australian personal taxpayers spent, on average, 8.5 hours on their tax affairs while individual business taxpayers (sole traders) spent 90 hours of their time (not counting the time of paid helpers) on their own tax affairs (Evans et al., 1996, pp. 59 & 146). Secondly, individual business taxpayers are entitled to a range of tax deductible expenses which are usually not available to individual non-business taxpayers. This creates a difference in the calculation of the TCC for individual business and non-business taxpayers.

Another feature of the ATAX study is its secondary classification of both personal and business taxpayers:

- personal taxpayers are further classified on the basis of their gross income levels ('low' (annual income under \$20,000), 'medium' (\$20,000 to \$49,999) and 'high' (\$50,000 or more)), use of paid tax agents, and location of residence

¹¹ The State Governments in Australia have developed a tax equivalent regime under which tax equivalent payments mirror as closely as possible those federal taxes which would apply were the Government Trading Enterprises owned by the private sector, i.e., corporate income tax and sales tax.

- business taxpayers are classified by reference to their legal form (sole trader, partnership, company, trust, and superannuation fund) and size of business ('small' (annual turnover less than \$100,000), 'medium' (between \$100,000 and \$9,999,999), and 'large' (\$10,000,000 or over)).

The above stratification is based on both *a priori* reasoning and empirical evidence. Such diasgregation permits the selection of more homogenous groups of taxpayers and more accurate estimation of compliance costs.

The Accounting/Taxation Overlap

In the area of business compliance costs, the lists of costs that one might attribute to accounting and those which one might attribute to taxation is not free from debate. There exists a continuous spectrum of views regarding the accounting/taxation overlap. At one polar, there are taxpayers (especially small businesses) who regard all the costs involved in the preparation of accounting records as compliance costs, because taxation is the only reason that they have, or at least recognize, for performing those activities. The other extreme might be expressed by describing tax as no more than a by-product of accounting such that the information relevant to taxation is a final step in an ordinary accounting function.

The ATAX team rejected both of these extreme views. In adopting an intermediate position concerning the accounting/taxation overlap, we attempted to design appropriate questions that helped taxpayers to separate non-taxation accounting costs from the taxation compliance costs. This will be further discussed in the next section.

Valuation of Time Spent on Tax Activities

Labor time spent on various tax activities constitutes the most significant

component of taxation compliance costs, and aggregate compliance costs are very sensitive to the value attributed. Various issues arise from the valuation of labor time, excluding external paid tax advisers. These have been discussed in detail in the literature, and will not be repeated here. However it must be stressed that this is a contentious and inevitably subjective area, and the following sections identify the rationale for the adoption of the measure of taxpayer time that has been used in calculating average compliance costs.

Valuing personal taxpayers' time

Although a number of alternative valuations of personal taxpayer time have been proposed in the literature (Sandford et al., 1989, p. 37), the two most popular measures in practice are the before- and after-tax wage rates. Blumenthal and Slemrod (1992, p. 200) argued that the after-tax wage rate should be used if compliance activities substitute for leisure, and the before-tax wage rate if compliance activities substitute for work.

The ATAX team takes the view that personal tax compliance activities substitute for leisure, and uses the after-tax wage rate in the measurement of both SCC and TCC. There are two candidates for wage rate: published wage rates or surveyed wage rates obtained directly from taxpayers. Since personal taxpayers may be employed, unemployed or not in the labor force, the ATAX team decided to use the after-tax surveyed wage rates (which range from \$11 to \$20 per hour, depending on the level of income of the taxpayer concerned).

The value of time expended by unpaid helpers on behalf of personal taxpayers (usually a spouse or family member) also needs to be factored into the equation. In this case, the ATAX team used taxpayers' valuations of their unpaid helpers' time, ranging from \$11 to \$14 per hour after tax (Evans et al., 1996, p. 73).

Valuing business taxpayers' time

When tax activities are carried out by employees of a business, the labor costs can be satisfactorily valued at the prevailing before-tax market salary/wage rates for the different levels of personnel (i.e. partners/trustees/directors, lawyers, accountants, computer analysts, clerks etc.). It is worth noting that an appropriate allocation of the total wage bill (including an element of on-costs, such as superannuation contributions by employers and payroll taxes, which may add approximately 20 percent to the nominal wages bill) should be the basis for valuation (Sandford, 1995, p. 398). In the ATAX study, the wage rate for personnel in medium- and large-sized businesses who are likely to be wholly involved in the tax affairs of the business was increased accordingly to reflect the total cost to the employer including on-costs, rather than merely reflecting the before-tax wage rate.

Valuing time spent on tax activities by sole traders is more problematic. It was considered that the appropriate wage rate for sole traders in small businesses should equal the before-tax surveyed wage for medium income personal taxpayers (\$19 per hour). A report commissioned by the Small Business Deregulation Task Force (Yellow Page Australia, 1994, p. 16) assessed the wage rates applicable to owners and partners in small businesses to be \$20 per hour, which supports the value adopted by the research team. For sole traders in medium-sized businesses, the ATAX team took the view that the appropriate value of time should be \$29 per hour, which represents the mid-point for personal taxpayers in the medium and high categories (\$19 to \$39). There were no sole traders in the large business category, and so it was not necessary to allocate a value for such taxpayers' time.

Unpaid helpers are involved mostly in relatively small businesses that may not require tax specialist skills. The ATAX

team adopted the approach of valuing business taxpayer unpaid helpers' time at the same rate as the average overall reported value for time spent by the unpaid helpers of personal taxpayers (\$12 per hour).

To summarize, in the case of personal taxpayers, the relevant tax is the Australian federal income tax, and taxpayers are disaggregated by their income level for estimation purposes. For business taxpayers, calculation covers a full range of federal taxes and tax collection mechanisms, and disaggregation is on the basis of the legal form and annual turnover. Social compliance costs are thus equal to the average social compliance costs per taxpayer multiplied by the number of taxpayers in a particular sub-population, summed over all sub-populations of taxpayers. Taxpayer compliance costs are equal to social compliance costs minus the aggregate tax deductibility of certain types of costs and the aggregate cash flow benefits/costs that derive from certain aspects of the tax system. For full details of various computational formulae refer to Evans et al. (1997, pp. 17 & 31).

COLLECTION OF DATA

The discussion in the previous section indicates that three separate sources of data are required for estimating tax compliance costs. They are:

- macro statistics on the cross distributions of taxpayers (e.g. personal taxpayers by gross and taxable income, or business taxpayers by legal form and annual turnover) and distributions of tax revenues by various characteristics
- information about taxpayers' tax compliance costs, such as time spent on personal tax affairs, time spent by unpaid helpers, actual or perceived wages, time spent by different levels of personnel on different tax

activities or tax types, fees paid to tax advisers, etc.

- other information, such as market wages for different occupations and interest rates.

The first and third types of data are normally available from published sources. With regard to the first source of data, the ATAX team was able to gain access to the ATO's full database known as the ATO Tax Return Database (SuperCROSS). The access to this database, not normally available to the public, gave the ATAX study an immense advantage over previous Australian studies. The third type of data was derived from publications of the Australian Bureau of Statistics (1997), Reserve Bank of Australia (1995), and Cullen Egan Dell (1995), a leading remuneration and human-resource consulting firm in Australia.

A number of strategies for collecting the second type of data have been proposed and used in the compliance cost research literature. They include:

- large-scale mail survey
- log-book case study
- face-to-face or telephone interview
- archival/document analysis.

The most popular method of collecting data for compliance cost research is large-scale mail surveys. The ATAX team decided to collect the necessary primary data by means of three separate, large-scale surveys of just over 10,000 personal, sole trader and other business taxpayers, which were conducted during September–November, 1995. The decision to use mail surveys was based on the need to gather new and detailed data on a national scale over a short timeframe.

There are many problems with using survey data in this kind of research. This

section explains how the ATAX study attempted to deal with these problems by utilizing many of the world's best ideas and practices in the survey data gathering.

The Pilot Study

A pilot study involving 99 personal taxpayers and 408 business taxpayers was undertaken in July, 1995 to verify the survey questionnaires, to test the response rate, to determine the likely representativeness of the respondents, and to obtain comments from international experts. The pilot study respondents were invited to comment (on a separate evaluation sheet) on difficult or ambiguous questions and were asked if any omissions were apparent. Australian and overseas experts were also approached to provide comments on the pilot study questionnaire, and a number of refinements and additions were made as a result of this exercise.¹² The pilot study provided useful inputs for the main surveys. It confirmed many aspects of the initial conceptions about the main surveys, but also caused reassessments of other aspects. One particular outcome of the pilot study was the need for a separate, shorter, form specifically designed for sole traders, in addition to the personal and other business survey forms.

Sample Selection

The sample selection was accomplished with the assistance of the ATO. There were three separate samples: personal, sole trader, and other business. For each stratum, taxpayers were chosen by the proportional, random, systematic sampling method, although superannuation funds were not stratified by industrial sector for obvious reasons and a small number of very large listed companies were added

¹² The pilot questionnaires were sent to some leading Australian and overseas experts and useful comments were received from Allers, Hasseldine, Malmer, Sandford, Sawyer, Vaillancourt, and Wallschutzky.

to the other business sample in order to increase the number of large business taxpayers. Details of the sample selection are summarized in Table 1.

The ability to use the tax authority's database instead of commercial mailing lists or electoral rolls represents a significant improvement from most of the previous studies, especially those undertaken in Australia. In particular, the ATAX sample is more representative of taxpayer populations (in terms of various demographic and economic characteristics) than samples obtained in previous studies. The ATAX researchers recognized that using a sample drawn from the tax authority's own records would have the effect of automatically excluding non-filers from the survey, and that samples drawn from telephone or voting records may appear to have the advantage of potentially including some non-filers. However, they felt that the definite advantages of drawing from a database capable of ensuring a random systematic stratified sample far outweighed the possible (but unlikely) advantages of a few non-filers deciding to participate. Nonetheless, future empirical work in this area should seek to establish whether high compliance costs may themselves be one of the major causes of non-filing and other non-compliant behaviour.

Questionnaire Design

The questionnaires sought qualitative and quantitative information on demographic/legal, economic, and tax characteristics of taxpayers. In designing the questionnaires, the ATAX team endeavoured to make them comprehensive, user friendly, and administratively simple. Although the surveys were anonymous, respondents were offered the option of identifying themselves if they wished to participate in follow-up studies.

Double counting

Double counting of taxes was avoided because, in the case of business taxpayers, a full list of federal taxes and tax collection or reporting mechanisms was given to survey participants as a part of the questionnaire. Respondents were required to allocate the time spent by varying classes of personnel on compliance activities by reference to that list.

Of course, many businesses, for reasons such as limitation of legal liability, security, financial planning, and tax planning, choose to use several business vehicles in a single business entity. Thus, there were just less than one million separate businesses giving rise to about two and a half million business taxpayers in Australia in 1994-5.¹³ In the business surveys, the in-

TABLE 1
SAMPLE SELECTION

	Personal	Sole Trader	Other Business	Total
Total population	7,134,129	719,314	1,206,294	9,059,737
Stratified by	Income, use of tax agent, and location	Size and industrial sector	Size, legal form, and industrial sector	
Original sample size	1,996	2,997	5,402	10,035
Population coverage (%)	0.03	0.42	0.42	0.11

Source: Evans et al. (1996, p. 36).

¹³ According to the ATO's database there were over 2.4 million business taxpayers (including 0.95 million sole traders) in 1994-5.

structions given to respondents were to include the expenditure (time, money, etc.) only of the taxpayer to which/whom the survey had been mailed. The post-survey telephone interview, the helpline queries (see below) and the written responses in the qualitative section of the survey forms all suggest that in many cases the taxpayers surveyed was only peripherally involved in the business. As a result, the data in the response did not reflect all of the costs and activities of the business, only of the taxpayer surveyed.

Accounting/taxation overlap

In relation to the overlap between taxation and accounting, business taxpayers were requested to separately identify those activities that were required solely for tax purposes and those accounting activities that were beneficial to their business in other ways (e.g., stock control). In this way, the impact of purely accounting compliance costs on the survey results (as opposed to tax compliance costs) was marginalized.

Checking for internal consistency

There were a number of questions aimed at checking for internal consistency of respondents' answers. Those respondents who gave incompatible answers and who had indicated that they were willing to participate in a follow-up study were contacted for clarification.

Response Rates

Mail surveys are known to generate low response rates generally. In order to maximize response rates the ATAX study employed a number of measures. These included:

- sending the questionnaires from ATAX, part of the University of New South Wales, to emphasize the independence of the research

- accompanying the questionnaires with a covering letter by the Commissioner of Taxation to stress the importance of the study and the anonymity of the surveys
- using personalized letters
- providing reply-paid envelopes
- giving an incentive for the sample population to respond (a prize draw of a Personal Computer valued at over \$3,000. The computer was donated by a major accounting body, and the prize draw sheet also contained a letter from the President of the Tax Center of that body encouraging taxpayers to respond. Western Australian state laws prevented respondents from that state entering the prize draw and this exclusion seemed to suggest that the use of the incentive increased the level of responses in other states for personal taxpayers, but not business taxpayers (Evans et al., 1996, p. 37)
- issuing two reminders (a postcard and a full package)
- generating publicity by media and professional organizations to create a 'climate of acceptance' within the taxpaying community.

As a rule of thumb, a response rate of about 30 percent is generally regarded as satisfactory. The ATAX study generated response rates of 50.1, 26.6, and 36.4 percent for the personal, sole trader, and other business surveys, respectively (Evans et al., 1996, p. 35). These rates far exceed those obtained in previous Australian studies.¹⁴

Representativeness of Observed Samples

One major problem with mail surveys is concerned with the representativeness of the observed sample. The sample ob-

¹⁴ For example, the response rates of Pope's surveys of individual taxpayers, public companies, employment related taxation, WST, and companies were 16.3, 16.0, 27.2, 24.0, and 33.5 percent, respectively.

served in the personal taxpayer survey passed this test easily. There were statistically significant agreements between the observed sample and the population distributions in terms of all three stratification factors (income level, location and use of tax agent). Further, the observed sample was also representative in terms of demographic variables such as gender and marital status. There was, however, a high percentage of university graduates among respondents, but this is not surprising, since taxpayers in this category would feel more inclined and confident to participate in the survey. Similarly, the business surveys yielded samples that were representative of their corresponding populations, with one or two minor and inconsequential exceptions (Evans et al., 1996, p. 103–5). For example, the retail trade industry was slightly under represented in the responses, and the entertainment industry over represented.

Non-response Bias

Another problem concerns the perception of tax compliance costs of respondents versus non-respondents. There is a real danger that those who choose to respond distort the survey outcomes because they have a particular perception of compliance costs compared to those who do not respond. This was tested by giving surveyed taxpayers the option of answering a single question instead of the full questionnaire. A comparison of full-questionnaire and single-question respondents showed that there was an acceptable aggregated correspondence of views (Evans et al., 1996, pp. 65 & 105–6). Combining this with the reasonably high response rates obtained, it can be concluded that non-response bias was not a problem in the ATAX study.

Helpline

In order to provide respondents with every possible assistance, the four mem-

bers of the ATAX team staffed (on a rotating basis) a telephone helpline throughout the survey period (approximately two months). Any queries were dealt with immediately and consistently. Between 50 and 100 callers used the helpline, though it was often to inform the ATAX team that the person being surveyed was unavailable (for example because they were overseas or recently deceased/in liquidation).

Post-survey Data Verification Interview

Following the coding and preliminary analysis of data, data verification telephone interviews (based on a prepared questionnaire) were conducted with respondents who indicated their willingness to participate in follow-up studies. Different questionnaires were used for different categories of respondents, depending on whether they belonged in the personal, sole trader or business category. The aim of this telephone survey was to seek further explanations for outliers (i.e. excessively low or high values) to some of the key variables and inconsistencies. A list of survey respondents who recorded such outliers or inconsistent answers was drawn from those who were willing to assist with the study further.

A total of 146 respondents—out of a much larger number of persons contacted at random from the above list—completed lengthy interviews from January to April 1996. It was concluded from this exercise that respondents had made a fair and accurate attempt at the questionnaire and that the data derived was substantially reliable. Caution is necessary in applying the data derived in relation to time spent on specific taxes. The level of computer use in the business (other than sole traders) group may be understated. In the case of the personal taxpayer survey, the use of the trimmed mean (the mean obtained after deleting the bottom 5 percent and the top 5 percent in the sample) was appropriate in certain cases.

In summary, as a result of being able to use and refine examples of best practice culled from earlier Australian and overseas studies, and due to the assistance of the ATO, the ATAX study was able to obtain quality data which has not been available to similar previous research in Australia.

EMPIRICAL RESULTS

Summary of Main Findings

Some major findings of the ATAX study are summarized in Table 2.

As discussed previously, SCCs and TCCs are grossed up using the average social compliance costs per taxpayer in a particular category (based on sample data) multiplied by the number of taxpayers in that category (based on macro data), summed over all relevant categories. The categories are low, medium, and high for personal taxpayers and small, medium, and large for business taxpayers.

Note that Australian personal taxpayers suffer cash flow costs because they tend to, on average, overpay their tax liabilities during the year. This is mainly because, in contrast to the ETP system in the U.S., the Australian PAYE system does not take into account a range of tax deductions and rebates that reduce taxable income of salary and wage earners.

Table 2 indicates that Australian tax compliance costs, when viewed at the societal level (SCC), represent about 2.29

percent of Australian gross domestic product (GDP) in 1994–5. At the taxpayer level, compliance costs (TCC) are about 1.36 percent of GDP. For comparison, it was estimated by the UK’s Tax Law Review Committee that in 1986–87, compliance costs in the UK were approximately 1 percent of GDP (Godman, 1998, p. 15). It is not clear whether the UK reference is to social compliance costs, or to social compliance costs less cash flow benefits, and it is also dangerous to make international comparisons on the basis of reference to differing countries’ GDPs. Nonetheless, it is clear that Australian compliance costs are higher than those encountered in the UK.

Strict comparison with results obtained in previous U.S. research is not possible, simply because recent U.S. studies (Slemrod and Sorum, 1984; Blumenthal and Slemrod, 1992; and Slemrod and Blumenthal, 1996) have focused exclusively on the income tax system. Using a survey of Minnesota taxpayers, Slemrod and Sorum (1984, p. 461) found that the resource costs of income tax compliance were between 5 to 7 percent of the revenue raised by the combined U.S. federal and state income tax systems. This tentatively suggests that the U.S. tax compliance costs relative to revenue raised are lower than the relative compliance costs in Australia (about 12 percent of tax revenue in Australia).

TABLE 2
SOCIAL AND TAXPAYER COMPLIANCE COSTS IN AUSTRALIA,
1994–5

	Personal Taxpayers	Business Taxpayer	All Taxpayers
SCC (A\$m)	1,544	8,874	10,417
SCC as a % of tax revenue	4.00	17.90	11.86
SCC as a % of GDP	0.34	1.95	2.29
Tax deductibility (benefits)(A\$m)	(211)	(2,446)	(2,657)
Cash flow (benefits) costs (A\$m)	201	(1,781)	(1,580)
TCC (A\$m)	1,534	4,647	6,181
TCC as a % of tax revenue	4.00	9.30	7.00
TCC as a % of GDP	0.34	1.02	1.36

Source: Evans et al. (1997, p. ix).

Compared with previous studies, the SCC minus cash flow benefits as a percentage of tax revenue in the ATAX study (10.0 percent) is lower than the similar estimate by Pope et al. (1994) (12.1 percent) by about 20 percent, but is much higher than the UK estimate obtained by Sandford (1995) (2.8 percent) (Evans et al., 1997, pp. 82–3). This confirms that Australian compliance costs are high when compared with the UK estimates.

The table also shows that compliance costs are more significant as an issue for business taxpayers compared to personal taxpayers. Business taxpayers carry about 85 percent of all compliance costs when measured at the social level, and about 75 percent when TCCs are considered.

Personal Taxpayers

Table 3 presents the estimated compliance costs per personal taxpayer by level of income.

Note that the separation of income levels into low, medium, and high is not a very sensitive breakdown; other studies have employed finer divisions. The column headed “Overall” is weighted by population distributions of personal taxpayers (3 220 684, 3 546 149, and 582 138 for low-, medium- and high-income personal taxpayers, respectively). It is interesting to note that cash flow benefits/costs increase the regressivity of personal taxpayer compliance costs. As is the case with business taxpayers, personal taxpayers

in the low-income groups carry disproportionately high compliance costs compared to those personal taxpayers in the medium- and high-income groups.

The study also shows that time costs (the time that taxpayers and their unpaid helpers spend on their personal tax affairs) are by far the most significant component of individual taxpayer compliance costs, comprising about 70 percent of all social compliance costs. This is comparable with earlier Australian research conducted by Pope et al. (1994). By way of contrast, Sandford et al. (1989) estimated that time costs for UK individual taxpayers were about 46 percent of the total, while in the U.S., Blumenthal and Slemrod (1992) considered time costs to be 84 percent of all compliance costs encountered by individual taxpayers. The relatively low proportion of time costs in the UK is mainly because the majority of UK taxpayers did not file income tax returns in the year of study. This will be further elaborated later.

To compare ATAX results with those generated in previous international studies on individual taxpayers’ compliance costs (i.e., Sandford et al., 1989); Slemrod and Sorum, 1984; and Slemrod, 1995), it will be necessary to aggregate personal and sole trader taxpayers in the ATAX study. In Table 4, all monetary values have been converted to Australian dollars at the mid point of the fiscal year involved, and updated in line with the Australian CPI to 31 December 1994 (the mid point of the fiscal year of the ATAX research).

TABLE 3
ESTIMATED AVERAGE PERSONAL TAXPAYER COMPLIANCE COSTS BY INCOME LEVEL,
AUSTRALIA, 1994–5

Income Level	Low	Medium	High	Overall
Number of tax payers in sample	323	501	79	903
SCC per taxpayer (\$)	132	230	517	210
SCC per \$100 of income	1.30	0.73	0.67	0.81
Value of tax deduction(\$)	(11)	(38)	(76)	(28)
Cash flow benefits (\$)	(7)	(13)	(86)	(16)
Cash flow costs (\$)	34	47	84	44
TCC per taxpayer (\$)	148	226	439	209
TCC per \$100 of income	1.45	0.72	0.57	0.81

Source: Evans et al. (1996, p. 50; and 1997, p. 27) and further calculations.

TABLE 4
COMPLIANCE COSTS OF INDIVIDUAL TAXPAYERS

Country	Australia	UK	U.S.
Year of study	1994-5	1983-4	1982/1995
Taxes	Federal	National	Federal & State
Observed samples	1,665	1,776	826 ^a
Response rate	36.2	43.3	43.2 ^a
SCC per taxpayer (\$)	349	134	542 ^a
SCC as % of tax revenue	7.9	3.6	9.0 ^b
SCC as % of GDP	0.63	0.38	0.93 ^b

Source: Evans et al. (1997, pp. 62 & 65) and Internal Revenue Service (1995, Table 28).

^aBased on Slemrod and Sorum (1984).

^bBased on Slemrod (1995) and Hite and Sawyer (1997).

The compliance costs relative to tax revenue and GDP for the U.S. are based on recent estimates provided by Slemrod (1995, p. 1332). Using his estimate, the compliance costs of the federal and state income tax plus the IRS budget were about \$75 billion (in U.S. money) in 1995.¹⁵ Subtracting the IRS budget of about \$7.4 billion in 1995 (see IRS, 1997, Table 28) from \$75 billion, the compliance costs of the U.S. tax system were estimated to be \$67.6 billion. This represented about 9.0 percent of the U.S. federal and state tax revenue or 0.93 percent of the U.S. GDP in 1995.

It is easy to see that the Australia and U.S. compliance costs of individual taxpayers are broadly comparable, while both are considerably higher than those encountered in the UK. This is attributable to the unusual UK income tax structure at the time of the UK study:

- some 95 percent of taxpayers paid tax at the same marginal rate
- there was a subtle cumulative PAYE system by which the right amount of tax was deducted from wages and salaries
- tax was deducted at source at the standard rate (which 95 percent of individual taxpayers paid at the margin) from virtually all investment income.

As a result, the majority of UK individual taxpayers did not file income tax returns, and many did not incur any compliance costs.

Business Taxpayers

Table 5 summarizes the estimated business taxpayer compliance costs by business size.

Note that, as in Table 3, the total column is weighted by population distribution of business taxpayers (1 909 564, 528 299, and 10 602 for small, medium and large business taxpayers, respectively). The above results show a clear inverse relationship between business compliance costs (as a percentage of annual turnover) and business size (measured in terms of annual turnover). The most striking feature of Table 5 is that large business taxpayers enjoy negative *TCC* of about \$30,000 per taxpayer after all offsets are taken into account. In contrast, small business taxpayers incur compliance costs in excess of \$1,000, and medium sized businesses have compliance costs of about \$5,000. This inverse relationship can be even more starkly shown when comparisons are made of the average amount of compliance costs carried by small, medium, and large business taxpayers per \$1,000 of turnover. Where the small business faces, on average, taxpayer compliance costs of nearly \$25 per

¹⁵ In a paper comparing the compliance cost estimates for the tax systems in the U.S. and NZ, Hite and Sawyer (1997, p. 93) appear to have mistakenly taken the \$75 billion figure reported by Slemrod (1995, p. 1332) as purely the compliance cost estimate of the U.S. federal and state income tax system.

TABLE 5
ESTIMATED AVERAGE BUSINESS TAXPAYER COMPLIANCE COSTS BY BUSINESS SIZE,
AUSTRALIA, 1994–5

Business Size	Small	Medium	Large	Overall
Number of taxpayers in sample	1,524	872	29	2,425
SCC per taxpayer (\$)	1,707	8,784	91,864	3,624
Value of tax deduction (\$)	(358)	(2,834)	(24,995)	(999)
Cash flow benefits (\$)	(113)	(1,016)	(96,963)	(727)
TCC per taxpayer (\$)	1,235	4,935	(30,052)	1,898
TCC per taxpayer (\$) per \$1,000 of turnover	24.71	0.98	(0.60)	

Source: Evans et al. (1996, p. 88; 1997, p. 52).

\$1,000 of turnover, the figure is just under \$1 per \$1,000 of turnover for the medium sized business, and translates to a negative compliance cost (of 60 cents per \$1,000 turnover) for the average large business (Evans et al., 1997, pp. 80–1).

At this point it is worth mentioning that the incidence of business compliance costs, like business taxes themselves, must ultimately fall on individuals. Table 5 suggests that, at the social level, business compliance costs are almost six times as large as personal compliance costs in Australia. Thus, the results obtained in Table 5 may significantly change the regressivity implication of personal compliance costs. Exactly which individuals end up bearing the burden of business compliance costs is unknown from this study. The effective incidence of tax compliance costs thus represents an important area that deserves further investigation.

There is another related point that needs to be addressed more fully in future research. With personal taxpayers, there is no question that in so far as compliance costs are tax deductible, they represent a cost to the government and an offset or benefit to the personal taxpayer. But the position with business taxpayers is more clouded. The case for offsetting the tax deductibility of business compliance costs, as has been done in Table 5, is open to question. The compliance costs that a business faces become business costs like any other business costs. We don't think of the wages of employees as tax deductible when we are assessing the costs to the business. Why, then, should we make this

special distinction for business compliance costs? Clearly this is all wrapped up with the issue of the effective incidence of compliance costs, which needs to be more fully addressed in the literature.

The ATAX study also shows that the choice of legal entity with which to conduct the business may have important consequences for the level of compliance costs encountered. The average social compliance costs per taxpayer for sole traders in 1994–5 was about \$1,500, compared to nearly \$5,000 where the business was conducted through a trust and just over \$7,000 where companies were involved (Evans et al., 1997: p. 52). Note that these average figures do not take into account the fact that larger businesses (with higher absolute compliance costs) tend to be conducted through companies and trusts. Nonetheless, when adjusted for size of business, the sole tradership still encounters the lowest compliance costs (and trusts the most expensive) (Evans et al., 1997, p. 80). There may be a number of reasons for this. For example, tax audit and adviser costs may be lower for sole traders; they may be less inclined to participate in tax planning activities; they may encounter fewer business taxes and are less likely to act as an agency for collecting taxes on behalf of others (e.g., PAYE and WST).

Table 6 provides estimates of business tax compliance costs by tax type. It is apparent that business income tax is by far the most dominant tax in terms of compliance costs, both at the social and taxpayer level.

Table 7 shows how the business taxpayer compliance costs of particular tax

TABLE 6
BUSINESS TAXPAYER COMPLIANCE COSTS BY TAX TYPE,
AUSTRALIA, 1994-5

Tax Type	SCC (\$m)	% of Total SCC	TCC (\$m)	% of Total TCC
Income Tax	4,550	51.3	1,951	42.0
CGT	349	3.9	155	3.3
FBT	468	5.3	286	6.2
SGC	609	6.9	430	9.3
WST	737	8.3	519	11.2
PAYE	1,270	14.3	688	14.8
PPS	701	7.9	477	10.3
RPS	81	0.9	62	1.3
Other	109	1.2	79	1.7
Total	8,874	100.0	4,647	100.00

Source: Evans et al., 1997, p. 56.

(Totals may not add up due to rounding. See Endnotes 9 and 10 for a definition and description of the acronyms.)

TABLE 7
ESTIMATED BUSINESS TAXPAYER COMPLIANCE COSTS RELATIVE TO TAX REVENUE BY TAX TYPE,
AUSTRALIA, 1994-5

Tax Type	TCC (\$m)	Tax Revenue (\$m)	TCC as a % of Tax Revenue
PAYE	688	51,238	1.3
WST	519	11,100	4.7
Income tax including CGT	2,106	31,000	6.8
FBT	286	2,736	10.5
PPS	477	2,169	22.0

Source: Evans et al., 1997, p. 57.

types compared with the revenue collected. The table suggests that the PPS system imposes relatively high compliance burdens in terms of the revenue it collects (22 percent), while the PAYE (1.3 percent) and WST (4.7 percent) systems impose relatively low compliance costs as a proportion of the revenue generated. FBT (10.5 percent) and income tax (6.8 percent) compliance costs (relative to revenue) are in the middle of the range on this analysis.

This outcome is largely to be expected. It confirms generally accepted views about the relative efficiency of the PAYE collection mechanism compared to other methods of tax collection, and also points to the relatively high level of fixed costs associated with compliance costs. As revenue increases, it is to be expected that the ratio of compliance costs to yield will fall. It should also be remembered that despite the relatively high compliance costs associated with PPS (and RPS, which is not shown in Table 7, would show an even higher cost:yield ratio), such mechanisms

play a very important role in ensuring compliance by taxpayers. Inevitably there would be a significant risk to the revenue if such mechanisms were not in place.

CONCLUSION

The ATAX research represents a continuation of international interest in tax compliance costs by governments and academic communities. It has produced reliable and up-to-date estimates of the magnitude and the distribution of compliance costs for Australian federal taxpayers. The research team had available to it the experience of many previous studies, and has refined and implemented many of the world's best ideas and practices in the area of tax compliance cost research. In terms of methodology, the study provides a clear distinction between social and taxpayer compliance costs, a point which has not been sufficiently considered in the literature. It has also provided a clear and well-documented estimating

framework that can be replicated in future similar studies.

The support of the Australian federal tax authority (in the provision of funding and access to its current and confidential database) has enabled the ATAX researchers to avoid many of the pitfalls that earlier studies have encountered. As a result, a body of rich, reliable, and representative data on Australian compliance costs has been obtained. This database is potentially available for further investigation on different aspects of tax compliance costs in Australia.

The ATAX study has established that compliance costs in Australia are currently significant and highly regressive. In this sense, the empirical evidence generated has confirmed previous Australian and overseas studies. In particular, it has been found that tax compliance costs of individual taxpayers in the U.S. and Australia seem to be broadly comparable, despite major differences between the two tax systems, tax cultures, and country sizes.

The research did not attempt to make suggestions as to how compliance costs should or might be reduced or redistributed. That was not the aim of the study. The task of reducing or redistributing the costs of compliance is, perhaps, one of the greatest challenges facing tax policy makers and administrators in Australia and overseas in the years ahead. In Australia that task can now proceed on the basis of a reliable benchmark against which future progress can be measured.

Acknowledgments

This paper is derived from a research project funded by the Revenue Analysis Branch of the Australian Taxation Office. The authors wish to thank various international experts and, in particular, Professor Cedric Sandford, for their valuable input. Constructive comments from Mr. Ameen Talib and three anonymous referees are also gratefully acknowledged.

REFERENCES

- Allers, Maarten.
Administrative and Compliance Costs of Taxation and Public Transfers in the Netherlands. Groningen: Wolters-Noordhoff, 1994.
- Ariff, Mohamed, Alfred Loh, and Ameen Ali Talib. "Compliance Costs of Corporate Income Taxation in Singapore, 1994." *Accounting Research Journal* 8 No. 2 (Autumn, 1995): 75–87.
- Australian Bureau of Statistics.
Year Book Australia No. 79. Canberra: Australian Government Publishing Service, 1997.
- Australian Parliamentary Joint Committee of Public Accounts.
An Assessment of Tax: A Report of an Inquiry into the Australian Taxation Office/Joint Committee of Public Accounts, Report No. 326, Canberra: Australian Government Publishing Service, 1993.
- Blumenthal, Marsha, and Joel Slemrod. "The Compliance Cost of the U.S. Individual Income Tax System: A Second Look after Tax Reform." *National Tax Journal* 45 No. 2 (June, 1992): 185–202.
- Cullen Egan Dell.
Quarterly Salary Review, March. Sydney: Cullen Egan Dell, 1995.
- Evans, Chris, and Michael Walpole.
Compliance Cost Control: A Review of Tax Impact Statements in the OECD. Sydney: Australian Tax Research Foundation, 1999.
- Evans, Chris, Katherine Ritchie, Binh Tran-Nam, and Michael Walpole.
A Report into the Incremental Costs of Taxpayer Compliance. Canberra: Australian Government Publishing Service, 1996.
- Evans, Chris, Katherine Ritchie, Binh Tran-Nam, and Michael Walpole.
A Report into Taxpayer Costs of Compliance. Canberra: Australian Government Publishing Service, 1997.
- Godman, Robin.
"Why Are Taxing Statutes So Complex? Part 2." *Taxation Practitioner* (July, 1998): 13–5.
- Godwin, Michael.
"The Compliance Costs of the United Kingdom Tax System." In *Tax Compliance Costs Measurement and Policy*, edited by Cedric Sandford, 73–100. Bath: Fiscal Publications, 1995.

- Haig, Robert M.
 "The Cost to Business Concerns of Compliance with Tax Laws." *Management Review* 24 (November, 1935): 323-33.
- Hasseldine, John.
 "Compliance Costs of Business Taxes in New Zealand." In *Tax Compliance Costs Measurement and Policy*, edited by Cedric Sandford, 126-41. Bath: Fiscal Publications, 1995.
- Heij, Gitte.
 "Costs of Compliance: The Taxpayers' Hidden Tax Burden." *Asia-Pacific Tax Bulletin* 1 No. 1 (January, 1995): 22-4.
- Hite, Peggy A., and Adrian J. Sawyer.
 "A Comparison of Compliance Cost Estimates for the Tax Systems in the United States and New Zealand." *Bulletin for International Fiscal Documentation* 51 No. 2 (February, 1997): 93-7.
- Internal Revenue Service.
Annual Data Book. Publication 55B. Washington: IRS, 1997.
- Johnston, Kenneth Stanton.
Corporations' Federal Income Tax Compliance Costs: A Study of Small, Medium-size, and Large Corporations. Bureau of Business Research Monograph No. 110. Columbus: Ohio State University, 1963.
- National Audit Office of the UK.
HM Customs and Excise: Cost to Business of Complying with VAT Requirements. London: HMSO, 1994.
- Pope, Jeff.
 "The Compliance Costs of Major Taxes in Australia." In *Tax Compliance Costs Measurement and Policy*, edited by Cedric Sandford, 101-25. Bath: Fiscal Publications, 1995.
- Pope, Jeff, Richard Fayle, and Dong-Ling Chen.
The Compliance Costs of Companies' Income Taxation in Australia. Research Study No. 23. Sydney: Australian Tax Research Foundation, 1994.
- Reserve Bank of Australia.
Bulletin (August 1995). Sydney: Reserve Bank of Australia.
- Sandford, Cedric, Michael Godwin, Peter Hardwick, and M. I. Butterworth.
Costs and Benefits of VAT. London: Heinemann, 1981.
- Sandford, Cedric, Michael Godwin, and Peter Hardwick.
Administrative and Compliance Costs of Taxation. Bath: Fiscal Publications, 1989.
- Sandford, Cedric.
Tax Compliance Costs Measurement and Policy. Bath: Fiscal Publications, 1995.
- Slemrod, Joel.
 "The Simplification Potential of Alternatives to Income Tax." *Tax Note* 66 (February, 1995): 1331-8.
- Slemrod, Joel, and Marsha Blumenthal.
 "The Income Tax Compliance Cost of Big Business." *Public Finance Quarterly* 24 No. 4 (October, 1996): 411-38.
- Slemrod, Joel, and Nikki Sorum.
 "The Compliance Cost of the U.S. Individual Income Tax System." *National Tax Journal* 37 No. 4 (December, 1984): 461-74.
- Smith, Adam.
An Inquiry into the Nature and Causes of the Wealth of Nations. (1947 edition), London: Dent, 1776.
- Vaillancourt, François.
 "The Compliance Costs of Taxes on Businesses and Individuals: A Review of the Evidence." *Public Finance* 42 No. 3 (September, 1987): 395-413.
- Vaillancourt, François.
The Administrative and Compliance Costs of Personal Income Tax and Payroll Tax System in Canada, 1986. Canadian Tax Paper No. 86. Toronto: Canadian Tax Foundation, 1989.
- Woellner, Robin, Simon Gaylard, Margaret McKerchar, Michael Walpole, Cynthia Coleman, and Julie Zetler.
 "Once More into the Breach . . . A Study of Comparative Compliance Costs Under the 1936 and 1997 Acts: Progress Report." In *Tax Administration - facing the Challenges of the Future*, edited by Chris Evans and Abe Greenbaum, 195-216. Sydney: Prospect Media, 1998.
- Yellow Pages Australia, Small Business Index.
Working Over Time: A National Survey of the Paperwork Burden on Small Business. Canberra: Small Business Deregulation Task, 1994.