

# ALTERNATIVE APPROACHES TO TAXING THE FINANCIAL SECTOR: WHICH IS BEST AND WHERE DOES CHILE STAND?

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Proposals for financial sector tax reform typically come from one of two powerful perspectives. Reformers are either enthusiasts for a big simplification—usually some form of flat tax, such as a value-added tax (VAT) on financial services, zero taxation on capital income, or a universal transactions tax—or advocates of subtle corrective taxation designed to offset some of the many market failures that affect the financial sector or to achieve other targeted objectives. In practice, the two perspectives can clash rather severely, just like the perennial conflict between simplicity in tax administration and the economic efficiency of tax rates. The information and control requirements of much of corrective taxation tend to be poorly accommodated by the big simplifications. As this tension remains unresolved over the years, elements of each approach become embodied in both the explicit and implicit taxation of the sector. At the same time, the ever-pressing demands of revenue intrude as a further influence on policy design. The tax systems in most countries often end up as a complex mixture defying any straightforward rationalization. The big flat-tax ideas are diluted and modified; the corrective taxes may misfire by conflicting with others introduced for different reasons.

Meanwhile, even as simplification and correction continue their tug-of-war, policy design can all too often neglect the two distinctive traps into which financial sector taxation can fall, namely, the sector's unique capacity for arbitrage and its sensitivity to inflation and thus

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to nonindexed taxes. This paper argues that the practical design of financial sector taxation should be governed by a defensive approach in which proposed taxes are assessed relative to their ability to resist arbitrage and their degree of inherent indexation. Although the defensive approach does not provide an adjudication between simplification and correction, it will protect against many of the worst distortions that have been observed.

Chile's tax regime is no exception to this general observation in that its financial sector taxation represents an accretion of ideas and measures over many years. This paper looks at how the most conspicuous features of its financial sector taxation, notably the stamp duties, may be positioned in the spectrum of tax types and tax burdens observed worldwide and evaluates the stamp duties against the proposed defensive criteria. A key finding is that the rates of stamp tax are rather high, and while they score better than some alternatives on the defensive criteria proposed, there may be a case for Chile moving toward a more VAT-like alternative.

## **1. THE BIG REFORM IDEAS (FLAT TAX)**

One general approach to financial sector taxation is to attempt a great simplification, based on the theory that low rates and a wide base with few exemptions is likely to generate relatively low distortions. This approach holds out the prospect not only of minimizing the incentive for complex schemes of financial engineering designed to avoid tax, but also of making such schemes relatively difficult to develop.

The three main handles for taxation—*income, expenditure, and transactions*—have each been the subject of prominent and extensively discussed grand and simple schemes. These are the proposition that capital income should not be taxed at all; the proposal that value-added by the financial services industry should be subject to a uniform tax; and the idea that a tax on all financial transactions at a very low rate could generate very large revenues with negligible distortion. This section considers these one by one.

### **1.1 Taxing Capital Income**

The underlying basis for the argument that it might be optimal not to tax capital income at all is the insight that this involves a form

of double taxation on future consumption. By shifting the perspective from the statutory base of the tax—capital income—to a variable more closely relevant to economic policy—namely, utility based on household consumption—this economic analysis of capital taxation shows that a constant nominal or statutory tax rate on capital income implies an effective rate on consumption that may increase without bound for consumption far into the future. Because future consumption depends on the reinvestment of after-tax capital income, the effective tax rate increases as the date of future consumption grows more remote—and this effective tax rate may increase without bound. Optimal tax policy can improve on a situation with infinitely high effective tax rates; this reasoning accordingly points to the optimality of capital income taxation converging to zero (see Boadway and Keen, 2003).

Many subtle qualifications can be made to the implicit models of utility, income, and consumption that underlie this analysis. The precise prescription for zero taxation is not very robust, yet it retains some force and serves as an important counterweight to proposals for high rates of capital income taxation designed to achieve other goals. One such goal is that of ensuring the socially optimal rate of national saving (since private markets cannot generally be relied on to do this and may result in oversaving). Another is redistribution. Yet even if households differ in their wage-earning capacity and tax policy is being used for redistributive goals, these can best be achieved by a tax on wage income alone—at least in simple models of intertemporal preferences. Once again, the use of capital income taxation would be suboptimal because of the compound interest effect.

If income from capital is not to be taxed, then it might seem to follow that the income of financial intermediaries ought not to be taxed, either. In practice, however, some corporate income—perhaps a large portion—represents pure profit or economic rent. Pure profit is neglected in the models that generate the no-capital-income-tax result, although it can be taxed without distortion. It could be an empirically important factor where financial markets are uncompetitive, and the scale economies that are involved in parts of finance make it relevant, especially in financially closed economies.<sup>1</sup>

1. Caminal (2003) explores the implications for tax incidence of market power in banking. As he and others have noted, though, leaving banks with some untaxed economic rent (or franchise value, as it tends to be called in the banking literature) can reduce the potentially strong propensity among insured banks to assume socially excessive risks (Stiglitz, 1994; Caprio and Summers, 1996).

A stronger line of attack on the no-capital-income-tax proposition comes from practical issues of enforcement and informational deficiencies. If capital income goes completely untaxed, this may provide an easy loophole for high-earning households to camouflage their earnings by transforming or laundering them into capital income. A tax on capital income may be an important practical expedient to close such loopholes.<sup>2</sup> If so, withholding the tax at source or taxing corporate income as a form of implicit withholding may further help to overcome the tax authorities' informational disadvantage and administrative collection costs.

The elegant simplicity of the theoretical argument against capital income tax thus ultimately fails, though it points to a need to justify such taxation—and the taxation of the income of financial and other companies—on grounds other than those of simple consistency with taxation of wage income.

## 1.2 Taxing Financial Services: Can a VAT Work?

About 70 percent of the world's population lives in countries with a VAT, and the tax is a key source of government revenue in more than 120 nations (Ebrill and others, 2001).<sup>3</sup> If a VAT is the way forward for the bulk of (indirect) taxation on expenditure, to what extent should it also be the model for financial services?

In practice, most financial services are “exempt” in virtually all countries employing a VAT. This does not mean that these financial services wholly escape the VAT, however, since their exempt status does not allow financial service providers to recover VAT paid by their taxable suppliers and built into the price of their inputs. Indeed, taxable firms who use financial services as inputs cannot recover the VAT paid by the suppliers of financial service firms either, with the result that there is so-called tax cascading. But value that has been added by the exempt financial sector firms is not captured in the tax. Whether aggregate tax receipts would increase or fall if the exemption were removed is an unresolved empirical issue that depends not

2. Differentiating the rate of withholding tax on income from high-risk (equity) and low-risk (debt, deposits) assets could help achieve progressivity even in the absence of information on the income of the recipients, assuming diminishing risk aversion with wealth (Gordon, 2000).

3. The largest countries, by population, without a VAT are India, the United States, Iran, Ethiopia, Democratic Republic of the Congo, Myanmar, Afghanistan, North Korea, Iraq, and Malaysia.

only on the degree to which financial services are used by tax-liable firms, but also on the different rates of VAT that may be in effect.

The exemption of most financial services from VAT appears to be a historical inheritance without much political or economic rationale. The main reason adduced is the practical difficulty of deciding how much credit taxable firms that use financial services would be entitled to claim, seeing that the charge for many financial services is an implicit one bundled with others in, for example, the spread between deposit and lending rates. Determining how much of the spread should be attributed to depositor services and how much to borrower services is not straightforward. Thus it is not obvious how much credit each should receive for VAT already paid on inputs.

Yet it is not impossible to devise simple rules of thumb that can provide a reasonable approximation. For example, the cash flow method in which VAT is paid on all net cash receipts (including capital amounts) could be adequate in a static environment. However, start-up problems and treatment of risk may not be adequately resolved by this method, and changing tax rates also present difficulties for the approach. A variant of the cash-flow method that uses suspense accounts and an accounting rate of interest to bring transactions at different dates to a common standard could help ease the transition problems; detailed pilot studies in the European Union have shown this method to be workable (Poddar, 2003).

The lack of any clear potential revenue gain and fears about the practical complexity and possible hidden distortions or loopholes have inhibited any significant move to bringing financial services into the VAT net.<sup>4</sup> The resulting distortions are quite serious in some cases. First, there is a clear incentive to self-supply inputs. Second, there are distortions at the margin: financial services such as factoring, which can represent a particularly low-cost, low-risk form of lending to small and medium-sized enterprises (SMEs), become severely tax-disadvantaged because they fall within the VAT net in many jurisdictions for which other forms of lending are exempt.

The grand simplification offered by the VAT is thus illusory, not for theoretical reasons, but because of administrative and practical difficulties or uncertainties. Nevertheless, it does point in the direction of what might be desirable for substitute indirect taxes.

4. A few countries have introduced substitute taxes based on applying a rate to the estimated value-added of banks, obtained by summing the wage and profits.

### 1.3 Transactions Taxes: Panacea or Pandora's Box?

Because of their loose connection with consumption and utility and their potential for generating significant distortions in the organization of production and distribution, transactions taxes (including trade taxes) have lost favor as a tool of general tax policy relative to income and expenditure taxes. However, the vast scale of financial sector transactions has presented itself to some scholars and governments as a convenient base for rapidly generating substantial revenue.

There is a paradox here, in that critics of transactions taxes point to the potentially seriously distortions that they cause, while advocates argue that, because of the large base, very sizable revenues can be realized with low nominal tax rates. To the extent that the deadweight cost of a tax is often supposed to be proportional to the *square* of the tax rate, introducing a low-rate financial transactions tax in order to allow a reduction in the much higher rates of labor income or other taxes might be supposed to reduce total deadweight in the tax system as a whole.

At the extreme, a recent proposal suggests that what seems at first sight to be an administratively trivial and quantitatively tiny 0.15 percent rate of tax on all automated payments could raise enough revenue (in the United States) to replace the entire existing tax system (Feige, 2000). Feige shows that existing automated payments in 1996 amounted to somewhere in the region of US\$300 trillion to US\$500 trillion, or about fifty times the value of gross domestic product (GDP). How, he asks, could anyone argue that a tax rate of 0.15 percent, even applied to such a large base, is seriously distorting in comparison with the existing tax regime?

Analysis of the payments that would be affected reveal that about 85 percent relate to financial transactions (purchase or sale of stocks, bonds, and foreign exchange and other money changing transactions). To a large extent, then, the initial burden of a universal payments tax would fall on the financial sector. As in the case of the capital income tax, a shift in perspective from the statutory or nominal base to the more economically relevant concept of consumption reveals that the average good or service in the typical consumption bundle would be 'hit' by the tax not once, but dozens of times, as it works its way through financing, design, production, and distribution.

Criticisms of this proposal fall into two main groups. First, the tax would not collect as much revenue as claimed owing to the sizable

elasticities involved.<sup>5</sup> Financial sector transactions, in particular, would be arbitrated in such a way as to drastically reduce the number of recorded transactions. What are now sequences of linked transactions carried out for little more than book-keeping convenience at negligible cost would be collapsed into a single, more complex transaction. Portfolio readjustments would be made with reduced frequency without substantially altering expected return and risk. Reliable estimates of these effects are not yet available, since few microeconomic studies address the precise mechanisms that are at work to generate gross transactions of such a high multiple of GDP in wholesale financial markets (but see Lyons, 2001, for the foreign exchange market). Furthermore, the scope for avoiding such a tax through offshore financial transactions has to be taken seriously.

Second, even if the tax did collect the expected revenue, the distortion costs would not necessarily be any smaller than with the existing system. This objection relies either on the observation that the financial system would bear the main brunt, such that the tax would be more concentrated, not less, or on the observation that, in terms of final consumption, the tax would effectively cascade to cumulative rates comparable to those observed at present.

No country has seriously considered replacing its tax system with a universal payments tax, but there are numerous examples of partial transactions taxes applied, for example, to bank debits or securities transactions.<sup>6</sup> Bank debit taxes introduced in half a dozen Latin American countries in the past fifteen years in a bid to raise revenue have been successful in that goal—at least for a while—with revenues ranging from about 0.5 percent of GDP to as much as 3.5 percent in one case for one year. It is fair to say that revenue from these taxes held up unexpectedly well over three to four years. Many predicted that revenue would fall off after the first year, and it did, on average, though the effect did not prove to be statistically significant in a regression of the available data. Nevertheless, many of the schemes had to be adapted administratively in the course of their

5. This consideration needs to be kept in mind by those who would see the proposal as socially progressive, in that the affected transactions likely represent a much higher multiple of the income of prosperous people than of the poor. After all, if such a tax did not raise the hoped-for revenue, the consequence might have to be cutbacks in public services, which disproportionately benefit the poor.

6. Tobin taxes are much more focused and do not typically have revenue as the main objective, but instead are seen as corrective taxes intended to reduce volatile speculative capital flows. They have generated an enormous literature, and I am not going to add to that here.

operation, to exempt some transactions that would otherwise have been too distorting (and probably also to capture others that had escaped the net). The distortions of these and of securities transactions taxes have been discussed in the literature: they certainly are distorting, but they have been less distorting than many observers expected when applied in moderation (Coelho, Ebrill, and Summers, 2001).

Thus, despite expectations that they would not only distort financial markets and drive out capital, but also quickly lose their revenue-raising ability, such transactions taxes have been surprisingly resilient. They are far from being a panacea, however, and indeed have little to recommend them beyond their ability to deliver revenue speedily and with low direct administrative costs.

## **2. CORRECTIVE TAXES**

Taxation is not the only force distorting financial markets. Information deficiencies, monopoly power, and other factors push most financial markets away from the ideal of the atomistic market with fully informed participants competing on a level basis. Under these circumstances, the nonrevenue side effects of taxes and tax-like measures can be turned to advantage and form part of the corrective policy structure in this area.

Many measures of this type may have regulation and market efficiency as their primary objective, with revenue seen as a side effect.<sup>7</sup> The effectiveness of many such measures in their supposedly corrective role has been challenged and remains controversial, however.

### **2.1 Deposit Insurance**

The most complex and contentious of these debated corrective quasi-taxes is deposit insurance. That it is a tax is fairly clear from the contributions or levies that are generally imposed on participating banks, especially given that these are typically compulsory and that the tax rate usually bears at best an imperfect relation to the "fair premium." Indeed, the anticipated gross revenue from the levy is typically small and in many cases is calculated to be insufficient to

7. The revenues are not always explicitly accounted for, as when unremunerated reserve requirements augment the central bank's net revenue but are nowhere accounted for explicitly as a revenue source.



cover even the expected pay-out costs as calculated using option-pricing formulas (Laeven, 2002). Furthermore the probability distribution of net payout costs is severely skewed: systemic banking crises entailing fiscal costs of up to 50 percent of a year's GDP are never matched by a corresponding deposit insurance fund accumulation in lucky, crisis-free countries.<sup>8</sup>

For many advocates, the perceived corrective role of deposit insurance is essentially one of reducing the likelihood of a depositor panic. They argue that protecting depositors against the risk that their deposits will be unpaid if a bank proves to be insolvent may prevent a self-fulfilling panic, including contagion to other banks triggered by the insolvency of one bank.<sup>9</sup> On the other hand, by lowering the vigilance of potentially informed depositors, deposit insurance may increase the moral hazard of heightened risk-taking by bankers who are not subject to market discipline, which could, in theory, result in heightened risk to the system as a whole.

Although early deposit insurance schemes entailed a uniform insurance premium per dollar of deposit, several countries now differentiate the premium rate in accordance with some measure of the perceived riskiness of the participating bank's portfolio. This dimension of such taxes is designed to reduce the moral hazard potential, but it depends to some extent on the information available to the deposit insurer on the accuracy of the *ex ante* risk assessment (Honohan and Stiglitz, 2001). About a quarter of existing schemes have some risk-differentiation, but the differentials are small and are not always systematically imposed (Demirgüç-Kunt and Sobaci, 2001).<sup>10</sup>

Econometric estimates of how financial system performance varies across countries with the existence and characteristics of deposit

8. Even the relatively much smaller fiscal costs of the U.S. banking crises of the 1980s were more than enough to empty the insurance funds.

9. Protection of the small depositor is another goal. This is quite a distinct role, of course, since runs by small depositors alone do not threaten systemic liquidity.

10. For example, the U.S. premiums currently vary according to two criteria (capitalization and supervisory assessment) from zero for a well-capitalized bank that is highly rated by the supervisors to 0.27 percent of deposits for an undercapitalized bank that is seen by supervisors as posing a substantial probability of loss to the insurer unless corrective action is taken. Argentina has charged a basic rate of 0.36 percent, which may be doubled for banks that are paying high interest rates for deposits. Cameroon and other francophone African countries impose 0.15 percent plus 0.5 percent of net nonperforming loans. Other risk-based formulations, including *ex post* assessments, are levied in other countries.

insurance systems suggest that countries whose socio-political institutions are generally rated as strong need not fear that the moral hazard side effect will outweigh other beneficial effects. Although deposit insurance weakens market discipline even in such countries, the effects seem to be offset by better official oversight. However, for countries with less well-developed institutions (along the dimensions of rule of law, governance, and corruption), the establishment of a formal deposit insurance scheme does appear to present a heightened risk of crisis (Demirgüç-Kunt and Kane, 2002) and does not even promote deposit growth (Cull, Senbet, and Sorge, 2002).<sup>11</sup> Having risk-based deposit insurance premiums does not appear to mitigate the systemic risk, so the potential for introducing a corrective structure of the deposit insurance tax may be limited.

Deposit insurance, with or without risk-based premiums, may not be a very effective corrective mechanism. It clearly needs to be supplemented in this role by strong administrative or other controls, including supervision of minimum capitalization ratios. Moreover, it may interact with other taxes. For instance, a tax on bank gross receipts (such as has been employed in several countries) will reduce the expected after-tax return to a risky investment, though Brock (2003) shows that this effect is offset in that the government (deposit insurer) coinsures the risk to a greater extent in the presence of such a tax. Brock also shows that a marginal reserve requirement (see below) could be more likely to reduce the moral hazard effect on bank risk-taking behavior. All in all, though, the uncertain strength and reliability of such effects argue for blunter, more reliable instruments in restraining bank risk-taking, a matter that lies beyond the scope of the present exercise.

## **2.2 Provisioning and Capital Adequacy**

The amount of loan-loss provisioning that is allowable to banks as a deduction against income for tax purposes can be a very significant factor in arriving at the net tax liability, and it is often sufficient to shelter the entire tax bill. By the same token, this can be a matter of considerable revenue significance for the authorities. It has long been acknowledged, however, that the treatment of loan-loss provisions can potentially play a corrective role. This argument hinges on

11. This is the case despite the consideration that a degree of implicit protection may be assumed by depositors even when no formal scheme exists.

the inevitably arbitrary process of arriving at a reasonable provision that would result in the banks' accounts representing a true and fair picture of the business. If the fiscal rules have the effect of biasing company accounting, it could damage the transparency of the financial system and negatively influence decisions on risk management. Recent accounting scandals have focused attention on the difficulty of seeing through valuation procedures used in nonfinancial company reporting procedures; bank accounts can arguably be even less clear-cut, especially in times of economic turbulence or change.

To the extent that equity capital represents a cushion protecting depositors and other claimants against the consequences of a decline in the value of the bank's loan portfolio and other assets, the equity holders of a lightly capitalized bank at risk of failure (and the bank's directors, to the extent that they are acting as the equity holders' agents) will have an incentive to minimize the amount of their capital that is truly at risk (thereby transferring risk to other claimants), provided they can do this without inducing an increase in the required return on their other liabilities. If the fiscal authority disallows the deductibility of reasonable loan-loss provisions, that reinforces the incentive to understate provisions and thereby to overstate capital, potentially misleading regulators and the market. On the other hand, a well-capitalized bank may be more attracted by the advantages of advancing tax deductibility. It may use the range of uncertainty to increase loan-loss provisioning, thereby reducing revenue.

Different countries have adopted different rules to balance the pressures of revenue needs with the risk of losing transparency (Laurin and others, 2002). The preferred goal appears to encompass a move away from mechanical rules (such as disallowing general provisions but allowing specific provisions) toward a more realistic, forward-looking accounting that allows predictable but not yet identified losses to be adequately provisioned, so long as these are accepted by the institutional regulator.

### **2.3 Promoting Saving**

A very widespread explicit goal of corrective tax measures affecting the financial sector is the promotion of saving. The goal is driven partly by fiscal needs (namely, the need to ease the financing of government deficits), partly by a perception that aggregate economic growth is, in the long-run, driven by national saving (this perception is colored by an earlier generation of macroeconomic theories and is

no longer generally accepted by economists as a result of new research findings), and partly by a desire to ensure that households do not undersave.

In practice, such measures tend not to affect all savings media equally. They can thus have a substantial impact on the structure and performance of the financial system, which, in some cases at least, can far outweigh the policy's net impact on the goal of increasing household saving (OECD, 1994; Honohan, 1997).

Measures that operate by modifying income tax schedules tend to be relevant only in middle-income countries, or at least in countries that have achieved a certain minimum level of effectiveness in their income tax system.

## **2.4 Other Dimensions of Corrective Financial Taxation**

In other cases, supposedly corrective financial sector taxation comes in the form of a vague and unthinking encouragement of what are seen as social goods. This is not unique to the financial sector: finance ministers are typically bombarded with proposals to exempt from taxation items or activities thought to be meritorious. The ministers are usually advised to resist such special pleading unless tax relief appears to be the most effective way of correcting some market distortion that is resulting in an undersupply of the item or activity in question. Nonetheless, lobbying of this type appears to be notably successful in finance. For example, most countries feel that their financial system is unduly dominated by banks, and this perception generates a constant advocacy of tax concessions targeted at companies with a stock exchange listing. This is at best a crude instrument, especially if the underlying reason for the underdevelopment of the stock exchange lies in an insufficiently developed information and legal infrastructure, as is often the case. A much better solution would be to direct policy attention to correcting these infrastructural deficiencies.

Another much used quasi-tax often thought of as corrective is the unremunerated reserve requirement. This measure is considered corrective in the sense that it provides a lever on which monetary policy can operate. Authorities on monetary policy now acknowledge, however, that the perceived need for unremunerated reserve requirements was based on a misconception. Monetary policy does not require unremunerated reserve requirements or any other quasi-tax for its effectiveness (see Brock, 2003).

### **3. VULNERABILITY TO ARBITRAGE AND INFLATION**

If there are two key features of the financial sector that distinguish it from other sectors when it comes to designing taxation, these must surely be the system's capacity for arbitrage and its sensitivity to inflation and thus to nonindexed taxes.

#### **3.1 The System's Capacity for Arbitrage**

Whether mainly flat or mainly corrective, the impact of most financial sector taxes, in practice, depends crucially on the extent to which they have been constructed to be insulated from the high elasticities that prevail in the sector. Arbitrage among functionally equivalent contracts or institutional forms bedevils tax design in this area.

#### **Incidence Shifting of Bank Taxes**

Because of substitutability and the possibility of arbitrage and near-arbitrage, the full incidence of taxation imposed on one component of the intermediation process (deposits, loans, intermediary profits) may very well be fully shifted to another component. Ramon Caminal has recently used a formal model of intermediation, including the provision of liquidity and intermediation services by banks, to examine the influence of various bank taxes on volumes and cost of intermediation services provided to depositors by banks. Caminal obtains several striking results. For instance, the ability of at least some borrowers to substitute alternative sources of funding implies a tendency for the imposition of a VAT on banking services to be passed back to depositors.<sup>12</sup> Furthermore, the conditions under which a tax on bank loans falls not on the cost of funds, but on the return to bank shareholders are also plausible, including a range of assumptions on competitive conditions. (However, if regulatory capital requirements are likely to be binding in the sense that banks hold more capital than they would freely choose to, then a tax on banks' profits may fall wholly on lending interest rates). In contrast to general models of production, then, substitutability in banking involves such high elasticities that models plausibly predict the incidence of a tax falling wholly on a class of agents not directly the subject of the

12. At least under the plausible assumption that the marginal borrower is VAT-liable while the marginal depositor is not (see Caminal, 2003).

taxation. On the other hand, the services provided to savers by investment funds may be highly substitutable for some of the services obtained from bank deposits, and Caminal shows how, under reasonable circumstances, the presence of untaxed investment funds implies that taxation of deposits will affect only the provision of monitoring and transaction services by banks, and not the provision of liquidity.

These contrasting cases suggest the heightened risks involved in imposing taxes under the assumption that the taxpayer who is liable will be the one incurring the incidence of the tax. Just what the incidence will be can be worked out in theoretical cases (to a greater extent than is the case for taxes on nonfinancial sectors). The task of matching these theoretical cases to the real world, however, represents a striking challenge for the empirical policy analyst given the difficulty of estimating many of the relevant behavioral relationships, as is evident from their relative absence from the literature, even for industrial countries.

The shifted incidence may be accompanied by a very large behavioral effect. This may not be socially costly in equilibrium (if the substitute truly is functionally equivalent), but short-term disruption and the costly incurring of new sunk capital to support the substitute activity could be quite severe.

## **New Financial Instruments**

At the heart of financial innovation is, in the words of Boadway and Keen (2003), the creation of new instruments by repackaging the cash flows generated by others. Arbitrage is here the mechanism, not just an outcome. This repackaging serves to achieve a better alignment of the instruments with the liquidity and maturity preferences of different classes of investors and to shift particular risks among investors who have different appetites for them, whether based on information or on correlations with the remainder of their portfolio. If the rebundled instruments are treated differently by taxation, this can block the repackaging and inhibit the risk-sharing that is involved.<sup>13</sup> Furthermore, of course, differential tax treatment (for example, of debt and equity or of income and capital) can be a powerful driver of innovation designed for no better reason than to repackage cash flows into a less heavily taxed form.

13. For example, the existence of withholding taxes on gross interest receipts can stifle the market in interest rate swaps.

Boadway and Keen note that many of these issues have been dealt with on a piecemeal and ad hoc basis by tax authorities in advanced economies. Theoreticians have been exploring ways of rationalizing the taxation of new financial instruments, both by devising unambiguous decompositions of the instruments into fundamental components and by determining the timing at which the taxable amounts are crystallized (accrual versus realization). But no general agreement has yet emerged among theoreticians, let alone among practitioners in advanced economies. This rules out, for the present, the possibility of developing country tax authorities' piggy-backing on a prepackaged solution. For market participants, the tax situation is even less satisfactory in developing countries, where the likely tax treatment of new instruments is often undetermined or disputed.

### **3.2 Sensitivity to Inflation**

Inflation has pervasive effects throughout the economy and, in particular, has been shown to be negatively correlated with growth at sufficiently high rates. Nonetheless, banking and other parts of the financial sector that extensively employ nominal financial contracts can be more directly and deeply affected than most. High and variable rates of inflation induce significant substitution away from non-interest-bearing monetary assets in favor of assets offering higher real returns and inflation hedges. This can, on the one hand, shrink the size of the banking system's intermediation, but, on the other, the financial system's capacity to provide the instruments to insulate economic agents from the inflation will tend to expand this side of its activities. Indeed, empirically, the balance-sheet size of the banking system is found to shrink with inflation, whereas inflation is found to be positively associated with profitability and the value-added of the banking system (Honohan, 2003).

Inflation also has a strong influence on the government's finances. The term inflation tax is well chosen, even though there is no perfect correspondence between the implicit inflation tax rate as measured by the opportunity cost of holding interest-free base money (which will be related to the expected inflation rate) and the flow of financing to the budget from money creation (Honohan, 1996).

The interaction between inflation and a nonindexed tax system can have sizable and unexpected effects even in a country with single digit inflation (Feldstein, 1983, 1999). As inflation increases, the double distortions of inflation and taxation can be multiplicative rather than additive, with severe consequences. The impact of inflation on the

scale and activity of financial services firms needs to be considered alongside its impact on their tax-inclusive cost structures. The effective tax rate of several commonly employed financial sector taxes, such as taxes on gross interest receipts of banks, or unremunerated reserve requirements rise almost in proportion to the rate of inflation. In the case of nominal interest rate ceilings, the effective tax rate rises faster than the inflation rate. This degree of sensitivity to inflation in the effective rate of tax is generally quite undesirable, given that inflation rates can be high, volatile, and unplanned (Honohan, 2003).

#### **4. CALIBRATING DIFFERENT TYPES OF TAX**

Where these defensive aspects have been neglected, poorly constructed tax systems—whether the consequence of a drive for revenue or of misdirected sophistication—have often had sizable unexpected side effects. Part of the problem in many difficult cases has been that the financial sector taxes and implicit or quasi-taxes have not been seen for what they are. Very high effective tax rates have thus emerged in cases in which legislators would not have conceived of imposing comparable nominal tax rates. On the other hand, lobbyists are prone to finding ways of exaggerating the tax burden on financial intermediaries by adding up taxes that touch the sector only slightly and expressing these as a percentage of the sector's profits.

Is there some simple way of approximating the burden of a given tax or improving the impact of reform in a particular tax? This section addresses this question with regard to the main types of tax or quasi-tax that most often raise such issues. The relevant taxes include the following: unremunerated reserve requirements; tax on intermediary interest receipts; withholding tax on interest payments by intermediaries; stamp tax on bank debits; and stamp tax on bank loans.

One practical approach to calibrating these taxes and judging their appropriateness is to map each tax into its closest nonfinancial analog. One thus decides whether the tax is more nearly an income or a sales tax. If an income tax, is it more a tax on the intermediary's shareholders or on the intermediary's fund-providing customers? If a sales tax, what is the product that is being taxed and what is its net-of-tax price? As with most issues of incidence, these questions cannot always be easily answered. Nevertheless, even an approximate answer can clarify the issues significantly.



Market power and substitution possibilities are central. In many countries, the market power of banks is being eroded, both by international competition for depositor services and from alternative sources of industrial funding and by liberalization of entry. Taxes and quasi-taxes that might hitherto have been assumed to fall on bank shareholders in a manner analogous to an income tax may now be more likely to be passed on to those customers who have few alternatives, notably small borrowers whose creditworthiness is costly to determine.<sup>14</sup>

Under such conditions, the taxes described fall into three groups: those that are best seen as taxes on lending services; taxes on transactions services; and income taxes on suppliers of funds. The first group includes both unremunerated reserve requirements imposed on banks and special taxes on interest receipts of banks, as well as sales taxes on the provision of lending services to small borrowers (for example, credit appraisal and monitoring). The effective tax rate can be approximated by comparing the tax paid per dollar lent (or, in the case of unremunerated reserve requirements, the opportunity cost of the reserved funds) to the net-of-tax cost of the service.<sup>15</sup> High effective tax rates often result. Official estimates for Brazil in 2001 can be read, in this perspective, as implying an 85 percent effective tax rate, on average, for lending (Cardoso, 2003). Furthermore, because the tax base—the cost of intermediation services—is not sensitive to the nominal rate of interest, whereas the tax paid is, the resulting effective rate can be very sensitive to the nominal interest rate and thus to the inflation rate (Honohan, 2003).

The stamp duty on bank loans, which is typically proportional to the loan size but not to its maturity, can be analyzed in much the same way, as demonstrated in the next section. In this case the effective tax rate may increase sharply as maturities shorten, wherein lies the obvious technical deficiency of such a tax.<sup>16</sup>

14. Caminal (2003) models these issues in some detail; Cardoso (2003) presents interesting evidence that pass-through has been very high in Brazil.

15. This applies to reserves remunerated below market rate as well as to unremunerated reserves. A very simple break-even calculation implies that an addition of  $\lambda$  to the loan interest rate will be required to recover an interest penalty of  $\phi$  applied to reserve requirements of  $\theta$ , where  $\lambda = \phi\theta/(1 - \theta)$ . More sophisticated calculations are also possible, but they make no material difference at low interest rates.

16. In Egypt, the application of a constant stamp tax independent of loan maturity hampered the development of short-term bridging finance.

Transactions taxes and the stamp tax on checks likely fall mainly on the user of the transactions involved. The relevant tax rate is thus computed as if it were a sales tax on the relevant service.

Judging the appropriate treatment of the withholding of income tax on deposit interest requires careful consideration of the effectiveness of the remainder of income tax. If income tax on the revenue from competing capital assets is collected effectively, then the fact that tax due on deposit interest is withheld at source can best be thought of as chiefly an administrative convenience, rather than as an additional imposition affecting the withholding intermediaries and their other customers. The empirical judgment here will often depend on the degree of international capital mobility (see Huizinga and Nicodeme, 2001).

## **5. THE CHILEAN STAMP TAX AND ITS IMPACT ON THE CREDIT MARKET<sup>17</sup>**

The stamp tax imposed on credit operations is the most distinctive feature of the tax arrangements affecting the financial sector in Chile.<sup>18</sup> “Easily raised, widely diffused, pressing little on any particular class, especially the lower orders of society, and producing a revenue safely and expeditiously collected at a small expense”—that was British Prime Minister William Pitt’s assessment of the stamp tax in 1797, and accordingly he doubled its rate. Given what I have stated about different types of financial sector tax, are these appropriate sentiments to apply to the controversial Chilean stamp tax today?

### **5.1 Nature of the Stamp Tax**

There are three main elements to the stamp tax as it applies to the financial sector. Of these, the element applied to credit is the most onerous, and its potential impact on the efficient functioning of

17. This section was prepared with the assistance of Verónica Mies.

18. The more famous and widely discussed tax on capital inflows will not be treated here. In light of the discussion above of the tax aspects of deposit insurance, note that Chile’s deposit insurance system is distinctive in that it does not involve a levy on banks. There is no fund, and payout would be financed by the fiscal authority. (Demand deposits are covered in an unlimited amount; time deposits to an amount equivalent to about nine months’ mean per capita income.)

the financial system deserves scrutiny. The other two elements are a fixed tax of Ch\$132 on checks and other payments instruments and a tax on protested checks at 1 percent of the face value.

### **Tax on Check-type Payment Instruments**

The tax on checks is negligible for large payments, but it would have a material effect on the use of checks for small transactions. Moreover, the Ch\$132 (equivalent at the time of writing to US\$0.19) is high relative to the gross hourly wage of the average industrial worker, which is currently about Ch\$1,227.

If the typical (marginal) bank processing charge per check of between Ch\$120 and Ch\$135 for retail customers represents an approximation of the value-added involved in making a check payment, then a good way of thinking about the wedge created by the tax is as a VAT-rate equivalent, in this case about 100 percent—well above the standard VAT rate in Chile, which of course does not apply to most financial services.<sup>19</sup> Untaxed substitutes for checks include the use of credit cards for payment; these have a low unit-processing cost for the banks, with the result that their net price is quite low.

Tax revenue from the stamp tax on checks in 2001 was Ch\$44.4 billion.

### **Tax on Protested Checks**

The rationale for the tax on protested checks is not very clear, as the revenue from this cannot be very high (in 2001 it was just Ch\$7.4 billion). Perhaps it is an attempt to discourage the use of post-dated checks as a credit instrument, thereby evading the stamp tax on credit instruments. In many countries, post-dated checks are used to strengthen the position of the creditor (because of the potential application of criminal sanctions) where enforcement of standard credit instruments is problematic. They are not used for this purpose in Chile, however, where the practice is instead to pay a check whenever presented, provided only it is before the check's expiry date.

19. Fixed-rate stamp duties on checks have a long history in British taxation, and they still exist in countries following that tradition (though not in the United Kingdom itself). The rate per check in Ireland is currently less than half of that in Chile.

## Tax on Credit Instruments

The stamp tax on credit instruments was introduced in 1980. Three main features are worth noting. First, the tax is very comprehensive, covering not only bank loans, but all loan operations of financial institutions, including credit cards from banks and commercial stores.<sup>20</sup> The main exemption is the renegotiation of outstanding or delayed mortgage loans used for the acquisition, remodeling, or construction of a house or apartment, granted to natural persons for up to UF3,000 (equivalent to about Ch\$50 million, or about US\$70,000).<sup>21</sup> During the first half of 2002, this exemption did not apply to loans secured offshore, inasmuch as the obligation to pay the tax falls on domestic providers of credit and not on borrowers; there is a proposal to permanently restore this particular exemption.

Second, the tax is imposed not on the interest paid, but on the capital sum. This has implications for the relative burden on borrowers of different degrees of credit-worthiness and also on intertemporal stability of the effective tax rate, whereas an interest or value-added base tax does not. I return to this point below.

Third, the tax applies only to the first twelve months of the loan. Specifically, the tax is imposed at a rate of 0.134 percent of the nominal value of the loan per month up to twelve months.<sup>22</sup> For maturities in excess of twelve months, the total tax rate is 1.608 percent (equivalent to twelve months at the monthly rate). If expressed as a percentage of interest paid, for example, operations of terms under one year are imposed a proportionally larger tax than are medium- to

20. The most important types of document subject to this tax are specified in regulations as "bills of exchange, drafts, promissory notes, simple or documentary loans, and any other document containing a credit or money operation. Also included are the transfer of invoices or receivables in collection to banks and financial institutions; the delivery of interest-bearing currency, except when the depository is a Bank; currency mutuums (consumption loans); loans and other currency credit operations performed with bills or promissory notes by banks and financial institutions registered in the Central Bank of Chile in case of foreign operations, and drafts discounted at banks; bank loans granted in a special account, with or without documentary collateral; and issued bonds and debentures of any nature."

21. For larger loans, the tax is applied on the amount in excess of UF3,000. The UF is used as a unit of account for financial transactions. It is calculated on the tenth day of each month, to vary by a linear amount each day. Thus, by the ninth day of the next month it will have changed in value by as much as the CPI changed two months before. On 13 June 2002, the UF was valued at Ch\$16,345.

22. The tax rate was constant at 0.1 percent per month through January 2002, when the current rate of 0.134 percent was introduced.

long-term operations. This may imply an incentive to have longer-term loans.

In the case of sight or overdraft accounts or credit with no specified maturity date, the rate imposed is 0.67 percent (or five months' equivalent of the monthly rate). In any case, the maximum tax rate applicable with respect to the same principal does not exceed 1.608 percent.<sup>23</sup>

## **5.2 Comparing the Stamp Tax with an Interest or Value-added-based Tax**

Comparing the stamp tax with alternative forms of tax on lending can provide a basis for judging whether the annual rate of 1.608 percent on the capital value of short-term loans should be considered high. The most interesting comparison is with a value-added tax, as discussed above. The stamp tax on short-term loans can be expressed as a percentage of value-added in lending, using the interest spread from International Financial Statistics (IFS) to approximate value-added.<sup>24</sup> The average spread of the lending rate over the money market rate between 2000 and 2002 was 4.66 percent; this implies that the 1.608 percent stamp tax was 34.5 percent of value-added—rather high for a VAT rate. Given that banks cannot deduct VAT on inputs since they are not VAT registered, the total effective rate of VAT on lending-related activities is higher by the amount that would otherwise be deductible.

Of course, the equivalent VAT rate would be lower for higher-risk lending operations and operations involving a higher spread than those reflected in IFS. The same would be the case for loans with a longer maturity, with the effective tax rates halving for two-year loans, halving again for four-year loans, and so forth.

Another useful comparison can be made with a gross receipts tax imposed at a fixed percentage rate on the interest received by the lender, a formerly common type of tax that is no longer widespread

23. To determine the maximum amount, the tax amount actually paid over the original operation and successive renewals or extensions is taken into account, with certain protections to ensure that such renewals or extensions are genuine and do not represent a new loan.

24. Actually, taking IFS rates is not ideal here. They are representative rates, but not necessarily close to average rates. On the other hand, using net interest margins, which are averages, from bank annual accounts, will not necessarily correspond exactly to value-added in the lending business either, given the other bundled services that are involved.

(but is still in effect in China). The gross receipts tax rate equivalent to the 1.608 percent stamp tax rate depends, of course, on the lending interest rate. Chile's mean nominal interest rate on loans, as calculated from the monthly data in IFS, was 14.37 percent for the period 1997 to mid-2002. To generate the same revenue, on average, as the stamp tax, a gross receipts tax would have had to be imposed at the rate of 11.19 percent over the period (the figure corresponding to the old stamp tax rate of 1.2 percent would be 8.35 percent). Compare this with the much-criticized gross receipts tax rate of 7 percent in effect in China.

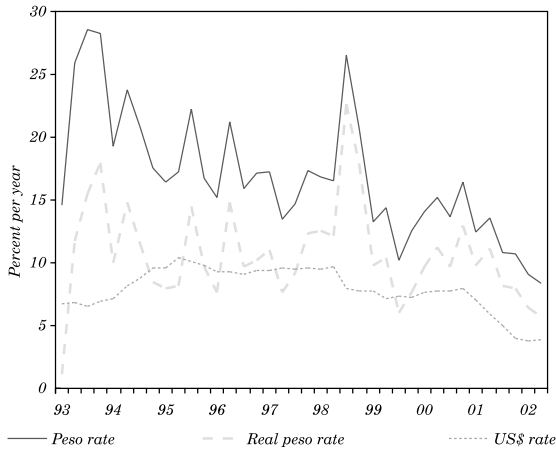
A third comparison can be made with an unremunerated reserve requirement. Based on the mean nominal money market rate of 7.64 percent over the same period used in the last example, the stamp tax can be considered equivalent to an unremunerated reserve requirement of at least 21 percent on deposits.

A favorable consequence of anchoring the rate to the capital value of the loan and not to the interest rate is that it helps insulate the effective tax rate from surges in nominal interest rates, such as can occur in times of high inflation or during a currency or other confidence scare. Chilean nominal interest rates have experienced very sharp spikes in recent years (see figure 1). A tax whose effective rate varies with interest rates (as is the case with unremunerated reserve requirements or a gross receipts tax) would have resulted in highly volatile effective tax rates on value-added. This is clear from figure 2, which compares the equivalent VAT rates of a constant gross receipts tax, of a constant unremunerated reserve requirement, and of the actual stamp taxes in effect.<sup>25</sup> In each case, the value-added is taken as an eight-quarter moving average of the spread between lending and (wholesale) deposit rates, as quoted in IFS. The equivalent VAT rate is clearly much more volatile for the two interest-rate-based taxes than for the capital-based stamp tax.

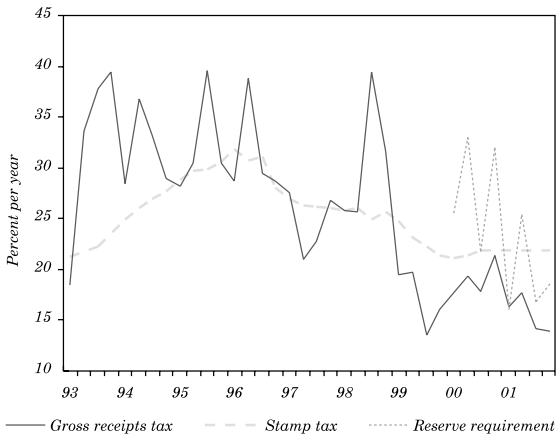
Finally, the tax is more or less neutral with respect to currency of denomination. This stands in contrast to taxes based on interest rates, which would have implied a much lower VAT-equivalent rate for foreign currency loans, given that foreign currency (U.S. dollar) lending rates have consistently been much lower than local currency rates (about half: 7.9 percent compared with 16.8 percent, on average, during the 1993–2002 period; see figure 1).

25. The constant hypothetical rates of the gross receipts tax and the unremunerated reserve requirement are chosen to be revenue neutral with the actual stamp duty over 1997–2001.

**Figure 1. Chile: Bank Lending Rates, 1993 to 2002**



**Figure 2. Chile: Equivalent VAT Rate, 1993 to 2001**



### 5.3 Defensive Aspects

Defensive inflation proofing should be one of the central goals of financial sector tax policy design. Inflation has been low and declining in Chile over the past decade or more, but inflation rates of between 20 and 30 percent per year were frequently observed during the 1980s, and there was an episode of very high inflation in the mid-1970s. It is

not altogether irrelevant, then, to look at the degree of inflation proofing built into the stamp tax. Two measures that have been proposed to capture the degree of indexation of a financial sector tax are (a) the increase in the tax, expressed as a proportion of the relevant value-added, as inflation increases from zero to 10 percent and (b) the limiting elasticity of this effective tax rate as inflation tends to infinity (Honohan, 2003). In fact, the stamp tax is almost fully inflation proof, with a value of each measure of indexation close, if not equal, to the “perfect score” of zero. In contrast to some similar financial sector taxes, the stamp tax is well insulated from inflation.

The second defensive requirement is limiting the possibility for large-scale tax arbitrage through the use of parallel and equivalent financial channels. Restricting tax arbitrage requires a fair amount of market information, but it seems that the domestic financial system has no obvious loopholes for avoiding the stamp tax, which is not, for example, confined to a narrowly specified range of credit providers. Offshore finance could be employed for this purpose, but this does not appear practical for most borrowers.

#### **5.4 Likely Impact of the Tax**

What is the likely impact of the stamp tax? Where is its incidence likely to fall, and which markets will be most affected? The model developed by Caminal (2003) provides some answers. Under the separability and competitiveness assumptions that he presents as a benchmark case, a tax on bank loans is mainly absorbed by the borrowers. Gross loan rates are increased by the amount of the tax, which induces some borrowers to switch to untaxed sources of funding (for example, offshore financing and equities). Bank monitoring decreases, possibly imposing externalities on securities markets or other providers of funds. Bank deposits are unaltered, with the implication that the banks switch a portion of their asset portfolio into untaxed investments.

The assumption of a perfectly competitive banking sector may not be fully realistic. Caminal shows, however, that this makes no difference to the cut-off point for the quality of projects that will be funded by bank loans. The tax will lower the cut-off point to exactly the same extent as in the competitive position. In the case of a monopoly bank, the gross interest rate charged to any borrower is unaffected by the tax. Only those borrowers who are newly shut out of borrowing by the tax feel any effect, and the tax paid simply acts to reduce bank profits.

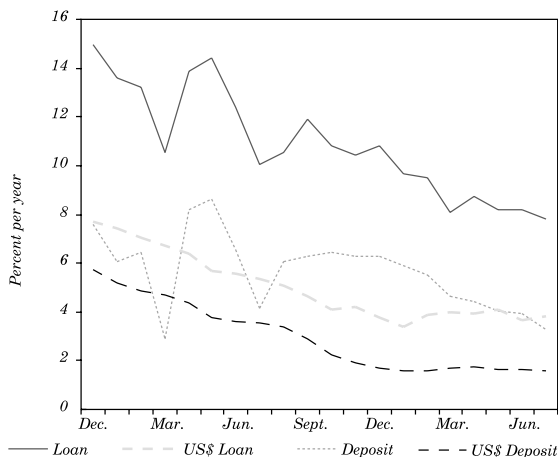
The movement of interest rates around the time of the doubling of the stamp tax in early 2002 provides an indication of which of these



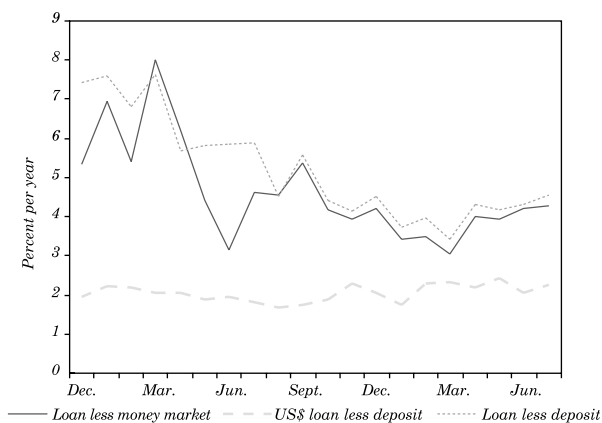
cases most reflects Chilean empirical realities. The amplitude of real and nominal interest rate movements over the past several years—and even in 2001–02—is more than double the increase in the tax rate of about 40 basis points (for a one-year loan). This makes it unlikely that a very evident change will be detectable in the data on interest rates. Figures 3 and 4 show the relevant interest rate movements.

An important fact for interpreting these data is that the stamp tax is not paid by the bank, but is separately invoiced to the borrower.<sup>26</sup>

**Figure 3. Chile: Interest Rates, 2001 to 2002**



**Figure 4. Chile: Interest Spreads, 2001 to 2002**



26. It is paid by the borrower before a public notary when the related deed is being signed.

Even though borrowers do not think of the tax as part of the interest to be paid, equilibrium behavior will naturally take account of the tax level. If the monopolistic assumption held, then (according to the theory) the interest rate charged would have fallen by the amount of the tax (inasmuch as the stamp duty is payable by the borrower). If the competitive assumption held, no change in the interest rate would have been observed. In fact, the local currency spreads dip in the period January to March 2002, consistent with the monopolistic model. (The subsequent rise in spreads might be attributable to some other factor, but I know of no econometric model of the determination of interest rate spreads in Chile that fits well enough to help either confirm or deny this effect). The dollar rates do not show the same evidence of a fall in the first quarter of 2002, and in fact there are some indications of the opposite effect, with an upward tendency in the spreads starting in February. A degree of monopoly in the local currency loan market, combined with greater competition in the foreign exchange loan market, would be consistent with the observed pattern. It also fits well with common sense, though this is not, of course, clear evidence.

The scorecard on Chile's stamp tax on credit is thus mixed. The tax does well on the defensive aims of inflation proofing and limiting severe arbitrage. It scores lower on the arbitrary bias toward longer-term credits, except to the slight extent that such a bias may be considered corrective (given the damaging tendency toward short-term financing in Korea in the run-up to the 1997–98 crisis). The overall rate is rather high (perhaps the equivalent of double the standard 18 percent VAT), and even if the incidence is partly on bank profits, the tax still surely discourages loan financing at the margin.<sup>27</sup>

## **5.5 Possible Additional Impact of Reserve Requirements**

An additional quasi-tax that probably has an impact on the cost of credit in Chile is the implicit tax in the form of reserve requirements remunerated at a rate equivalent to just 50 percent of the inflation rate. This is well below the money market rate and can thus be considered the opportunity cost of funds. Of course, this tax is largely

27. There might again be a corrective element here in adjusting for the familiar anti-equity bias of the income tax code, which applies in Chile as elsewhere.

passed on to customers, most likely the small and medium-sized borrowers with limited alternative sources of funds. The rate of reserve requirements is not very high: 9 percent on demand deposits and 3.6 percent on time deposits. Conventional calculations suggest that the effect is rather small (see note 15). A loan funded by time deposits would have had to earn an additional 25 basis points to pay for the mean reserve penalty of about 700 basis points during 2000–02 on the 3.6 percent reserves.<sup>28</sup> If the loan were fully funded by demand deposits, the figure would be 68 basis points, but in practice time deposits account for about 86 percent of all deposits.

## **6. CONCLUDING REMARKS**

Chile's stamp taxes on checks and loans seem rather high relative to the natural comparator, namely, a VAT applied systematically to financial services at the standard rate. Efficiency gains would be expected from a reduction in these taxes. On the other hand, the stamp tax on loans does seem to satisfy key defensive criteria, in that it appears relatively insulated from fluctuations in inflation and from arbitrage. Nevertheless, in keeping with Chile's tradition of scientifically based policy innovation in the financial area, the relevant authorities should consider replacing it with a comprehensive application of the VAT to the financial sector. If this proved technically feasible, it would give the lie to the frequent assertions (not wholly convincing to this author) that such a comprehensive "big idea" reform must pose insuperable practical difficulties.

28. The reserve requirement for foreign currency deposits was, until May 2003, 10 percentage points higher, but the remuneration penalty was still smaller because of the lower opportunity cost of U.S. dollar reserves.

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