

Tax Incidence in Vietnam*

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This paper examines the incidence of taxation in Vietnam, using data from the Living Standards Survey of 1997–1998 and an input–output matrix for 1997. The tax system in 1998 was slightly progressive, taking the equivalent of 7.8 percent of spending for households in the lowest, and 10.3 percent from households in the highest expenditure quintile. The replacement of the turnover tax by a value-added tax in January 1999 made the system marginally more progressive, and the falling importance of taxes on trade has had a negligible effect on the overall incidence of the tax system. The tax system is progressive overall because business income taxes fall mainly on better-off households; and low-income households rely heavily on home consumption, which is untaxed. Against this, agricultural taxes and fees are highly regressive. The recent phasing out of the agricultural land use tax is making the tax system more progressive; however, efforts since 2004 to limit price increases for motor fuels have effectively provided a relatively greater subsidy to rich than to poor households.

Keywords: Vietnam, tax incidence, indirect taxation, compensating variation, input–output matrix.

JEL classification codes: H22, O23, P35.

I. Introduction

In 2004, the Government of Vietnam collected taxes equivalent to 20 percent of GDP. The revenue came mainly from taxes on trade (14 percent of the total), value added (29 percent), and enterprise income (26 percent). Relatively little is known about who actually bears the burden of these and other taxes; in the present paper we fill this gap by measuring the incidence of taxation in Vietnam using micro data. An understanding of the incidence of taxation is important for policy-makers, who need to be mindful of the effects of tax changes

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on different groups on society, and their influence on the distribution of income or expenditure.¹

The measurement of tax incidence is not undertaken very often, particularly in less-developed countries, because of the considerable data requirements. It generally requires household survey data, with information both on expenditure and income, to measure the incidence of direct as well as indirect taxes. Better estimates of the incidence of indirect taxes are possible if there is also information on an input–output table, because it allows one to trace both the direct and indirect effects of taxes on inputs (such as an excise tax on diesel fuel).

Our study combines data from the 1997–1998 Vietnam Living Standards Survey of households with information from the 1997 Vietnam input–output table to arrive at estimates of the full (i.e. direct and indirect) incidence of taxes on imports, goods and services; with the addition of agricultural and household business taxes, we are able to trace the incidence of approximately half of all tax revenue. The incidence of most of the remaining taxes, especially on enterprise income (most of them state-owned enterprises) is difficult to determine, both theoretically and empirically.

Our main finding is that the taxes examined here are, as a group, slightly progressive, taking the equivalent of 7.8 percent of spending for households in the lowest expenditure quintile and 10.3 percent from households in the highest expenditure quintile. There are two main explanations: First, for low-income households, home consumption, which is untaxed, represents almost two-fifths of all spending, and this keeps their tax burden low. Second, business taxes are only substantial for households in the top expenditure quintile. We also find that the shift from a complex turnover tax to a value-added tax (VAT), which Vietnam introduced in 1999, might have made the tax system more progressive, although the effect is very small and well within the margin of error.

We begin with a summary of the main components of the Vietnamese tax system and their evolution since 1998 (Section II). This is followed by a discussion of the theory of measuring the incidence of taxation (Section III) and a review of our data sources (Section IV). The results are reported in section V.

II. The Evolution of the Vietnamese Tax System

In 2004, the most recent year for which information on actual revenue and spending is available, government spending totalled 25.6 percent of GDP. This was financed mainly by taxes (20.0 percent of GDP), with significant roles for non-tax revenue (3.9 percent of GDP) and deficit financing (1.6 percent of GDP), as Table 1 shows.

The structure of taxation has been somewhat stable since 1998, although there was a substantial rise in revenues from resource taxation in 2004 and there

1. See, for instance, Sahota (1978) and Bigsten (1987) on the determinants of income distribution.

Table 1 Sources of government revenue

	1998	2000	2002	2003	2004(E) ^a	2005(B) ^b
	<i>(percentage of total tax revenue)</i>					
Taxes on imports and exports	26.8	20.5	22.0	22.2	14.3	13.4
Turnover tax (now VAT)	21.2	26.1	26.4	27.7	28.7	29.8
Special consumption tax (excises)	10.1	8.1	7.9	8.2	8.8	9.3
Agricultural land use tax	4.3	3.1	0.6	0.1	0.1	0.0
Corporation Profits tax	23.5	33.9	30.0	29.3	26.1	26.3
Personal income tax	3.2	2.8	2.5	2.6	2.6	2.7
Other taxes	11.0	5.5	10.8	10.1	19.4	18.5
All taxes	100.0	100.0	100.0	100.0	100.0	100.0
Grants	3.8	3.1	2.1	1.9	1.4	1.3
Other revenue	27.3	35.6	20.4	20.8	18.2	17.1
Memo: Tax as percent of GDP	15.4	14.8	17.4	16.9	20.0	18.9
Memo: Non-oil taxes as percent of GDP		12.3	12.9	12.4	14.8	14.4
Memo: Total expenditure as percent of GDP	22.5	20.6	23.7	22.8	25.6	23.9
Memo: Non-tax revenue as percent of GDP	5.4	5.0	3.9	3.9	3.9	3.5
Memo: Budget deficit as percent of GDP	1.7	0.8	2.4	2.0	1.6	1.5
	<i>(trillions of Vietnamese dong)</i>					
Taxes on imports and exports	14.9	14.4	20.5	23.1	20.4	21.3
Turnover tax (now VAT)	11.8	17.2	24.6	28.7	41.1	47.2
Special consumption tax (excises)	5.6	4.5	7.4	8.5	12.5	14.7
Agricultural land use tax	2.4	2.3	0.5	0.1	0.1	0.1
Corporation Profits tax	13.1	14.5	28.0	30.4	37.3	41.6
Individual income tax	1.8	1.9	2.2	2.6	3.7	4.1
Other taxes	6.1	5.5	10.1	10.5	27.7	29.4
All taxes	55.7	60.3	93.2	103.9	142.8	158.3
Grants	2.1	2.4	2.0	2.0	2.0	2.0
Other revenue	15.2	15.8	19.0	21.6	26.1	27.1
Memo: GDP (VND trillions)	361	400	536	613	713	838
Memo: GDP (VND trillions, 1998 prices)	361	378	462	496	534	579
Memo: Real GDP growth (percent per annum)	5.8	4.8	7.1	7.3	7.7	8.4

Notes: ^a E is estimated outturn; ^b B shows budgeted amounts. VAT, value-added tax.

Source: IMF (2003); GDP figures for 2002–2005 from the General Statistics Office (2005); revenue and spending figures for 2002–2005 from Vietnam Ministry of Finance (www.mof.gov.vn, 2004). Figures for 2004 are estimates and for 2005 are budgeted amounts. As of 1 January 2006 the exchange rate was 15 904 Vietnamese dong per US dollar. Some totals might not add up exactly due to rounding.

is a decreasing reliance on import duties. Total tax revenue has varied between 14.8 and 20.0 percent of GDP, with some tendency to rise in recent years, much of it as a result of an increase in oil-related tax revenues. There is continued substantial dependence on taxes on trade (14 percent of tax revenue in 2004, down from 27 percent in 1998) and enterprise income (26 percent of tax revenue in 2004, compared with 24 percent in 1998). The turnover tax, which contributed 21 percent of tax revenue in 1998, was replaced in 1999 by a VAT that now brings in almost 30 percent of all tax revenue, equivalent to over 5 percent of GDP. Excise taxes contribute one-tenth of all tax revenues. Most other taxes have become less important, particularly the agricultural land use tax that is being phased out. The personal income tax contributes just 3 percent to total tax revenue, and in practice is largely collected from salaried employees at foreign-invested enterprises. A brief summary of the main taxes, with rates and bases, is given in Appendix A; fuller details, now slightly dated however, are provided by the IMF (2003).

For the present study, we are able to trace the incidence of import tariffs, the turnover tax/VAT, excises (special consumption taxes), the agricultural land use tax and related fees, and the tax on household businesses. Together, these accounted for over 60 percent of tax revenue in 1998 and over half of tax revenue in 2004.

III. Measuring Tax Incidence

III.1 Taxes on goods and services and on imports

The principal tax on goods and services is the VAT, introduced in January 1999, and now levied at a standard rate of 10 percent but with reduced rates of 5 and 0 percent. It is complemented with several excise taxes, most notably on cigarettes, beer and liquor, automobiles, gasoline and diesel fuel. Prior to the VAT, Vietnam levied a turnover tax, with a wide variety of rates that differed from product to product (see Nguyen et al., 2001, table 13.9, for a sampling of rates). The household survey data used in the present study refer to 1998, and so in what follows we use the turnover and excise taxes current at that time rather than the VAT rates that were introduced subsequently. However, we also simulate the effects of the introduction of the VAT, in Section V.5 below.

We follow the practice of most studies of incidence in assuming that the burden of taxes on goods and services is shifted entirely onto consumers. Although this is a simplification, it is a plausible one, especially for manufactured goods, where supply is highly elastic in the long run. Similarly, it is both conventional and reasonable to assume that the supply of imports to a small open economy (such as Vietnam) is infinitely elastic. It follows that a tariff on imports will be entirely passed on to consumers. Alternatively, one might justify these assumptions as providing a first-order approximation of the incidence of tax changes (Rajemison et al., 2003), and point to the practical difficulties

involved in obtaining usable elasticities that would be required for a second-order approximation (Friedman and Levinsohn, 2002).

Quite generally, given these assumptions, the price of a domestically produced good j , represented by P_j , will be given by

$$P_j = \sum_i a_{ij}P_i + (1 + t_j^d)VA_j + \sum_i (1 + t_i^m)(1 + \delta_i)m_{ij} + s_jP_j, \quad (1)$$

where a_{ij} is the amount of input i required to produce one unit of output j , t_j^d is the VAT levied on domestic production, t_j^m is the VAT levied on imports, δ_i refers to import duties, m_{ij} gives the amount of imported input i required to produce one unit of output j , and s_j refers to turnover taxes (Rajemison et al., 2003). This can be written in matrix form and solved for the consumer price to give

$$P = (I - A - S^T)^{-1}[(1 + T^d)VA + (1 + T^m)M^T(1 + D)], \quad (2)$$

where P , VA , and $(1 + D)$ are column vectors, S , T^d and T^m are diagonal matrices, I , A , S and M are full matrices, and the superscript T denotes transposition. The present study uses a 97-sector input–output matrix, so P is a vector with 97 final prices, normalized to ones in the initial (tax inclusive) state. A change in a tax on even one good can potentially change every final price in the economy, working through Equation (2).

The first step in our procedure is to apply Equation (2) to determine the vector of prices, P_0 , which applies under existing tax arrangements. We then use Equation (2) to compute the vector of prices, P_1 , which would apply if a tax (or set of taxes) were removed. This allows us to compute a vector of price changes, dP , for all domestically produced goods, and attributable to the taxes under consideration.

However, consumers buy a mix of domestically-produced and imported final goods. Therefore, the change in price that they face is given by

$$dP^{tot} = \alpha \cdot dP^M + (1 - \alpha)dP, \quad (3)$$

where α measures the share of the consumer’s consumption that is devoted to imports. The change in the price of imported final goods (dP^M) is obtained by directly applying any relevant tax changes. Consider, for instance, the effect of changing the rate of import duty (δ_i), where there is also a VAT on imports. Given a world price (in local currency) of P_i^W , we have

$$P_i^M = (1 + \delta_i)(1 + t_i^m)P_i^W$$

so

$$dP_i^M = (1 + t_i^m) \cdot P_i^W \cdot d\delta_i = d\delta_i/(1 + \delta_i),$$

given that the initial prices are normalized to 1. Therefore, if the import duty were 20 percent and the VAT were 10 percent, the tax inclusive price is 1 initially. If the import duty is then abolished, $d\delta_i = -0.2$, and the import price faced by the consumer falls from 1 to 0.833, or by 0.167.

The price changes that result from altering taxes can be joined with household survey data, which provide information on how much each household consumes of each good and service, to determine the incidence of taxes on goods and services.

More formally, let $E^h(u, P^{tot})$ be the minimum expenditure needed by household h to attain utility level u , given the vector of final goods prices P^{tot} . A first-order Taylor expansion of this function around price measures, as a first approximation, the expenditure required to compensate the household for the price change (i.e. the compensating variation; see Friedman and Levinsohn, 2002). The partial derivatives of the minimum expenditure function with respect to the vector of prices (P^{tot}) gives the vector of demands (X), so that

$$dE^h \approx X^h \cdot dP^{tot}, \quad (4)$$

where X^h is a $1 \times n$ vector of (initial) quantities and dP^{tot} is the $n \times 1$ vector of price changes that result, directly and indirectly, from the imposition of taxes. These changes are then expressed as a proportion of the initial levels of expenditure (i.e. as dE^h/E^h) to generate summary measures of incidence by expenditure per capita quintile or overall.

In other words, the welfare effects of tax changes for a household, as given by the compensating variation (dE^h), can be measured by a weighted average of the tax-induced changes in final prices, where the weights are the quantities of goods and services purchased by the household in the initial situation: in this case, before removing any taxes.²

III.2 Agricultural taxes

The most important single tax levied in rural areas in 1998 was the agricultural land tax, imposed at rates that vary according to the quality of the land. The burden of a pure tax on land falls entirely on the owner of the land (see e.g. Nguyen et al., 2001, Appendix 1A). Under Vietnamese law, the state owns all land, but individuals have land-use rights that are almost equivalent to ownership, in that they may be freely bought, sold and transferred (Economist Intelligence Unit, 2005). It follows that the burden of a tax on land will fall on those who own the usufruct rights to that land.

Rural households also pay several rural fees and ‘contributions.’ In principle at least, fees are paid in return for a service: for irrigation, to maintain dikes, for veterinary services, for plant protection, for schooling, and for health care. In practice, many fees are only loosely related to the services with which they are supposed to be associated, and so have most of the characteristics of a tax. In the present paper we, assume that rural fees are like taxes, and that the burden falls entirely on the payer; however, we treat fees paid for schooling and health care as true fees that cannot be considered to impose a tax-like burden on the payer.

2. For those quantities of goods and services that are produced and consumed at home, it is assumed that $dP = 0$.

'Contributions' are like taxes in that they are obligatory and are not linked to any benefits that the contributor might be expected to receive. Vietnamese households are required to provide 10 days of labor for the public good annually (or an equivalent in cash): to mend roads and dikes and otherwise maintain the local infrastructure. They are also expected to contribute to a variety of funds, not all of them officially sanctioned, for poverty alleviation, community development, and the like. We assume that the burden of contributions is equivalent to that of taxes, and falls entirely on the payer.

III.3 Taxes on household businesses

In 1998, one adult out of ten worked full-time in a non-farm household enterprise, and a further 14 percent worked part-time in such undertakings (Vijverberg and Haughton, 2004). Individuals who operate such businesses are liable for several levies, including license fees and taxes on profit and turnover. To the extent that such taxes are not levied on pure 'excess' profits, that is, profit over and above a normal rate of return to capital, there might be some scope for shifting them, at least in part, onto consumers. The logic is that if a tax eats into the revenue or normal profit of a business, that business might become unprofitable, and either reduce its output or go out of business. This, in turn, will reduce the quantity of the product that is supplied to the market, with the result that the price paid by consumers will rise.

It is difficult to estimate how much forward shifting of taxes on household businesses occurs in practice. We assume that these taxes are fully borne by the owner, but this might overstate the extent to which the tax incidence falls on owners, so we also report the results based on the alternative assumption that half of these taxes are borne by owners and the remainder is shifted onto consumers.

IV. Data Sources

The data on household income and expenditure, and on agricultural and household business taxes, come from the Vietnam Living Standards Survey of 1998 (VLSS98). The survey was conducted between December 1997 and November 1998, using a 115-page questionnaire administered to households in the course of two visits as well as a 'community questionnaire' that collected tax and other data at the commune level. The questionnaires were based on the format used by the World Bank in other Living Standards Measurement Surveys (Grosh and Glewwe, 2000), adapted to Vietnamese conditions and needs, and pretested locally. The survey was undertaken by the General Statistics Office, with technical assistance from the World Bank and significant financial support from the United Nations Development Program and the Swedish International Development Agency.

The VLSS98 survey obtained usable responses from 5999 households. Two principles underlay the sampling. First, as many households as possible that had already been sampled in the Vietnam Living Standards Survey of 1992–1993 (VLSS93), which used a multistage cluster sampling procedure to pick 4800 households,³ were sampled again;⁴ 4280 households came from this source. Second, the sample in each of ten strata (large cities, small cities, towns and rural areas in each of the (then) seven regions of the country) was designed to be large enough to allow for analysis to be done at the stratum level. This called for oversampling in areas such as the sparsely populated Central Highlands and undersampling in the large and dense Red River Delta region.⁵ Where VLSS93 households were missing, they were replaced by other households in the same villages. All the other additional households were chosen using the same sampling frame as the Multi-Purpose Household Survey, which also uses a multistage cluster procedure. Therefore, the structure of the sampling, although complex, is known, and almost all work using VLSS98 data needs to be based on weighted estimates. Bales (2000) provides further details, and a set of weights. It is likely that these weights, which are based on the 1989 census, overstate the importance of the rural areas; however, the information from the 1999 census that would allow for a revision of the weights is not publicly available. The VLSS98 survey also probably undersamples some groups, most notably urban squatters, newly-formed households, and the homeless, although in the context of the analysis of tax incidence these omissions are probably of minor importance.

In sum, the VLSS98 survey was well designed and executed. The data are of better quality and more complete than any other household survey data in Vietnam. Despite some imperfections, we consider that the data are highly representative of Vietnamese households and of sufficient calibre for our purpose, which is to track the distributional effects of tax changes.

The data on input–output coefficients, and imports and value-added by sector, originate from the input–output table for 1996 published by the General Statistics Office (1999). This 97 by 97 table distinguishes 12 agricultural sectors, including 5 crops and 3 types of livestock; 5 extractive industries; 13 food processing sectors (including tobacco); 45 manufacturing sectors, 3 utility sectors, construction, 5 types of transport and communication sector, and 13 categories of services. The input–output table also includes measures of the

3. Further details about the sampling are given in the appendix in Dollar et al. (1998) and General Statistical Office, Vietnam (2000). The VLSS983 data may be used without weighting.

4. Actually, three clusters, totalling 96 households, were dropped from the Red River Delta, to allow for more households to be surveyed in other regions.

5. The relative sampling proportions for the ten strata are as follows: Hanoi and Ho Chi Minh City: 2; medium size towns: 2; small towns: 1.5; rural northern uplands: 1; rural Red River Delta: 1; rural north central coast: 1; rural central coast: 1.5; rural central highlands: 3; rural south-east: 2; rural Mekong Delta: 1.

amount of tax, including turnover tax, import duties, enterprise income tax, and excise duties, actually paid and attributable to each of the 97 sectors. Nielsen (2002a) raises questions about the veracity of some of the flows in the input–output table, but Huong et al. (2001) have checked these cases by examining the original data and find them to be plausible.⁶

The input–output matrix was updated to 1997 by Nielsen (2002a, 2002b), in the context of the construction of a full social accounting matrix (SAM) for Vietnam, and this is the version that we use for the present study. Nielsen first constructed a 14-sector aggregate macro-SAM for 1997, to provide a consistent macroeconomic framework, based primarily on data from the Vietnam General Statistics Office (1999) (for national accounts data) and the World Bank (1999) for data on tax revenue. She then disaggregated selected accounts of the macro-SAM, including the production sectors, to construct an initial ‘micro-SAM’. However, the disaggregated SAM was not perfectly balanced because of inevitable inconsistencies in the data, so in the final step she used a cross-entropy approach to balance the micro-SAM. This is a technique in which the researcher formally incorporates all the available information on the components of the SAM, including existing estimates of input–output coefficients, adding-up restrictions, non-negativity constraints and distributions applied to values that might not be known with precision, and then minimizes the cross-entropy distance between the revised (balanced and consistent) estimates and the original (unbalanced) values in the SAM (Nielsen, 2002a).

This procedure had little effect on the input–output coefficients, for which strong prior information was available from the 1996 input–output matrix. However, it forced the value of indirect tax revenue to be consistent with the amounts reported by the World Bank, which was necessary because the Vietnamese Government has not published official revenue figures for 1997. In constructing the SAM for 1997 Nielsen also assumed, for lack of other information, that the split between tariff revenue and other indirect tax revenue remained unchanged between 1996 and 1997.

V. Findings

Before presenting our findings, it is worth summarizing our approach. To measure the incidence of taxes on goods and services (including import duties), we use the data on turnover taxes and import tariffs from the social accounting matrix, coupled with the input–output table for 1997 constructed by Nielsen, to generate the prices of domestically-produced output in 97 sectors with, and

6. For instance, the input–output table shows flows of output from the rice sector to the apparel sector, which might seem odd, but in fact reflects flows of rice straw destined for the production of conical hats. The construction of social accounting matrices, and particularly one for Vietnam for 1999, is discussed in considerable detail by Huong et al. (2001); Tarp et al. (2003) provide further details for a more recent version.

without, each tax, using Equation (2). We measure the change in prices faced by consumers as a weighted average of changes in the prices of domestically-produced and imported goods, as shown in Equation (3). This permits us to measure the compensating variation of the tax changes using Equation (4). Finally, we aggregate the results and present them in a variety of ways, as shown below. For agricultural and business taxes, we use the data reported by households in the VLSS98 survey, and assume that the full incidence falls on the payers.

V.1 Taxes on goods and services and on imports

The main results for taxes on goods, services and imports (indirect taxes) are shown in Table 2, broken down by expenditure per capita quintile. On average, these taxes collected 5.1 percent of expenditure in 1998, with the rate rising slightly from 4.5 percent for the poorest quintile to 5.6 percent for those in the top quintile of the expenditure distribution. Therefore, indirect taxes in 1998 were slightly progressive, in the sense that they imposed a higher proportionate burden on the rich (as measured by expenditure per capita) than the poor.

The same point can be made using Figure 1a, which sorts households from poor to rich, graphing the cumulate proportion of households on the horizontal axis, and the cumulative proportion of expenditure (the Lorenz curve) or taxes paid (the quasi-Lorenz or 'concentration' curve) on the vertical axis. The heavy line shows the Lorenz curve; the lighter curve shows that the distribution of the tax burden is more unequal than the distribution of expenditure, which generally implies that the tax is progressive.

The distribution of expenditure per capita can be summarized by the Gini coefficient, which varies from 0 for complete equality to 1 for complete inequality; in this case it is 0.345, which indicates a moderate degree of inequality (see Table 3). Following standard practice, the distribution of indirect taxes is measured by a quasi-Gini (or concentration) coefficient; this is not a true Gini coefficient, because that would require one to sort households from those who pay the least tax (per capita) to those who pay the most, whereas here they are sorted by the level of expenditure per capita. The quasi-Gini coefficient for indirect taxes is 0.387, which shows slightly greater inequality than expenditure per capita and suggests a modest degree of progressivity.

In 1998, one-quarter of all tax revenue came from import tariffs. Revenue from this source has already begun to decline (relative to other sources of taxation), as Vietnam honors its obligations under the ASEAN Free Trade Area and the WTO (which it is likely to join in 2006). Suppose that import tariffs were abolished; how would this have affected the incidence of indirect taxes in 1998? The basic breakdown is shown in Table 2 (under 'Memo items 1'), which shows that indirect taxes, excluding import tariffs, would have represented 3.5 percent of the expenditure of households in the poorest quintile and 4.4 percent of spending for those in the top quintile. The quasi-Gini for indirect taxation would rise from

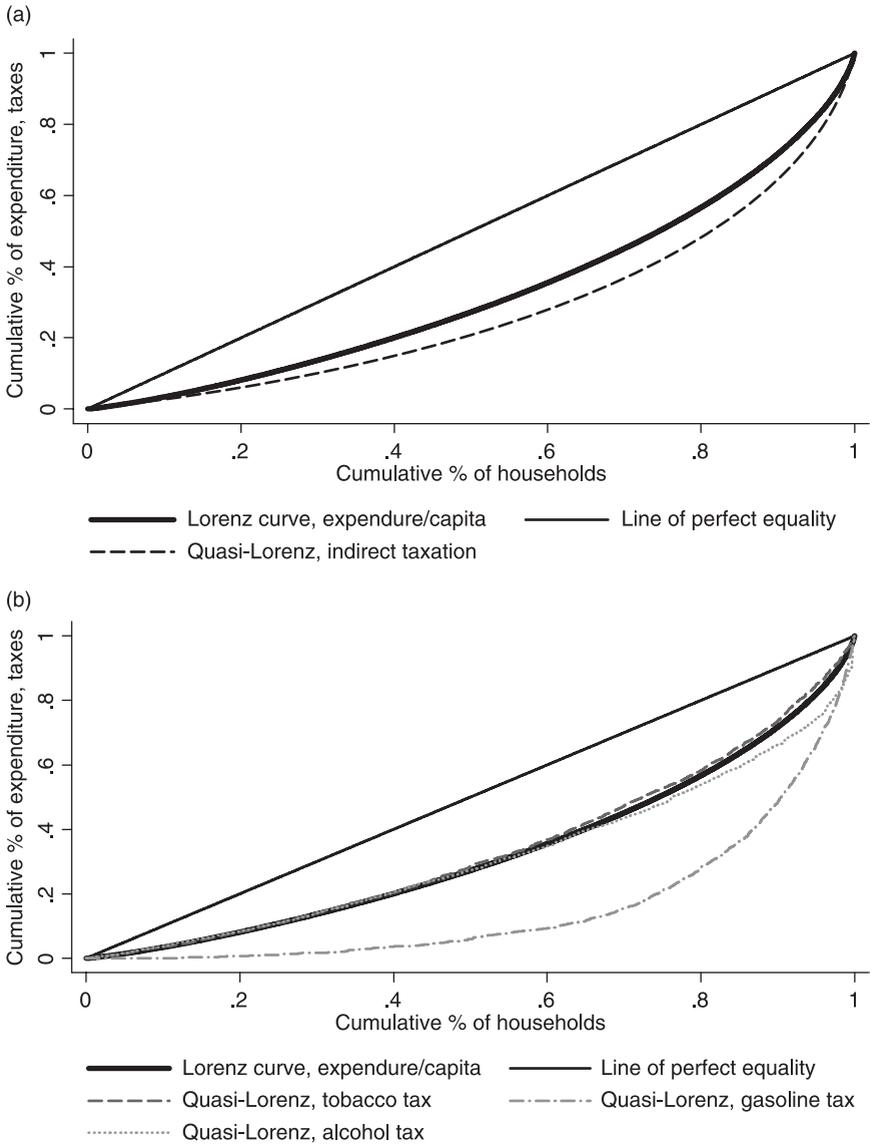
Table 2 Indirect taxes by expenditure per capita quintile, 1998

	<i>Expenditure per capita quintile</i>					<i>All</i>
	<i>Low</i>	<i>Low-mid</i>	<i>Middle</i>	<i>Mid-upper</i>	<i>Upper</i>	
	<i>(in thousands of Vietnamese dong unless otherwise noted)</i>					
Expenditure/household	7346	10 007	11 782	15 498	29 979	14 923
Estimated indirect tax/household	330	477	551	787	1676	764
Expenditure/capita	1172	1727	2234	3060	6268	2892
Estimated indirect tax/capita	53	82	104	153	349	148
Tax as percent of total expenditure	4.5	4.7	4.6	5.0	5.6	5.1
Memo items 1:						
Indirect tax/household without tariffs	261	375	434	615	1324	602
Indirect tax, no tariffs, as percent of expenditure	3.5	3.8	3.7	4.0	4.4	4.0
Memo items 2:						
Home consumption/household	2861	3068	2829	2479	1422	2532
So: percent of spending untaxable	39	31	24	16	5	17
And: taxable spending	4485	6940	8954	13 019	28 557	12 393
Indirect tax as percent of taxable spending	7.4	6.9	6.2	6.0	5.9	6.0

Notes: The average exchange rate in 1998 was VND13 297/USD. Therefore, average expenditure per capita was \$218 per year (= 2 893 000/13 297). Weighted by individuals, not households.

Source: General Statistical Office, Vietnam (2000).

Figure 1 Cumulative distribution of expenditure and taxes in Vietnam, 1998. (a) Indirect taxation and (b) the distribution of taxes on tobacco, gasoline and alcohol



0.388 to 0.389, an insignificant change; by implication, import duties are neither more nor less progressive than indirect taxes overall.

There are two possible explanations for the progressivity of indirect taxation: the poor might have a smaller tax base, or might face lower tax rates. The first

Table 3 Gini and quasi-Gini coefficients of distribution, expenditure and taxes, Vietnam, 1998

<i>Real expenditure per capita</i>	<i>Indirect taxes</i>	<i>Alcohol and beer</i>	<i>Gasoline</i>	<i>Tobacco</i>	<i>Indirect taxes without tariffs</i>
<i>Gini</i>	<i>Quasi-Gini coefficients ('concentration coefficients')</i>				
0.345	0.387	0.371	0.690	0.324	0.389

of these explanations is the correct one, as the last four lines of Table 2 make clear: the proportion of home-consumption is far higher for poor households (39 percent of the total) than for rich households (5 percent of the total). Home consumption is untaxed, so the greater its importance, the lower the tax burden, holding other things constant. If tax collections are expressed as a fraction of purchases (taxable spending), then poor households face a higher rate (7.4 percent) than the rich (5.9 percent), mainly because richer households devote a higher proportion of their spending to services, which are lightly taxed.

Almost one-tenth of indirect taxation comes from levies on cigarettes and tobacco; and a further 7 percent is derived from taxation on alcoholic beverages and gasoline. It is interesting to separate out the effects of these taxes. The basic numbers are shown in Table 4, which shows that the taxes on tobacco and alcohol are essentially proportional (i.e. take approximately the same proportion of spending for all income groups), whereas the tax on gasoline is highly progressive, even after allowing (as we do) for the effects to work their way through the structure of production to influence the cost of such items as transport. The relevant quasi-Lorenz curves are shown in Figure 1b; the picture also emerges clearly from the bar charts in Figure 2 and the quasi-Gini coefficients in Table 3.

V.2 Agricultural taxes

The incidence of agricultural taxes is reported elsewhere (Nguyen et al., 2001), so we just summarize the effects here. The data on agricultural taxes, fees and contributions come from the tax records of the commune, and were collected by the community questionnaire. These payments amounted to 1.7 percent of household expenditure, or 2.9 percent of expenditure for the 59 percent of households that were engaged in agriculture (Table 5). The most important individual components were the agricultural land tax (45 percent of all agricultural taxes) and irrigation fees (21 percent), with modest contributions from the funds for electrification (6 percent), mandatory labor (6 percent) and road construction (3 percent) in addition to over a dozen other minor taxes, fees and contributions.

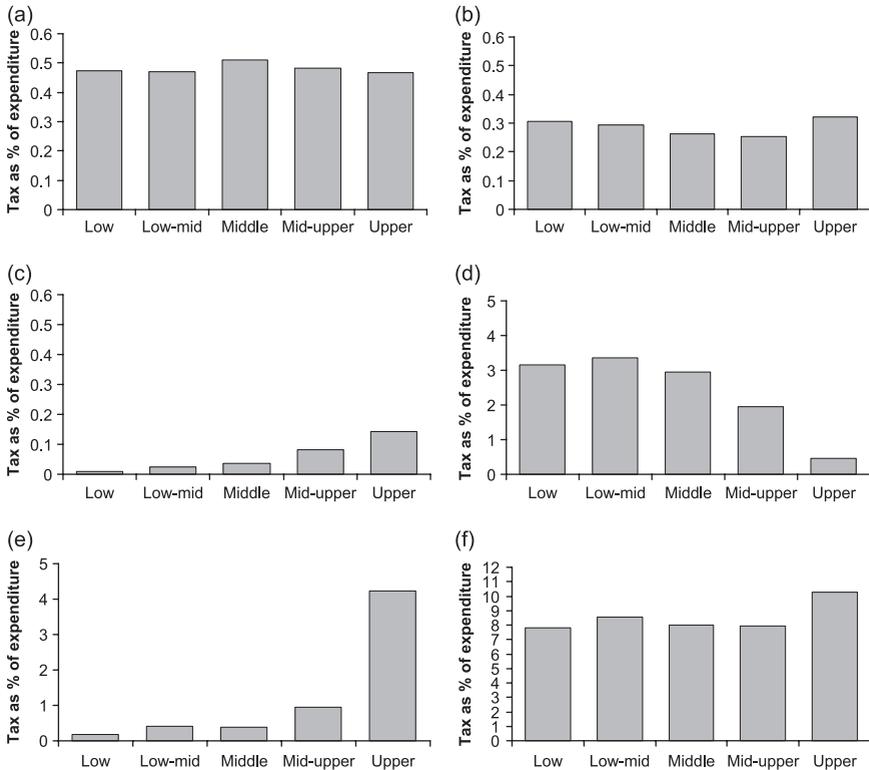
Agricultural taxes are highly regressive, as Figure 2(d) makes clear. They represent 3.2 percent of spending by households in the lowest quintile, and just

Table 4 Incidence of taxes on tobacco, alcohol and gasoline, 1998

	<i>Expenditure per capita quintile</i>					<i>All</i>
	<i>Low</i>	<i>Low-mid</i>	<i>Middle</i>	<i>Mid-upper</i>	<i>Upper</i>	
	<i>(in thousands of Vietnamese dong unless otherwise noted)</i>					
Tobacco tax payments						
Vietnamese dong (thousands) per household	35	47	60	75	140	71
As percent of household expenditure	0.47	0.47	0.51	0.48	0.47	0.48
Beer and Alcohol tax payments						
Vietnamese dong (thousands) per household	22	29	31	39	96	44
As percent of household expenditure	0.31	0.29	0.26	0.25	0.32	0.29
Gasoline tax payments						
Vietnamese dong (thousands) per household	1	3	4	13	42	13
As percent of household expenditure	0.01	0.03	0.04	0.08	0.14	0.08

Source: General Statistical Office, Vietnam (2000). Weighted by individuals, not households.

Figure 2 Various taxes as percentages of expenditures, by quintile. (a) Tobacco tax; (b) beer and alcohol tax; (c) gasoline tax; (d) agricultural taxes; (e) household business taxes; and (f) all taxes



0.5 percent for the richest quintile. The explanation is straightforward: better-off households are far less likely to be engaged in agricultural activities than are the poor, and so any tax related to agriculture will hit the poor disproportionately hard.

V.3 Taxes on non-agricultural household businesses

Just over 18 percent of households operate non-farm businesses, but this average hides a very wide disparity between households in the top expenditure quintile, where 80 percent of households operate such businesses, and those in the three lowest quintiles, where the figure is just 4 percent (Table 5). Given this skewed distribution, it is not surprising that taxes on household non-farm businesses are highly progressive, representing 4.2 percent of total household expenditure for rich households and 0.2 percent for poor households (defined as those in the

Table 5 Summary of taxes by expenditure per capita quintile, 1998

	<i>Low</i>	<i>Low-mid</i>	<i>Middle</i>	<i>Mid-upper</i>	<i>Upper</i>	<i>All</i>
<i>(in thousands of dong unless otherwise noted)</i>						
Expenditure/household	7346	10 007	11 782	15 498	29 979	14 923
Estimated indirect tax/household	330	477	551	787	1676	764
Agricultural taxes and fees/household	232	337	346	302	135	270
Business taxes/household	13	42	46	146	1270	303
So: All taxes and fees/household	575	856	943	1235	3081	1338
All Taxes as percent of expenditure	7.8	8.6	8.0	8.0	10.3	9.0
Of which:						
Indirect taxes as percent of expenditure	4.5	4.8	4.7	5.1	5.6	5.1
Agricultural taxes as percent of expenditure	3.2	3.4	2.9	1.9	0.5	1.8
Business taxes as percent of expenditure	0.2	0.4	0.4	0.9	4.2	2.0
Memo items 1:						
Percent of households active in agriculture	79	80	72	59	24	59
Percent of households active in business	3	4	4	11	80	18
Memo item 2:						
Expenditure/capita	1172	1727	2234	3060	6268	2893
Memo items 3: Sensitivity						
Revised bus. Tax as percent of expenditure	0.1	0.2	0.2	0.5	2.1	1.0
Revised indirect tax as percent of expenditure	5.4	5.7	5.6	6.1	6.7	6.1
Revised: all taxes/fees as percent of expenditure	8.6	9.3	8.7	8.5	9.3	9.0
Memo items 4: VAT						
VAT/household replacing turnover tax	288	442	528	815	1749	764
Taxes with VAT as percent of expenditure	7.3	8.2	7.8	8.1	10.5	9.0

Note: Weighted by individuals, not households. VAT, value-added tax.

Source: General Statistical Office, Vietnam (2000).

lowest quintile of the expenditure per capita distribution). For households with such businesses, the various business taxes that they pay represent 16 percent of business income, 1.8 percent of turnover, and 9.4 percent of total household expenditure. These taxes are markedly higher in the south-east and Mekong Delta regions than in the north and center of Vietnam (Nguyen et al., 2001).

V.4 Taxes combined

When the three categories of taxes that we have considered, indirect taxes (including both turnover and trade taxes), agricultural taxes and business taxes on non-agricultural income, are combined (because their effects are additive), we find that they represent 9.0 percent of household spending (Table 5). This proportion varies from 7.8 percent for the poorest quintile to 10.3 percent in the top quintile, and is slightly, although not markedly, progressive, as Figure 2(f) makes clear.

This net effect results from the offsetting effects of indirect taxes (slightly progressive), taxes on household businesses (highly progressive) and agricultural taxes (highly regressive), as Table 5 shows. However, the results are sensitive to the assumptions that are made about the incidence of the tax on household businesses: if half (rather than all) of this tax falls on the producer households and the other half is shifted onto consumers, then the tax system overall comes close to being proportional, as shown near the bottom of Table 5 (under the heading 'Memo items 3: Sensitivity').

V.5 Turnover versus value-added tax

In January 1999, Vietnam replaced its turnover tax with a VAT with rates of 0, 5, 10 (the 'standard' rate) and 20 percent; the 0 percent rate applies to exports, and there is a detailed schedule that indicates which goods and services are subject to each of the tax rates. It is worth asking what effect this change had on the incidence of taxation. To compute this, we removed the turnover tax and replaced it with the VAT, using the statutory rates by sector as stipulated in the implementing circular (No. 122-2000-TT-BTC) of the Ministry of Finance (2002), and adjusting the yield of the VAT to equal that of the turnover tax that it replaced. The results are shown in the last two rows of Table 5 (under 'Memo items 4: VAT'). The net effect of the change appears to have been a very slight increase in the progressivity of the tax system, but the effects were very modest: the tax burden on the poorest quintile fell from 7.8 to 7.3 percent and that on the top quintile rose from 10.3 to 10.5 percent.

It is instructive to compare our findings with those of Chan et al. (1999), who analyze the effects of tax reform in Vietnam using a static computable general equilibrium model with 9 sectors and 5 representative households. Their model is calibrated using 1995 data, and their most important simulation consists of

replacing the turnover tax with an equal-yield flat-rate VAT on all goods (excluding agricultural production). Their simulations indicate that such a change would be regressive, and they note that this effect is largely driven by ‘the pattern of expenditures by household across taxed and non taxable commodities in the base case equilibrium’ (p. 21) rather than by assumptions about substitution elasticities.

In the Chan et al. model the results are sensitive to the degree of disaggregation; a 12-sector version of the model produces: ‘somewhat less pronounced redistributive results’ (p. 21). Our analysis is based on a far greater degree of disaggregation, and it appears that this is important. There are two other differences: First, our simulation of the effects of a VAT uses the rates and pattern that were applied in 1999 rather than a flat-rate revenue, neutral rate, and these appear to have been designed to moderate the effects on poorer households. Second, our model adjusts for home consumption, which does not bear any tax; this is particularly important for poor households, and is central to the (modest) progressivity of the VAT in Vietnam.

VI. Conclusions

A good tax system raises adequate revenue while limiting administrative and compliance costs and the negative effects on economic efficiency. However, policy-makers also need to be mindful of the effect of tax changes on the distribution of income, both for the sake of fairness, and because this is the key to the politics of tax changes. This can lead to trade-offs: for instance, import duties might yield substantial revenue at low administrative cost, but create significant efficiency costs and impose a substantial burden on rich and poor alike.

The Government of Vietnam is well aware of such trade-offs. In phasing out the agricultural land use tax, the government is removing a substantial tax burden on poorer households (as shown above), and respecting a provision of Ho Chi Minh’s will, but it is also forgoing significant revenue and making it harder to devolve decision-making to localities by removing a potential source of local tax revenue: a concern raised by Rao et al. (1998). For most of 2004 and 2005 the government resisted allowing the domestic price of gasoline to rise in line with world prices, in effect subsidizing gasoline, a move that, according to our analysis, benefited affluent households far more than poorer ones. There does not appear to have been any such trade-off in replacing the turnover tax with a VAT: it improved economic efficiency and boosted revenue without reducing progressivity.

Our results suggest that the Vietnamese tax system is, overall, slightly progressive. This is necessarily a somewhat tentative determination, because we were only able to track the incidence of approximately half of all taxes, and the result is highly dependent on our assumption that the tax on household businesses is borne by those businesses. The effective incidence of most of the taxes

that we did not include, especially the important tax on enterprise income, is a matter of considerable debate.

The analysis shows the partial incidence of tax changes. It asks what would happen if government were to change a tax rate but makes no other changes. This is, of course, quite unrealistic, if only because the government would have to make some adjustment to the drop in revenue: by raising taxes elsewhere, by borrowing, or by trimming spending (Rosen, 2001). However, it does provide an indication of the direction of change; therefore, it is clear, for instance, that if the agricultural tax were to be removed and indirect taxes to be increased to replace the revenue (balanced budget incidence), then the tax system would become more progressive. Alternatively, one could try to link incremental changes in taxes with incremental changes in spending; for instance, a higher tax on tobacco, although regressive, might be acceptable if the associated extra spending were used to finance clinics in poor mountainous areas, and the net effect might actually benefit poor households as a group. The practical difficulty here is in constructing a plausible link between incremental taxes and spending, although it is sometimes possible (J. Haughton, unpubl. data, 2005).

Over the coming decade, the Government of Vietnam, which has expressed strong commitments both to a central economic role for the state and to a reduction in poverty, is likely to want to collect at least as much revenue (relative to GDP) as it does now, while ensuring that the tax system does not become less progressive. Revenue from customs duties will fall, as Vietnam meets its obligations under the WTO and the ASEAN Free Trade Area. The most natural way to replace these revenues is by increasing the VAT, and it will probably be necessary to raise the basic rate from its current 10 percent to perhaps 12–15 percent, as many middle-income countries have done. Our results show that this will have a relatively limited effect on the progressivity of the tax system. It is also likely that the country will pay more attention to the personal income tax, which currently plays a minimal role; as pointed out by a referee, here it will face a clear trade-off, between a tax that is the most progressive major component of almost every tax system but that also creates significant distortionary effects by affecting the incentives to work, save and invest and, beyond some point, might lead to higher levels of evasion and avoidance. This helps explain why some influential observers are skeptical about the ability of any tax (rather than expenditure) system to effect significant redistribution (Harberger, 2003; Engel et al., 1999).

Appendix A: Summary of Taxes in Vietnam

<i>Tax</i>	<i>Base</i>	<i>Rates</i>
Personal income tax	Levied on wages, salaries and benefits, but not including most allowances, interest and dividends. Separate, lower tax is levied on irregular income, such as lottery winnings.	Tax at 10 percent begins at an income level of VND5m (\$320) annually, rising to a maximum of 40 percent. Wider brackets for foreigners. (Brackets for local earners were recently widened; top rate lowered from 50 percent; surcharge of 30 percent abolished.)
Enterprise income tax	Taxable income is defined as total revenue less deductible expenses (depreciation, cost of goods sold, research and development costs, interest). Losses may be carried forward up to 5 years.	28 percent. Reductions for investments in favored sectors (e.g. scientific research) and areas (e.g. mountainous areas). Refund of 50–100 percent of tax on reinvested profit. (Until recently, 25 percent or lower rates for foreign firms, 32 percent for local firms.)
Capital gains tax	Applied to foreign investors who sell their business to another investor (other than the state).	25 percent.
Social security insurance	Applied to salaries.	15 percent paid by employer plus 5 percent paid by employee.
Value-added tax	Applies to most goods, uses credit method. Exemptions include agricultural production, salt, some imported equipment, credit, business services, education.	0 percent for exports, 5 percent for 'essentials' and 10 percent standard rate. (20 percent high rate recently abolished.)

Special sales tax (= excise)	Base is sales price divided by (1+tax rate). Not levied on goods that are directly exported, or on goods brought to Vietnam by aid agencies.	Cigarettes: 25 percent without filters, otherwise 45–65 percent. Beer: 50–75 percent. Liquor: 20–70 percent depending on proof. Autos: 30–100 percent, with highest rates for sedans. Gasoline: usually 15 percent, but varies inversely with world price.
Natural resources	Royalties are levied on sales value.	2–5 percent on metallic minerals, 1–3 percent on coal, 6–25 percent on oil, 0–10 percent on natural gas, 5–40 percent on natural forest products.
Land rental	Foreign-invested enterprises must pay a charge.	\$0.01–12.00/m ² .
Import duties	Levied on cost, insurance and freight price, average tariff is approximately 8 percent. Some exemptions for aid, goods in transit, education, research, for export processing, and certain machinery and equipment.	Rates vary from 0 to 60 percent, with most in the 1, 3, 5, 10, 15 percent brackets.
Export duties	Levied on a few items only.	Oil: 4 percent. Wood: 5–20 percent. Cashews: 4 percent.
Property taxes	Agriculture and land use tax is being phased out; exempts barren land, reclaimed land, and households ‘in difficulty’. Land and housing tax. As for agriculture and land use tax, but higher rates. Land use charge. Paid once on land received from government, based on its value. Land use right transfer tax.	Computed as 50–650 kg. paddy/ha but paid in cash equivalent. Rates vary from 0 to 100 percent. 2 percent for agricultural and fishing land, 4 percent otherwise.
Registration fees	Applied to boats, cars, motorbikes and guns.	0.5–2 percent.

Sources: IMF (2003); Economist Intelligence Unit (2004).

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