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Volume Title: The Political Economy of Tax Reform, NBER-EASE Volume 1

Volume Author/Editor: Takatoshi Ito and Anne O. Krueger, editors

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-38667-8

Volume URL: [http://www.nber.org/books/ito\\_92-2](http://www.nber.org/books/ito_92-2)

Conference Date: June 14-16, 1990

Publication Date: January 1992

Chapter Title: An Appraisal of Business Tax Reform in Taiwan: The Case of Value-Added Taxation

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Chapter URL: <http://www.nber.org/chapters/c8516>

Chapter pages in book: (p. 137 - 155)

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# 6 An Appraisal of Business Tax Reform in Taiwan: The Case of Value-Added Taxation

Chuan Lin

## 6.1 Introduction

After more than seventeen years of debate, contemplation, and preparation, the government in Taiwan finally incorporated value-added taxation into the tax system on April 1, 1986, in a move toward the establishment of a complete value-added tax (VAT) system in Taiwan.

The earliest reference to the adoption of the VAT can be traced back to a suggestion made by the Tax Reform Commission of the Executive Yuan in 1969. The proposed VAT, to a large extent, was to be substituted for the existing system of indirect taxes. It was to be a sales tax (the business tax) supplemented by a tax to finance education, the stamp tax, and the commodity tax.

The main reason the VAT was not implemented in Taiwan was fear of the inflation that many countries have experienced after adopting a VAT. The Taiwan government, however, recognized that it needed to reform the indirect tax system because it was economically distortionary and socially inequitable. In 1985, the Economic Reform Commission was established for a six-month period under the Executive Yuan and functioned as a temporary policy-consulting body. The implementation of the VAT was recommended by the council and finally realized in 1986.

The indirect taxation of business enterprises, prior to the tax reform of April 1986, consisted of a turnover tax on sales (the "old" business tax) by all business entities (corporations, partnerships, and sole proprietorships), and a stamp tax on certain activities that required the drawing up of contracts, deeds, documents, and/or monetary receipts. The stamp tax required that a

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The author would like to thank Ching-huei Chang, Kwang Choi, Takatoshi Ito, and the other participants of the conference for their helpful comments on an earlier version of this paper.

stamp be bought and affixed to the taxable articles. Both the business tax and the stamp tax were provincial (municipal) taxes. Revenues collected in Taipei and Kao-hsiung, however, were shared equally with the central government in accordance with the Central and Local Public Revenues and Expenditures Determination Law. Revenues from the business tax constituted 11.4% of total tax revenues in fiscal year 1986, and the stamp tax accounted for 3.8% of total tax revenues during the same period. In the tax reform of 1986, the VAT was incorporated into the business tax. The reformed business tax's contribution to total tax revenues increased to 13.5% in 1987, while the stamp tax's contribution decreased to 0.6%.

The commodity tax is a national excise tax assessed on an ad valorem basis. Taxable commodities include tobacco, liquor, sugar, beverages, cosmetics, oil and gas, electric appliances, vehicles, etc. Many commodities were exempt or had their rates reduced after the adoption of the VAT; therefore, revenues from the commodity tax dropped from 12.3% of total tax revenues in fiscal year 1986 to 11.2% in 1987.

The goals of the tax reform of 1986 were, first, to reduce the importance of the stamp tax and the commodity tax within the indirect tax system by reducing either tax rates or tax base. Second, the new tax system subdivides the business tax (sales tax) into two categories: the ordinary business category having a 5% VAT rate, and the special business category, mainly consisting of small entrepreneurial businesses, specialty restaurants and nightclubs, and financial institutions, to whom turnover tax rates of 1%, 15–25%, and 5% are applied, respectively.<sup>1</sup> The administration emphasized that the reform was primarily aimed at alleviating the objectionable features of turnover taxation, and not at generating more tax revenues.<sup>2</sup>

According to the administration, the 1986 tax reform is only the initial stage of the VAT implementation process in Taiwan. The ultimate goal of the reform is to integrate the stamp tax and a majority of the items covered under the commodity tax into the sales tax system, i.e., into the VAT system. The threats of revenue imbalance and of inflation were the main reason the government did not implement wide-ranging tax reform all at once. They hoped that the experience gained from the 1986 tax reform would be helpful in reaching the goal of establishing a complete VAT system. Therefore, it is worthwhile to review the impact of the 1986 tax reform from both theoretical and policy points of view.

1. As in most countries, the small entrepreneurial business is excluded from the VAT system because of concern over compliance costs. Furthermore, specialty restaurants and nightclubs are subject to a high turnover tax instead of a VAT, mainly for the purpose of discouraging these types of businesses. The VAT is not applied to financial institutions, since their original turnover tax rate is 5 percent. Taxing financial institutions using a 5 percent VAT rate would result in a loss of revenue.

2. For example, see Public Finance Training Institute (1988, 3).

## 6.2 Administration

Entities subject to the business tax are divided into two categories: i.e., ordinary businesses are subject to a uniform 5% VAT rate, and special businesses are subject to various turnover tax rates. In 1988, there were 865,000 businesses in Taiwan; more than half of these (456,000) were classified as special businesses (99.3% being small entrepreneurial businesses<sup>3</sup>) and were excluded from the VAT. Business entities with average monthly sales of less than N.T. \$200,000 (about U.S. \$7,700) are considered small entrepreneurial businesses and pay a lump-sum tax to the tax authorities. Since bookkeeping is not required of small entrepreneurial businesses, the tax administration has had difficulty identifying their actual income. In fact, the monthly sales of many of these small entrepreneurial businesses greatly exceed N.T. \$200,000, although their average reported monthly taxable sales are only around N.T. \$60,000, according to government statistics. The total monthly taxable sales of small entrepreneurial businesses constitute only 15.2% of total sales in Taiwan.<sup>4</sup> Thus, the small entrepreneurial business category is considered a tax shelter by many taxpayers. It also gives businesses further incentive to stay small—to reduce their tax burden. Since the adoption of the VAT, small businesses have been entitled to declare 10% of their total tax as a tax credit. However, small entrepreneurial businesses with actual monthly sales exceeding N.T. \$200,000 would rather underreport their income than receive the credit. In order to take full advantage of the tax credit, the businesses would have to reveal their actual income and lose their status as small entrepreneurial businesses. Therefore, the 10% tax credit is seldom used by them. This dilemma hinders the so-called built-in self-enforcement function of the VAT by making impossible the matching of tax credits of small businesses with the payable tax of other businesses under the VAT system.

A problem in tax administration surfaced as a result of the uniform invoice system established in the 1960s. Because of the popularity of “artificial” bookkeeping, the tax authorities have required all businesses, except for small entrepreneurial businesses, to use uniform invoices that are issued by the tax administration. After a sale, the duplicate copy of the uniform invoice must be returned by the taxpayer to the administration so that the transaction can be recorded. There is, however, a well-established black market for uniform invoices. Businesses can falsify expenses on their tax form by buying blank invoices and filling in any purchase amount, thereby reducing their income tax liability. Meanwhile, the owners of the businesses selling the blank in-

3. See “Annual Report of Data Processing Center of the Ministry of Finance, 1988” (in Chinese), Table 26-1.

4. Data are estimated from *Monthly Report of Business Tax Resources in Taiwan Area*, March 1990, unpublished.

voices close up shop and run away without ever having paid any income tax. Under the VAT, other incentives lead businesses to use forged invoices to reduce their tax liability by overreporting their deductible expenses; i.e., the practice of using forged invoices reduces not only their business income tax liability but also their business tax liability. In an attempt to close this loophole, the administration has established a computerized cross-checking system, which requires businesses to report their monthly sales as the sum of the amounts indicated on their copies of the uniform invoices. The reported sales data together with the tax identification numbers of both the seller and the buyer are then matched by the computer, against the data from the original copy of the uniform invoice submitted by the buyer for tax deduction purposes.

To simplify the administrative work, there are now two types of uniform invoices. One is used in the sale of intermediate goods or services. A duplicate of the invoice is sent to the Tax Administration, and its data are entered into the computer data system. The original invoice is held by the buyer, and the other duplicate is held by the seller for its records. When the buyer applies for a credit, the sales data from the original invoice (held by the buyer) and the duplicate (submitted to the Tax Administration) corresponding to each sale of intermediate goods and services are cross-checked to verify the accuracy of the data. The other type of invoice, having only one duplicate, is used in the final sale of goods and services and is not entered into the computer data system, since the final buyer (the consumer) cannot claim this purchase as a tax credit.

The computerization of uniform invoices, however, is costly. First, the local tax administration must key in the information on each invoice. This results in very high labor costs. For example, Taipei hired 210 full-time employees to key in the invoice information in 1986—a direct result of the adoption of the VAT in that year. The average monthly number of invoices that were processed at that time was around 4.6 million. Recently, the number of computer key-in employees has increased to 336, and the average monthly number of processed invoices is more than 8 million.<sup>5</sup> The second cost involves the matching of data and the cross-checking of the invoices, done by the Data Processing Center at the Ministry of Finance. Table 6.1 shows the amount that was budgeted for the Data Processing Center from fiscal year 1984 to fiscal year 1989. The data processing cost associated with the business tax has increased from N.T. \$1 million in fiscal year 1986 (July 1985 to June 1986) to N.T. \$102 million in fiscal year 1987. In 1989, the business tax became the most expensive tax to administer, mainly because of its high data processing cost.<sup>6</sup> Computerization, meanwhile, significantly helped to reduce the size of the black market for uniform invoices—between July 1986 and

5. Data are provided by the Bureau of Tax Administration, Taipei City Government.

6. It is interesting to note that, while the administrative cost of the business tax increased in 1987, the administrative cost of the business income tax fell moderately and the administrative

**Table 6.1** The Cost Incurred in Tax Administration for Data Processing (N. T. \$1,000)

Fiscal Year	Total Cost	Business Tax	Business Income Tax	Individual Income Tax	Commodity Tax	Other Taxes
1984 (July 1983–June 1984)	254,050	9,840	3,778	182,120	913	57,399
1985 (July 1984–June 1985)	247,723	4,434	3,566	220,250	323	19,150
1986 (July 1985–June 1986)	373,025	1,025	36,534	305,640	350	29,476
1987 (July 1986–June 1987)	410,959	102,450	35,438	250,330	2,540	20,201
1988 (July 1987–June 1988)	417,662	104,121	36,016	254,413	2,581	20,531
1989 (July 1988–June 1989)	369,785	142,768	69,724	109,151	5,395	42,747

Source: Department of Statistics (1989, table 132).

June 1987, 224 firms were found guilty of selling blank invoices; between March 1988 and February 1989, the number dropped to just 16.<sup>7</sup>

### 6.3 Revenue Impacts

#### 6.3.1 Revenue Redistribution among Regions

The business tax is a provincial (and municipal) tax. Given the lack of local autonomy in Taiwan, however, the Business Tax Law, like all other laws, was legislated at the central government level. Business tax reforms, therefore, have to be initiated at the central government level. Local governments in Taiwan have no choice but to accept changes in the tax system. Handling the VAT at the central government level is suitable, since tax payments from one jurisdiction can be taken as tax credits in other jurisdictions. The adoption of the VAT, therefore, changes the tax base of local governments from gross sales to value added and redistributes business tax revenues. Table 6.2 summarizes the impacts of changes in revenue. I found that business tax revenues collected in Taipei dropped from 48% of total business tax revenues in fiscal

cost of the individual income tax declined substantially. This result could be explained either by a crowding-out effect under the budget constraint of the Data Processing Center or by the fact that an increase in the administrative cost of the business tax indirectly reduced the administration cost of income taxes. To prove the existence of such effects, further empirical studies would be needed. These studies, however, are not needed to draw the above-mentioned conclusion, since changes in the administrative cost of the business tax after fiscal year 1986 are much higher; therefore, the 1986 tax reform must have played a large role.

7. Statistics are provided by the Data Processing Center, Ministry of Finance, ROC.

**Table 6.2 Business Taxation Revenue Changes of the Different Jurisdictions in Taiwan (millions of N.T. dollars)**

Fiscal Year*	Taipei			Kao-hsiung			Taiwan Province		
	Business Tax Revenue	Gross Sales	Business Income Tax Revenue	Business Tax Revenue	Gross Sales	Business Income Tax Revenue	Business Tax Revenue	Gross Sales	Business Income Tax Revenue
1983	12,306 (48.7)	2,234,812 (48.2)	16,564 (57.1)	2,235 (8.8)	327,398 (7.1)	2,448 (8.5)	10,747 (42.5)	2,069,699 (44.7)	9,982 (34.4)
1984	13,713 (47.6)	2,066,485 (41.6)	19,157 (56.6)	2,515 (8.7)	474,310 (9.6)	2,951 (8.7)	12,568 (43.7)	2,421,754 (48.8)	11,742 (34.7)
1985	14,687 (47.9)	2,199,284 (41.3)	19,212 (52.4)	2,533 (8.3)	481,497 (9.1)	3,137 (8.5)	13,434 (43.8)	2,638,336 (49.6)	14,338 (39.1)
1986	18,733 (48.0)	2,329,675 (41.1)	20,070 (53.9)	3,342 (8.6)	434,321 (7.7)	3,159 (8.5)	16,935 (43.4)	2,900,533 (51.2)	14,029 (37.6)
1987	27,042 (43.5)	2,763,777 (40.5)	23,456 (52.3)	7,448 (12.0)	515,601 (7.6)	3,554 (7.9)	27,730 (44.5)	3,546,755 (52.0)	17,809 (39.8)
1988	33,328 (45.2)	3,250,777 (40.4)	34,571 (56.6)	8,105 (11.0)	664,324 (8.3)	4,713 (7.7)	32,288 (43.8)	4,124,464 (51.3)	21,779 (35.7)

Source: Department of Statistics (1984–89, tables 59, 64, and 113)

Note: Numbers in parentheses indicate the percentage share of the total corresponding values.

\*Fiscal year starts on July 1 and ends on June 30 of the next year.

year 1986 to 43.5% and 45.2% in fiscal years 1987 and 1988, the two years immediately following the introduction of the VAT; these figures are much lower than the average percentage that prevailed before 1986. During the same period, both reported gross sales and business income tax revenues in Taipei stayed practically at the same percentage, as shown in the table, even with the introduction of tax reform. These figures imply that the decline of business tax revenue in Taipei should not be attributed to declines in either sales or profits.

One possible explanation for the relative decline of business tax revenue in Taipei is that commodities sold there are usually produced outside of the city. Therefore, the change in the tax base from gross sales (under the turnover tax) to value added increases the amount of tax credits that can be taken and results in a reduction of the tax base in Taipei, more so than in other areas in Taiwan. Furthermore, it is interesting to note, as can be seen from table 6.2, that such a redistribution of revenue makes Kao-hsiung, instead of Taiwan province, the leading beneficiary of tax revenues from business tax reform. After fiscal year 1986, the shares of business tax revenues of Kao-hsiung increased from 8.6% to 12.0% and 11.0% in fiscal years 1987 and 1988.

### 6.3.2 Total Revenue Changes

Three factors affect the level of business tax revenues: the tax rate, the tax base, and tax compliance. The Business Tax Law lists thirty-one exempt cat-

egories of the sale of goods or services; however, the purchase of these goods cannot be used as a tax credit in the VAT system. Exempt items mainly include land; the inputs and outputs of agricultural production; medical services; textbooks approved by government authorities; newspapers; goods and services made in or provided by prisons; public-monopoly goods; postage stamps; fish caught and sold by fishers; government-promoted insurance, bonds, and securities; military supplies; interest on the flow of funds among the head and branch offices of banks; gold; and research services provided by nonprofit organizations (art. 8). In addition, there is a zero-rate category. The purchase of goods in this category, however, may be used as a tax credit. The zero-rate category mainly includes exports, export transactions, and international transportation services (art. 7).<sup>8</sup>

The tax authorities had expected that, with a 5% VAT rate, tax exemptions, and the zero-rate treatment mentioned above, the revised business tax system would generate the same level of tax revenue as before. It turns out, however, that they were a bit optimistic. Lin and Lin (1989) estimated the amount of revenue that would have been collected from the business tax, the stamp tax, and the commodity tax for the years 1986 and 1987, had the 1986 tax reform not been adopted. Their findings indicate that, although the business tax revenues increased significantly after the tax reform, when economic growth and the revenue losses of the commodity tax, the stamp tax, and the education surcharge are taken into consideration, the new business tax did not collect as much revenue as the old one would have. The loss has been estimated at approximately N.T. \$11,444 million in fiscal year 1986 and N.T. \$13,801 million in fiscal year 1987—about 20% of the total business tax revenue collected during those two years.

The overestimation of the new business tax revenue by the tax authorities probably was a result of two factors. One was pointed to by Lin and Lin (1989): the 5% VAT rate, which was supposed to generate a level of tax revenue equal to that before the tax reform, was too low. They furthermore suggested that, in order to maintain the same revenue-generating capacity, the VAT rate should have been fixed at around 6.1% or 6.2% (42).

Their suggestion, however, overlooks the other factor that plays a very important role in revenue changes under tax reform, i.e., the change in tax compliance.<sup>9</sup> Before April 1986 the business tax liability incurred at the time of sale, under the turnover rate system, was included in the list price of the commodities (tax-included pricing). After the adoption of the VAT, however, the government required that the list price be taxed, for the convenience of calculating the tax credit. This tax-excluded pricing policy has hindered the functioning of the uniform invoice system and has resulted in a high level of tax evasion.

8. For details, see Public Finance Training Institute (1988, 16–17).

9. Lin and Lin (1989) did mention that better tax compliance is one method that could result in better collection of the business tax. Their estimation, however, indicates that changes in tax compliance after the tax reform were insignificant.



The uniform invoice system was established on the proviso that firms voluntarily issue invoices at the time of every sale. In fact, this has not happened. Firms tend to underreport sales by not issuing an invoice at the time of sale. As a result, the tax authorities have been trying to induce consumers to ask for invoices with every purchase. The most important device being used to induce this kind of behavior is the uniform-invoice lottery. Consumers have a chance to win N.T. \$2 million just by obtaining an invoice at the time of purchase.

Before the adoption of the VAT, under a tax-included pricing policy, whether invoices were issued or not, consumers paid one price, because the tax was already included in the sale price. Because of the VAT and because tax payments were now based on the list price of commodities, the tax shifted to those consumers who were issued invoices. Under this kind of tax-excluded pricing policy, consumers can pay a lower "price" for products, that is, they do not pay the tax if they do not ask for an invoice. If they request an invoice, they pay an amount equal to the noninvoice price plus the amount of the tax. Consumers, therefore, are discouraged from asking for an invoice. In short, under both pricing policies, firms end up receiving hidden income from sales if no invoices are issued (no revenues recorded) at the time of sale. Consumers and firms found it in their best interest to cooperate with each other to escape the business tax and the business income tax, respectively.

In order to encourage consumers to demand invoices, the tax authorities finally decided to change the pricing rules that are applied to firms; the change requires that the list price of final goods include the amount of the business tax (tax-included pricing). This was put into effect in July 1988, and as a result, tax revenues increased significantly starting in fiscal year 1989. Table 6.3 summarizes the changes in the tax revenue of the various taxes before and after the tax reform.

Column (3) of the table shows total annual business tax revenues before and after the introduction of tax reform. The integration into the business tax of the education surcharge and items covered formerly by the commodity tax and the stamp tax has increased the average business tax rate from 0.58 cents per dollar of sales in 1985 to 0.90 cents in 1986, as shown in column (4). Column (10) indicates the revenue difference between the current business tax and that of the pre-1986 tax system. It is interesting to note that the tax-excluded pricing policy in effect between 1986 and 1988 seems to have been the main cause of the differences in revenues during the period. When the pricing policy was changed to include the amount of the business tax in fiscal year 1989, the revenue from the business tax increased by about 25%, as indicated in column (11).

Table 6.3

Comparison of Revenues between the "Old" and the "New" Business Tax (millions of N. T. dollars)

Fiscal Year	Taxable Sales		Average Business Tax Revenue (3)	Business Tax per Dollar Sales (4) <sup>a</sup>	Estimated Tax Revenue without 1986's Tax Reform					Revenue Difference (10) <sup>c</sup>	Revenue Difference (%) of "New" Tax Revenue (11) <sup>d</sup>
	Tax Included (1)	Tax Excluded (2)			Business Tax (5)	Education Surcharge (6)	Stamp Tax (7)	Commodity Tax (8)	Total (9) <sup>b</sup>		
1978	1,895,122	1,871,211	10,955	0.5876							
1979	265,031	2,620,658	14,348	0.5475							
1980	3,213,108	3,174,781	18,880	0.5947							
1981	4,480,565	4,435,867	23,222	0.5235							
1982	4,652,202	4,605,579	24,686	0.5360							
1983	4,611,614	4,560,023	26,831	0.5884							
1984	5,313,484	5,256,418	30,188	0.5743							
1985	5,324,748	5,268,559	30,568	0.5802							
1986	6,004,306	5,950,597	53,709	0.9026	34,573	8,470	15,105	7,005	65,153	11,444	21.31
1987	7,647,957	7,579,741	68,216	0.9000	44,038	10,789	19,240	7,950	82,017	13,801	20.23
1988	8,431,170	8,360,834	70,336	0.8413	48,576	11,901	21,226	8,157	89,857	19,521	27.75
1989	9,780,273	9,679,566	100,707	1.0404	56,236	13,778	24,569	8,165	102,745	2,038	2.02

Sources: Data for columns 1 and 3 are from the Department of Statistics (1984-89, 1990).

Note: Columns 2 and 4-11 are estimated using the method in Lin and Lin (1989).

<sup>a</sup>(4) = [(3)/(2)]/100.

<sup>b</sup>(9) = (5) + (6) + (7) + (8).

<sup>c</sup>(10) = (9) - (3).

<sup>d</sup>(11) = [(10)/(3)]/100.

## 6.4 Economic Impacts

### 6.4.1 Price Effects

The economic impacts of the 1986 tax reform are wide-ranging, and it is hard to identify each of them individually. One beneficial effect often mentioned by the supporters of the VAT is encouragement of exports. To analyze the effect is difficult, since the observation period is too short for empirical tests. Nevertheless, some impacts are discussed in the following paragraphs.

Before the adoption of the VAT, inflation caused by tax changes was an issue of debate within Taiwan society. Projections on the price effects resulting from tax reform were made using input-output analysis—widely practiced at that time by many researchers such as Lin (1984) and Lin (1986). They concluded that there would be a mild price increase with the adoption of the VAT in Taiwan. In fact, the adoption of the VAT in 1986 has not brought on inflation; the consumer price index and the wholesale price index dropped in the months immediately following the implementation of tax reform.

The stability of the price level, given the adoption of the VAT, could be attributed to the following facts:

1. Persistent wholesale-price decline since 1982 is believed to be closely related to relatively low economic growth in Taiwan and the decline in the price of energy on the international market. Inflation expectations in 1986, therefore, were very weak.

2. The government took several preventive measures to stabilize the price level, including the reduction or elimination of the tariff rates on more than eight hundred imported items in February 1986; the abolition of valuation provisions that required a 5% increase in the value of imported goods above the CIF value of imports for tax purposes; the reduction in the price of public utility services, especially of petroleum products and electricity, before and after the introduction of the VAT; zero-rating public businesses and enterprises such as the Taiwan Fertilizer Company, Taiwan Sugar Corporation, Taiwan Salt Works, China Steel Corporation, and the Taiwan Railway Administration, which would have borne an extra tax burden as a result of the adoption of the VAT.<sup>10</sup>

3. The government chose 151 commodities including items of food, clothing, housing, transportation, communications, medicine, and education, calculated their “rational” prices, and then informed the general public so that businesses would have to reset their retail prices. In addition, the government oversaw the price changes in department stores, supermarkets, and restaurants to be sure that there was no “irrational” pricing of goods, i.e., to be sure that the reduction in prices was passed on to the consumer. Business entities refusing to cooperate with the government took the risk of being boycotted as a

10. For details, see Public Finance Training Institute (1988, 8–9).

result of mass-media coverage or of being harassed by the tax authorities and having their tax returns audited by the tax bureau.

4. The introduction of the 5% VAT rate, which replaced the old tax system for many businesses, did not result in any significant change in the business cost of production.

#### 6.4.2 Distribution

It has become controversial as to which consumption items should be exempt from the VAT and which items should be subject to the higher turnover tax rates. The controversy arises mainly from concern over income distribution and social equity. Like all sales taxes (business taxes), Taiwan's is also regressive (Davies 1959, 70)—the average propensity to consume declines as income rises. The regressivity of the tax, however, can be reduced through the use of tax exemptions or multiple tax rates on various consumption items with different income elasticities. To determine the degree of regressivity of the business tax, therefore, an empirical analysis of the income elasticities of various final goods and services is needed.

My empirical analysis of business tax regressivity in Taiwan was conducted with two sets of cross-sectional data on household expenditures and income: the entire sample composed of 3,881 households and the random subset, 515 households. The data on households were taken from a survey conducted by the Directorate-General of the Budget, Accounting, and Statistics, Executive Yuan, 1986. A random sample of 500 was deemed sufficient for the regression analysis. The data on the 3,881 households were further divided into twenty-four income brackets. The year, 1986, was selected because it is the year tax reform was introduced in Taiwan. Finally, all the variables in the regression analysis were transformed into logarithms, so that the estimated income elasticity of each tax base could be regarded as a regressivity (or progressivity) index.

The Schaefer (1969) model was used to estimate the regressivity of the business tax. Since comprehensive income data were not readily available, I used the best approximations that could be obtained from the available information. Total monetary income was employed; it is assumed to be a good measure of ability to pay taxes. The model is succinctly delineated as follows:

$$(1) \quad \sum_{j=1}^n w_j \log \bar{t}_{ij} = \log a_i + b_i \sum_{j=1}^n w_j \log \bar{y}_j + \sum w_j \log e_{ij},$$

where  $\bar{t}_{ij}$  = mean *i*th business tax base for the *j*th income group,  $\bar{y}_j$  = mean income for the *j*th income group,  $b_i$  = progressivity index for the *i*th business tax base,  $a_i$  = a constant,  $e_{ij}$  = error term for the *i*th business tax base for the *j*th income group, and  $w_j$  = the population weight of the *j*th income group. The regressivity or progressivity of the business tax depends on its tax coefficient,  $b_i$ . If the income elasticity of the *i*th tax base is unitary ( $b_i = 1$ ), this implies that the effective tax rate remains constant as income increases,

so that the business tax is considered proportional. If  $b_i < 1$ , the tax rate decreases as income increases; the tax is considered regressive. Similarly, if  $b_i > 1$ , the tax rate increases as income increases, and the tax is considered progressive.

All estimates reported in table 6.4 were obtained by the ordinary least squares estimation method, which assumes a constant variance in the error terms among income groups. According to the criteria described earlier, it is apparent that business taxes on most items are regressive except for the taxes on recreation and education, as well as those on financial services, which are progressive. Most of the coefficients are statistically significant at the 1% level.

Using the average data from the complete sample site of 3,881 households, the business tax on financial services is the most progressive, and the business tax on recreation and education is proportional or slightly progressive. The results change moderately when the data of the randomly selected subset of 515 households are used. It should be noted that, while the tax on financial services was progressive for the complete set of data, it was found to be regressive for the subset data.

**Table 6.4** Progressivity Indexes for Various Business Tax Bases, Using Aggregate and Disaggregate Data

Business Tax Base (dependent variable)	3881 Households	Random Sample of 515 Households
Food consumption	0.305* (0.013)	0.323* (0.024)
Beverage expenditures	0.514* (0.046)	0.589* (0.089)
Tobacco expenditures	0.244* (0.083)	-0.451 (0.403)
Clothing expenditures	0.821* (0.033)	0.841* (0.050)
Utility expenditures	0.821* (0.023)	0.841* (0.033)
Medical expenditures	0.098 (0.097)	0.502* (0.084)
Recreational and educational expenditures	1.083* (0.057)	1.329* (0.085)
Financing services expenditures	1.603* (0.194)	0.642* (0.202)
Total consumption	0.666* (0.022)	0.668* (0.024)
Total consumption excluding food and medicine	0.838* (0.031)	0.863* (0.032)

Notes: Standard errors are in parentheses. All variables are in log form.

\*Significance at 1% level.

Since the business tax on food and on medicine is highly regressive regardless of the data type, one can expect that the exemption of these items from taxation might reduce the regressivity or increase the progressivity of the business tax. The bottom row in table 6.4 shows that both food and medicine exemptions improve the progressivity index from 0.666 to 0.838 when using the complete set of data. To test the robustness of the result, the smaller data set was used to measure the impact of these exemptions. A very similar result was found—the progressivity index increased from 0.668 to 0.863.

Tax exemptions on agricultural products and medical services have been in effect since the revision of the 1986 Business Tax Law that came along with the adoption of the VAT. However, financial organizations are subject to a 5% turnover tax. The tax also may not be credited. Based on my estimation, therefore, I conclude that the current business tax, which includes the VAT, has improved the progressivity of the tax system—the result of tax reform. In order to further improve the progressivity of the business tax, the tax authorities in Taiwan might need to grant more exemptions on the sale of food items and on utility expenditures. Furthermore, since the introduction of the VAT in 1986 is considered only one step of the indirect tax reform in Taiwan, changes on other indirect taxes, such as the commodity tax, the stamp tax, and even the monopoly profits from tobacco and wine, could be involved in future tax reforms. Therefore, the results found in table 6.4 provide information on how to improve the progressivity of the indirect tax system.

## 6.5 The Importance of the 1986 Tax Reform

According to the government, the introduction of the VAT in 1986 emphasized not the generation of more tax revenues but improvements in the economic efficiency and social equity of the tax system. It is puzzling, however, that the government has not yet made any effort to evaluate or improve the tax system with a view either to economic efficiency or social equity since the adoption of the VAT. The Business Tax Law was revised in May 1988 to provide for more tax exemptions, mainly for convenience of tax administration. There are no data available with which to empirically investigate the impacts of the tax reform on investment or international trade.

Nevertheless, the 1986 business tax reform could be considered an important building block for other tax reforms in Taiwan in the future. As a result of tax exemptions and widespread tax evasion, income taxation in Taiwan has played a very limited role in the generation of government revenue, in comparison to other countries. Currently, high income tax rates are applied to relatively narrow tax bases. For example, in 1988, there were 4.65 million households in Taiwan, but only 2.66 million filed individual income tax reports and paid taxes. Among these, only 1,919 households' adjusted gross income was reported to be in the highest income bracket (income above N.T. \$3.50 million or about U.S. \$125,000) and was taxed at a 50% marginal rate.

The aggregate adjusted gross income of all taxpayers constituted only 33.32% of total national income. As for the business income tax, there were 834,416 business entities in Taiwan in 1987. Even with an effective business income tax rate of around 25%,<sup>11</sup> the average business income tax payment for each business entity was only N.T. \$63,798 (about U.S. \$2,300) for 1987. The seriousness of income tax evasion implies that income tax reforms that reduce tax rates are needed to expand the tax base. In fact, tax rate reduction has already taken place; the government revised the Income Tax Laws in 1990. As a result, there might be more losses in tax revenue.

In addition to income taxes, commodity taxes at relatively high rates are being levied on a few selected items and have been regarded as very distortionary. One of the reasons for the adoption of the VAT was to curtail the rise in the commodity tax rates. The revenue lost as a result of the 1990 income tax reform, therefore, should not be made up by increasing the commodity tax rates. Furthermore, revenues from custom duties declined dramatically from 17.2% of total tax revenues in 1986 to 11.8% in 1989 as a result of recent U.S. political pressure demanding tariff reductions. The Taiwan government must find a way to compensate for the revenue losses due to the income tax rate, tariff rate reductions, and abolition of some commodity taxes. One viable way to do this is to raise the business tax rates, since the VAT in Taiwan is only 5%, which is lower than the rates adopted by other countries. Currently, the business tax generates approximately 14% of total tax revenue at all levels of government, which is higher than either the business income tax (12.3%) or the individual income tax (11.9%). The shifting of the major source of tax revenue from income taxes to the business tax would further encourage business entities to honestly report their sales revenues, since sales taxes are easier to shift onto consumers than income taxes are. This would improve the tax evasion problem, not only in income taxation but also in business tax, and would generate more revenue.

## 6.6 Conclusion

Before the 1986 tax reform, the tax system and tax structure in Taiwan, as in most developing countries, were poor. Income taxes were constantly being evaded, and high tax rates could not generate very much tax revenue. The main revenue sources were tariffs, commodity taxes, and business taxes (sales taxes). High tariff rates hindered international trade, the high rates of the commodity tax distorted resource allocation, and the business tax that used turnover rates was considered the worst type of sales tax in the world (Due and Friedlaender 1981, 414–16). The introduction of the VAT in 1986 was the

11. There is a 15% tax rate applied to business entities with an initial income less than N.T. \$100,000. There is also a tax ceiling for qualified businesses under the Statute for Encouragement of Investment.

first step in reforming the indirect tax system in Taiwan and was, therefore, very important.

Unlike the experiences of Japan and the United States, the introduction of the VAT in Taiwan did not encounter too much resistance from the public. This is because the VAT was introduced not as a new tax but as a replacement for the business tax based on turnover rates, which had been widely condemned by the public in Taiwan. Since the VAT rate was very low and the government promised the public that total tax revenues would not increase under the tax reform, the impacts of the VAT were accepted by the public. In fact, the government successfully stabilized price levels and improved the distributional function of the business tax under the tax reform. After a trial-and-error process, the government further avoided possible loss of revenue by changing the pricing policy, from one of tax-excluded to tax-included, for business entities.

Some problems remain, however. One is that the business tax is a local tax, and economic development and democratization will sooner or later give rise to demands for decentralization and local autonomy in Taiwan. Once this comes to pass, decisions concerning the tax rate or the tax base of the business tax will be made by the provincial or municipal governments. Operating the VAT system would become infeasible. Swapping the business tax at the provincial (and municipal) level for a national tax, therefore, was necessary. A tax-sharing or intergovernment-grant system is further needed in order to keep the level of revenue of the provincial and municipal governments the same.

The second difficulty is how to reduce the increasing administration costs of keying in each piece of data from the uniform invoices. The uniform invoice system cannot effectively eliminate the people's widespread evasion of the income and business taxes, and it results in an enormous administrative burden on both the tax administration and the taxpayers. In fact, business entities have the incentive not to issue an invoice at the time of sale, since they would prefer to escape their business income tax liability even more than their business tax liability: although neither tax would be paid if invoices are not issued, the business tax is easier to shift to consumers. Reducing the business income tax liability, therefore, would reduce the incentive for business entities not to issue invoices. Besides, given the predominance of small entrepreneurs in Taiwan, it is difficult for the tax administration to trace those who evade payment of business income tax and to collect the income tax. A more realistic solution, therefore, would be to reduce the current income tax rate (and tax liability). This would help eliminate the widespread problem of tax evasion. To reduce the business income tax liability, another tax reform is necessary, involving the integration of the income taxes (the business income tax and the individual income tax) or lowering the income tax rate to expand the tax base. Income tax reform together with a further reduction in commodity tax rates and custom duties definitely would reduce tax revenues. On the other hand, the VAT tax rate could be increased, thereby increasing tax revenue; the in-



creased revenue could then be used to reduce other taxes. The prerequisite of such an arrangement would be to enlarge the VAT system and diminish the size of the small entrepreneur category.

Finally, the tax authorities might need to give tax exemption status to several new food and unprocessed agricultural products categories and to all medicines, in order to improve tax regressivity. This would guarantee that the shifting of tax burden from income taxes to the business tax would not hurt social justice or equity.

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## Comment Ching-huei Chang

In this paper Chuan Lin attempts to evaluate the recent business tax reform in Taiwan. In 1986 the old system of multistage turnover tax was replaced by the value-added tax, which imposes a flat rate of 5 percent on almost all goods and services sold except those subject to the commodity tax. The tax reform is considered by Taiwan's government to be a great success in the sense that the new business tax has brought in more revenue each year than the old one. Also, the general price level, which it was thought might be pushed up by the tax substitution, turned out to be quite stable after reform. The experience in

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Taiwan has attracted the attention of some Southeast Asian countries, which are also interested in adopting the VAT.

However, Lin is not so optimistic about Taiwan's result. He argues that the introduction of the VAT has increased administrative costs and does not solve some serious problems that arise mainly from preferential treatment of small firms. In fact, the VAT aggravates the difficulty by its use of the uniform invoice. He also points out that the VAT in fact does not produce substantially more tax revenues than would be produced under the old system of turnover tax. Judging from the equity goal of taxation, the VAT in Taiwan is found to be regressive; the tax burden on the poor may be higher than that on the rich. In view of the defects of the current VAT system, Lin suggests that consumption of food and other necessities should be exempt from taxation. The loss in tax revenue could be compensated by raising the current rate from 5 percent to 6 percent. He expects that in this way the VAT can be made less regressive and the amount of tax revenue can be maintained or even increased.

I agree with most of Lin's points, but I have some general observations to make. First, when measuring the revenue impact of this tax reform, Lin compares the amount of revenue the VAT generates with what the old turnover tax might have produced. When measuring the effect on administrative cost, however, he does not make such a comparison. Thus, the case may be that, even without the tax reform in 1986, administrative costs would have increased to the level shown in table 6.1 or even higher. In other words, the increase in the costs should not be attributed solely to the new business tax. Table 6.1 also shows that, although the cost of administration for business tax increased in 1987, the cost for business income tax fell moderately and that for individual income tax fell substantially. Is this just a coincidence or does a negative correlation exist between the two? Further empirical studies must be done.

Second, at least in theory, one of the major arguments in favor of the VAT is that a uniform VAT rate applied to a wide range of goods and services would correct the serious distortions associated with the old turnover tax. However, the tax alone may work against distributional objectives, since it is proved that the tax burden is regressive. Thus, as is often suggested, this tax should be supplemented by the commodity tax, which is in essence an excise tax and imposes differential rates on certain luxury goods. In this way the indirect tax system, rather than the business tax alone, can take care of both efficiency and equity goals. If this argument of the "policy mix" is accepted, I think an appropriate approach to evaluating the impact on income distribution is to measure the combined effect of business tax, commodity tax, and possibly monopoly revenue, which in a sense is also an excise tax.

Third, another consideration of introducing the VAT into Taiwan was its beneficial effect on export. No further elaboration is needed because the argument is quite straightforward. But an empirical estimation must be done of how much of the recent trade expansion in Taiwan can be attributed to the tax substitution.

## Comment Kwang Choi

The paper by Chuan Lin provides an excellent appraisal of business taxes (value-added tax) reform in Taiwan. Though short, the paper covers all important issues raised in the introduction of the VAT, including administrative problems, revenue impacts, price effects, and distributive implications.

I have little to say in criticism of the paper itself. Though this is not a good place to raise theoretical questions of a general nature, I would like to ask the rather fundamental question of whether the VAT is a consumption tax (borne by consumers) or an income tax (borne by owners of businesses). I would like to point out that, in almost all writings on the VAT, authors have been applying double standards on the incidence of the VAT or on who really pays the VAT.

On one hand, when we talk about the regressivity of the VAT, we always assume that the tax is shifted to consumers and that the burden is borne by the consumers. On the other hand, when we exempt small businesses from the VAT or when special treatments of no bookkeeping or lower tax rates are provided to small businesses, we take it for granted that small businesses bear all the tax burden, or that the VAT is not shifted to consumers. Needless to say, special treatment is provided to small businesses, not to reduce the tax burden but to expedite administration.

A more or less similar argument applies to the "exemption" system of the VAT. Exemption takes two forms: exemption of certain taxpayers and exemption of certain goods and services. Small businesses are exempt from the VAT since the government can reduce administrative and compliance problems by excluding taxpayers with small turnovers. For social, political, and administrative reasons, exemptions are granted on basic necessities such as unprocessed food stuffs, on hard-to-tax services such as banking and insurance, on social and cultural goods such as medical service, education, books, newspapers, and on goods and services supplied by public enterprises.

The purpose of exemption is not to reduce the VAT burden but to facilitate the administration of the VAT. Exempt supplies are outside the scope of the VAT altogether. In contrast to the zero rate, exempt transactions bear some VAT on the value of transactions. The reason for the exemption scheme in the VAT structure lies not in the reduction of regressivity but in the simplification of administration and compliance. The moderation of the VAT's regressivity or improvement in the progressivity of the VAT burden can be achieved more effectively through the zero rating rather than through the exemption scheme. This simple but important point has not yet caught the attention of the VAT policymakers in Korea and Taiwan, as well as in many other countries.

It is very important to emphasize why small businesses want to stay small

and why they seldom use the 10% tax credit. Small traders cheat on their sales, not to evade the VAT but to evade personal or corporate income taxes. It must be emphasized that an effective VAT greatly aids income tax administration and that the operation of a VAT resembles that of the income tax more than that of other taxes.

In this regard it is quite interesting to see that, although the data processing costs for the VAT increased sharply after its introduction in Taiwan, the total cost of tax administration for the VAT, corporate income tax, and personal income tax remained more or less the same as before.

I would like to see Lin describe the rather long history of preparation leading to the introduction of the VAT in Taiwan and elaborate on the political economy aspects of the VAT's introduction.

Lin should be congratulated for his successful efforts at elucidating the reform of business tax in Taiwan.