THE CONFLICT BETWEEN EFFICIENCY AND EQUITY
OF TAX ADMINISTRATION*

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Abstract

No doubt, the well-developed withholding tax collection is of great help to make administrative practices more efficient in terms of saving collection cost. On the other hand, the efficient tax system tends to generate different grasp of taxable income among different income sources, which in turn leads to impair horizontal equity. This is true in the Japanese tax system. The conflict between efficiency and equity of tax administration is very significant to exert tax policy effectively from an administrative point of view. This paper aims at clarifying such conflict occurred in the Japanese tax system by empirical evidence.

I. Introduction

The objective of this paper is twofold. One is to analyze how efficiently the Japanese tax system is administered in international perspectives. Major concern is with the well-established withholding tax system which may be the main factor enhancing the efficiency of tax administration.

The other is to shed light on the reverse side of withholding system and to explore the sentiment of unfair burden among different taxpayers from a standpoint of horizontal equity. "Tax gap" phenomena in Japan is also estimated using the available data to grasp some empirical evidence.

Generally speaking, tax collection established two principles which have remained fundamental to tax administration in major industrialized countries: (1) withholding at source, and (2) self-assessment on a tax return basis. Income is divided into two categories; wages, salaries, interest and dividends withheld at source, and other incomes required to file a return. It is widely acknowledged that the withholding tax system improves efficiency of collecting tax revenues by saving the costs. Payers of income subject to taxes withheld

at source should be responsible for collecting the tax and paying it over to the government on behalf of each taxpayer. By contrast, under the self-assessment system each taxpayer should personally assess taxable income, file a return and pay the tax due to the tax offices. From an administrative point of view, tax collection would be much more expensive under the self-assessment system, because most of the collection work must be done by the revenue staff.

Under these two different methods, taxpayers with income withheld have no freedom of manipulating taxable income, while self-assessed income earners are given substantial margin to manipulate their income for tax purposes. Given the current state of tax collection, the former must feel unsatisfactory against the basic rule of horizontal equity that equals should be equally treated. For example, the income tax for employees is administered under the withholding system, and unless the employer cooperates in evasion it is difficult for an employee to pay less than the tax due. However, in any country, evasion and avoidance on non-employment income is much more common; with the exception of some few abnormal cases, only a minority of taxpayers making tax returns are subject to tax inspections. There seems to be the general feeling that income earners who file their own taxes pay less tax than those whose taxes are withheld at source.

Thus, different collection systems essentially tend to induce a potential conflict between efficiency and equity of tax administration. This is obviously true in Japan. Main cause behind this fact is that the Japanese tax system has well-developed to a greater extent the withholding collection in a broad scope of primary taxes.

The plan of the paper is as follows. First, empirical findings to support efficient aspects of Japanese tax administration is presented in comparison with those of major other countries in Section II. Second, Section III analyses the well-established framework of withholding system in Japan in institutional settings. Third, empirical evidence of "tax gap" phenomenon among different sources of income with policy debate is presented in Section IV. Lastly, the discussion is concluded by proposing a desirable tax structure.

## II. *Efficient Tax Collction: An International Comparison*

It is very difficult to investigate in quantitative terms how efficient tax administration is. To some extent, this analysis may be pursued through the measurement of collection costs, although this measure is far from satisfactory. Needless to say, costs of various kinds arise from the collection of individual taxes and the existence of the tax system itself. In what follows, particular attention will be paid to public sector costs (i.e., administrative costs), chiefly because necessary data are not available to cover compliance costs.

To explore efficient aspects of tax administration, compliance costs in the private sector pay an equally important role in collecting taxes. Compliance costs are less transparent than administrative costs, but they are significant to the process of administering the tax system as a whole. In particular, since there is a substantial degree of transferability from administrative to compliance costs, the government often tends to cut the former at the expense of the latter. Therefore, consideration of compliance costs should not be neglected for the purpose of our argument, but unfortunately there are no reliable data at hand.[1] Our empirical analysis will therefore be based on only one aspect of collection costs.

Let me begin with the preliminary discussion of the relative size of administrative costs to tax revenue. In general, administrative costs are officially calculated by the revenue department in any country, such as Internal Revenue Service (IRS) in the U.S. This includes wages and salaries of staff, accommodation costs, travel, postage and telephone, computing and other equipment costs. Therefore, based on official data, an international comparison becomes feasible to some extent in terms of administrative costs as a percentage of tax revenue. Figure 1 depicts the movements of such ratio at the central government level in the U.S., the U.K., Canada and Japan mainly during the period 1960-90.

Unfortunately, it is not possible to obtain a detailed breakdown of data by individual taxes except the U.K. where direct and indirect taxes are separated. Reflecting the possible different coverage of costs in each country, a strict comparison seems to be rather difficult, but a couple of interesting points are worth noting in light of Japan. First, the ratio of costs to revenue until early-1970s was higher in Japan than the other countries. In

FIGURE 1.   ADMINISTRATIVE COST AS A PERCENTAGE OF TAX REVENUE:
SELECTED COUNTRIES
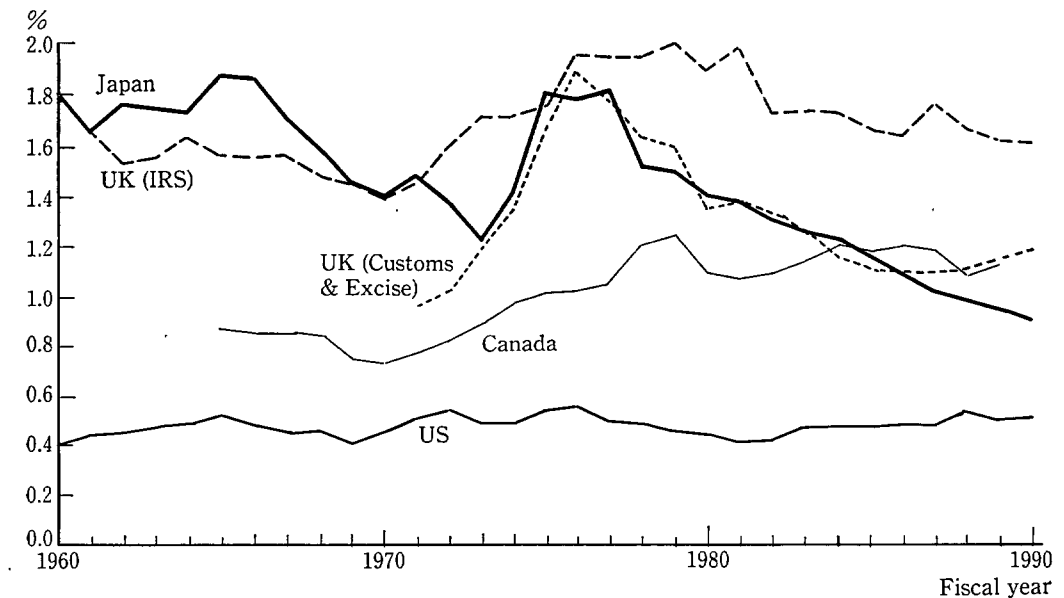
Notes: Each figure is calculated as a percentage of costs per $100, £100 or ¥100.

Source: The United States—Internal Revenue Service, *Annual Report*, 1989 and 1990. Canada—Revenue Canada Taxation, *Inside Taxation*, 1975 and 1989. Supply and Service Canada, *Report of the Department of National Revenue Customs Excise and Taxation*, 1977-79 and 81. The United Kingdom—Board of Inland Revenue, *Report for the Year*, 1970, 72-75, 77-85 and 87-90. Customs and Excise, *Report of the Commissioners of Her Majesty's Customs and Excise*, each year. Japan—National Tax Administration, *Annual Report of Statistics*, 1970, 85 and 90.

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[1] I have just begun with the study of compliance costs in Japan in collaboration with the Ministry of Finance.

particular, it is at a much higher level than that of the U.S. where the ratio has been kept very low. On this point, it seems that Japan's tax system might have been administered less efficiently in terms of the costs: revenue ratio. Second, however, the ratio in Japan declined sharply in the mid-1970s, and was lower than that of Canada. Thus, Japan seems to lie between the U.S. and Canada.

This comparison is a common procedure as the first step to present a measure of the efficiency in administering the tax system or of the relationship between input and output (i.e., "productivity") in tax offices as a whole. It is, however, necessary to interpret the results derived from the data used in Figure 1 with care. Particular attention should be paid to (1) nominal income growth and (2) changes in the tax system.[2]

The growth of nominal GNP generates additional tax revenue which tends to diminish the cost: revenue ratio. This would be true until early-1970s in which rapid economic growth was still prevalent in the Japanese economy. By contrast, the peak of the ratio around mid-1970s implies that recession caused by the oil shock tended to decrease tax revenues and in turn led to an increase in the cost: revenue ratio. If we emphasize the effects of income growth on changes in the ratio, the investigation of relative ratio would tell us nothing about the efficiency of tax administration.

Tax changes are another and more important factor to explore administrative efficiency in any time series data. Tax reductions had been repeated almost every year before the outbreak of oil shocks, producing substantial amount of decreased revenue, but towards the 1980s deliberate tax-cut policy was terminated to secure financial sources to make up for debt accumulation [See Ishi (1986 and 1989, ch. 3)]. Thus, changing the tax system led to automatic increases of revenue in the economy which resulted in the sharp decline of the cost: revenue ratio in the 1980s, as seen in Figure 1.

Apart from rather rough measures, the next step is to make more significant comparison by using per-staff basis data. Tax statistics in four countries provide us with three series of data: (1) the number of personnel in tax administration (N), (2) administrative cost (C) and (3) tax revenues (T), all of which are consistent in the scope of coverage.

Particular attention is paid to the gap between $\dfrac{T}{N}$ and $\dfrac{C}{N}$, which imply a proxy of output and input per staff, respectively. If $\dfrac{T}{N}$ is larger than $\dfrac{C}{N}$, the tax system would be administered more efficiently (vice versa). Figure 2 delineates the trends of these related data in four countries in terms of the base year=100. Although the covered period and the scale of index on a vertical axis substantially vary from one country to another, it seems that certain interesting facts can be derived from such a comparison.

Most importantly, great stress should be placed on the unique phenomenon of Japan's case in which $\dfrac{T}{N}$ is constantly greater than $\dfrac{C}{N}$. On the other hand, that of the U.S., Canada

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[2] See, for an expanded discussion, Sandford et al., 1989, pp. 19–20. In addition to these two points, the scope of revenues is also important. For instance, one of main reasons why the U.S. cost:revenue ratio has been kept much lower must be due to simultaneous collection of social security taxes with other taxes. By contrast, in Japan, the social security contribution is not included in tax revenues because it is collected by the Ministry of Health and Welfare.
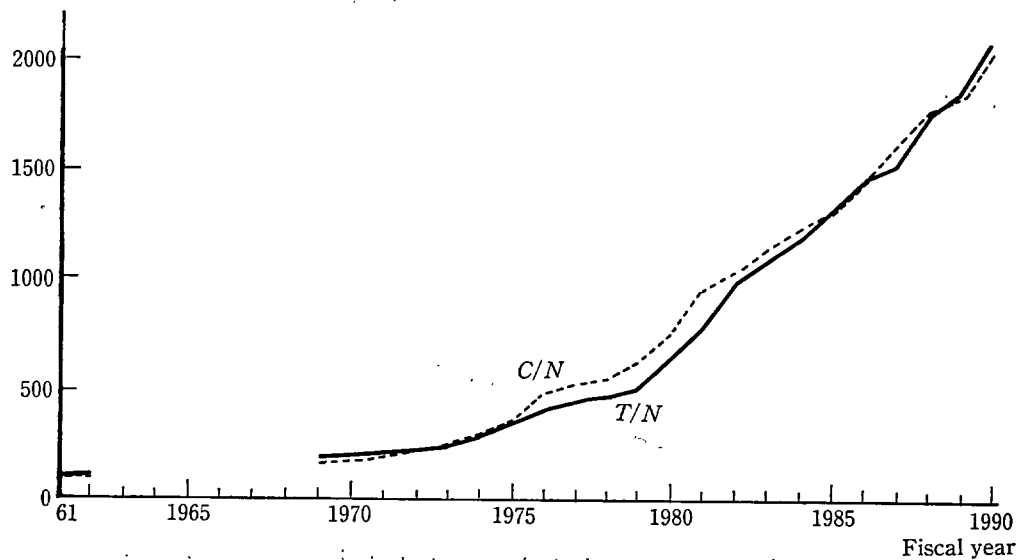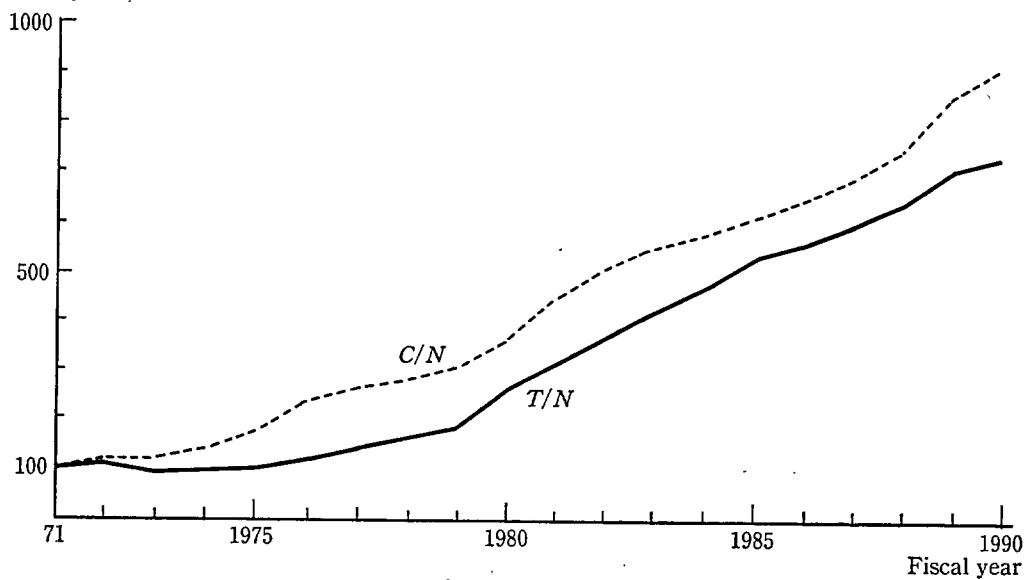
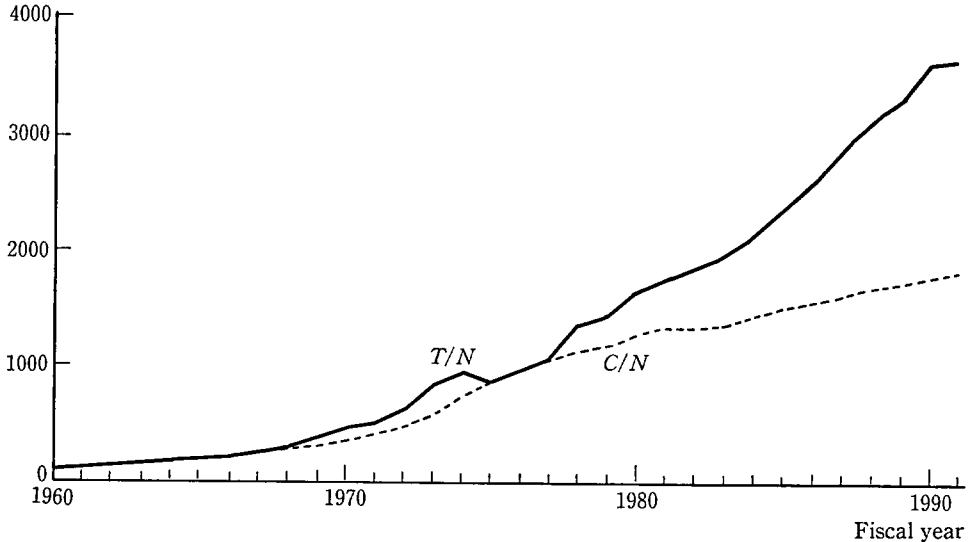FIGURE 2.   COMPARISON BETWEEN PER-STAFF TAX REVENUE (T/N) AND
ADMINISTRATIVE COST (C/N)

(a)   The United States[a]   1960 = 100
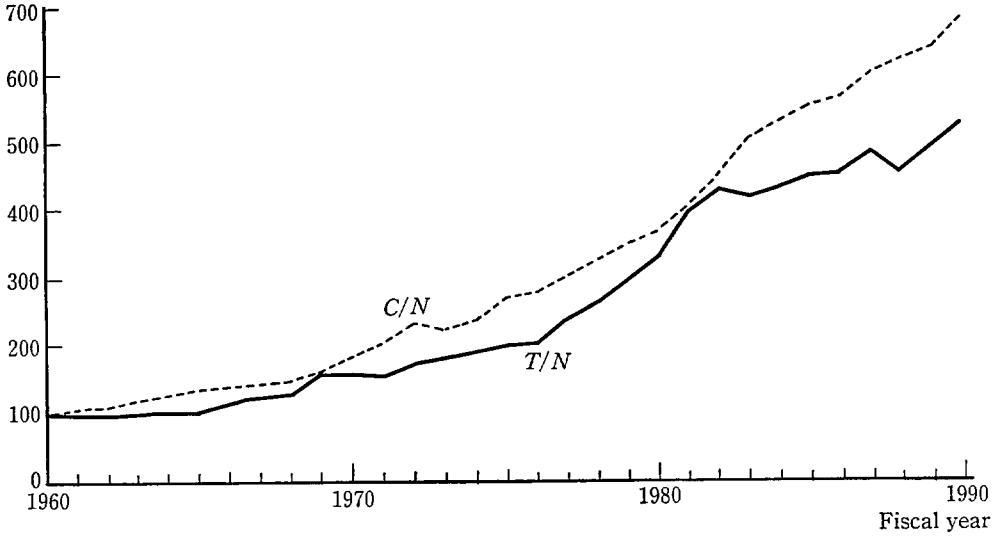
(b)   Canada[b]   1975 = 100
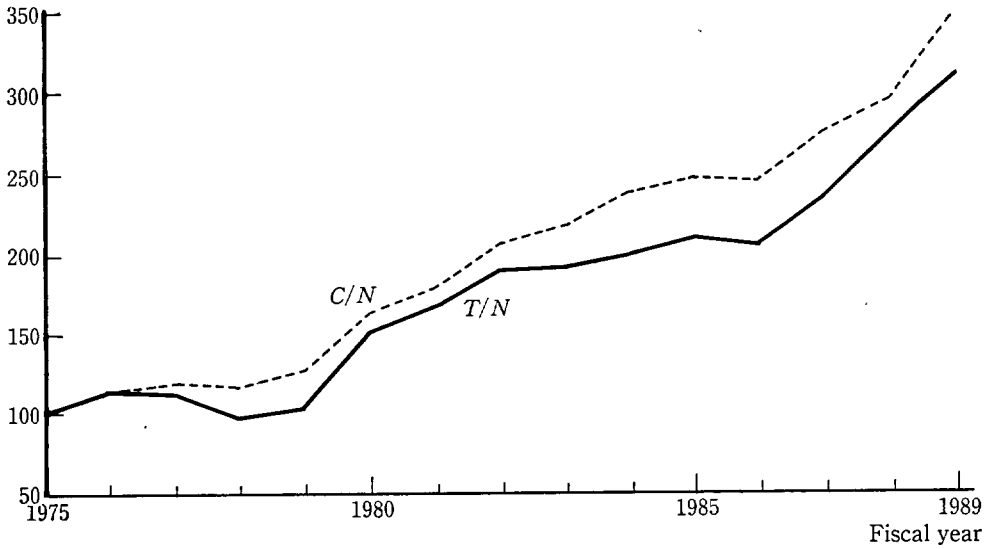
(c-1)   The United Kingdom—IRS^c 1961 = 100

(c-2)   The United Kingdom—Customs and Excise^d 1971 = 100

(d) Japan[e] 1961 = 100

Fiscal year

Notes: a. Temporary employees are included, and tax revenue excludes reimbursement.
  b. Staff do not include temporary employees. Tax revenue is calculated by subtracting Canada pension plan and unemployment plan from total collections.
  c. Casual staff are not included after 1968.
  d. Casual staff are included.
  e. Okinawa regional tax offices are added after 1972.
Source: The same as Figure 1.

and the U.K. turns to be quite opposite; the movement of $\dfrac{C}{N}$ is in general over and above that of $\dfrac{T}{N}$, although the discrepancy between two lines sometimes gets wider or narrower.

In Japan, $\dfrac{T}{N}$ increased more rapidly than $\dfrac{C}{N}$ since the late 1970s, expanding the gap in question to a great extent. As stated above, the gap may be considered as an evidence of "productivity" of tax staff. This being the case, the increased "productivity" may indicate that the efficiency of tax administration has been enhanced in Japan as compared with that of other countries.

One reason behind this is that the total number of national tax staff in Japan is much smaller. In fact, in 1990 it accounted for 55,679 in Japan, while the corresponding figures were 111,543 for the U.S., and 93,138 in the U.K. In addition, tax staff in Japan has increased by only a small margin; from about 52,000 in the 1960s and 1970s to about 55,000 in recent years.[3] In contrast to such a relatively stable number, tax revenues have enormously expanded, say, by more than 100 times during the same period. Needless to say,

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[3] The recent increase of staff reflects the fact that both *the consumption tax* (Japan's VAT) and *the land value tax* were introduced in 1989 and 1992.

computer technology has enabled tax authorities to collect increased tax revenues with the very limited number of staff.

III. *Main Features of Well-established Withholding Tax System*

One of the distinctive factors to explain the efficient tax administration in Japan is obviously due to the well-established withholding taxation. Now the withholding system is firmly built in the basic structure of the individual income tax. Historically, the individual income tax was first introduced in 1887, and then the withholding system was adopted for interest income in 1899. Furthermore, income withheld at source was widely expanded to cover employment income and dividends in 1940 when a sweeping tax reform was attempted by the government.

Since the Shoup Mission recommended the overall reform package in 1949, the Japanese tax system has placed increasing importance on withheld income tax. In principle, the individual income tax is paid on a self-assessment basis, in which taxpayers themselves compute the income tax liability on the basis of their annual income and file a final return to the district tax office. As noted below, however, a major proportion of taxable income is now subject to be withheld at source. Taxes on such incomes as wages and salaries, interest and dividends are calculated by payers, deducted from relevant source of income and transferred to the tax offices in place of income earners.

At present, taxable income in the individual income tax is divided into ten categories, which are in turn calssified into four types, depending upon tax collection methods. The relationship between taxable income and different types of collections are summarized in Table 1.

Employment and retirement incomes (Type 1) are collected from payers on the basis of withholding system on behalf of taxpayers. This is a typical case of withholding system in its pure form. Such income is first computed comprehensively and progressive tax rates are strictly applied. Types 2 and 3 are a sort of interim measures, so long as the basic nature of comprehensive income taxation is concerned. In Japan, however, separate taxation at source has gradually been prevalent in light of specific incomes, mainly because of administrative considerations.

Interest, dividends (some portion) and capital gains on the sale of stocks (Type 2) are separated from other incomes and withheld at source by applying a flat rate of 20 or 35 percent.[4] Moreover, these incomes are excluded from the tax base in filing a tax return. Another type of separate taxation is applied to other part of dividends, capital gains on the sale of land and building, some business income and miscellaneous income. Once these incomes are withheld separately at a lower rate of tax,[5] they are needed to be filed later as

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[4] All interest income and capital gains on the sale of stocks are withheld at source at the tax rate of 20 percent (including 5 percent of local tax) while dividends attract 35 percent.

[5] In Type 3, dividends may be applied alternatively to the rate of 20 percent at taxpayer's option, but they must be required to file a final return. Capital gains on the sale of land and building are taxed separated on a self-assessed basis, depending upon the holding period of relevant assets (see Ishi 1991). Some portion of business income and miscellaneous income, which are mainly composed of fee, royalties and renumeration paid to professionals, are withheld usually at the rate of 10 percent as an advance taxation.

TABLE 1. TAX COLLECTION METHODS BY TAXABLE INCOME IN 1991

(billion)

Income	Withholding (Type 1)	Separate taxation at source		Filing returns (Type 4)
		Without final returns (Type 2)	With final returns (Type 3)	
Employment	212, 617			
Retirement	9, 301		'	
Interest		33, 096		
Dividends		850	4, 837	
Capital gains				
Stock etc.		2, 330		909
Others			17, 676	254
Real estate				4, 395
Timber				71
Business				
Agricultural and self-employed				8, 839
Others			3, 382	
Occasional				216
Miscellaneous			2, 778	
Sub-total	221, 918	36, 276	28, 673	14, 684
	(73. 6)	(12. 0)	(9. 5)	(4. 9)
Total	301, 551 (100. 0)			

Source: Calculation by data from NTA, (1992).
Note: Figures in parentheses are percent distribution. Interest and dividends contain some amounts that corporations have earned as well as individuals.

taxable income. The necessity of final returns distinguishes one type of separate taxation (Type 2) from another (Type 3). The amount of tax withheld under Type 3 is regarded as an advanced payment of tax due by the hands of payers, and final adjustment for the tax payable should be made by income earners themselves as taxpayers.

The remaining income (Type 4), such as other category of capital gains (e.g., the sale of valuable assets; paintings or jewels), real estate, timber, occasional, agricultural and self-employed incomes, are levied under a self-assessment method on a calendar year basis. A tax return should be filed for annual income not later than March 15 of the following year and be paid to the tax offices at the same time.

The relative share of taxable income collected under the present withholding system in 1991 is depicted in Table 1. Pure form of withholding method occupies about three-fourth of total taxable income, while the share of filing return accounts for only 4.9 percent. Since separate taxation can be grouped into a withholding category, the weight of non-filing returns increases further in the tax system.

It is difficult to estimate corresponding figures for international comparison, but the coverage of withheld tax collection in Japan seems to be much broader than in any other country.[6]

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[6] Rough information can be derived from OECD 1990, Table 4 in pp. 30–31. As far as this table is concerned, it seems that source of income to which withholding tax is applied in Japan was the largest among the OECD countries.

As argued earlier, the individual income tax is paid in two ways: withholding or filing returns. In order to clarify the trend of relative weight in withholding taxation, Figure 3 delineates two ratios of withheld income tax relative to national taxes and the individual income tax for 1960–91. Particular attention is paid to the upward movement of relative share in national taxes from 16.3 percent in 1960 to 31.1 percent in 1991. A sharp fall can be observed for the years of 1986–90, but it is due to the abnormal state of the "bubble economy"[7] in which stock and land price hikes generated a great amount of tax revenues in the form of non-withholding taxes, say, the corporate tax, the security transaction tax, registration and licence tax, etc. No doubt, this induced a drop in the relative share of withheld income tax. A similar pattern is, more or less, shown in the upper line of Figure 3, although the increasing trend is less sharp. These facts imply that the withholding tax system has been entrenched in the framework of income taxation.

There are two points to be emphasized about the significant role of withholding tax system unique to Japan with particular reference to employment income (Type 1). First of all, the withholding system plays an important role in reducing the number of *direct taxpayers* to pay the tax due. The number of taxpayers who are paying withheld income tax on employment income in 1991 is estimated at 46,585,000. By contrast, the number

FIGURE 3. RELATIVE SHARE OF WITHHELD INCOME TAX
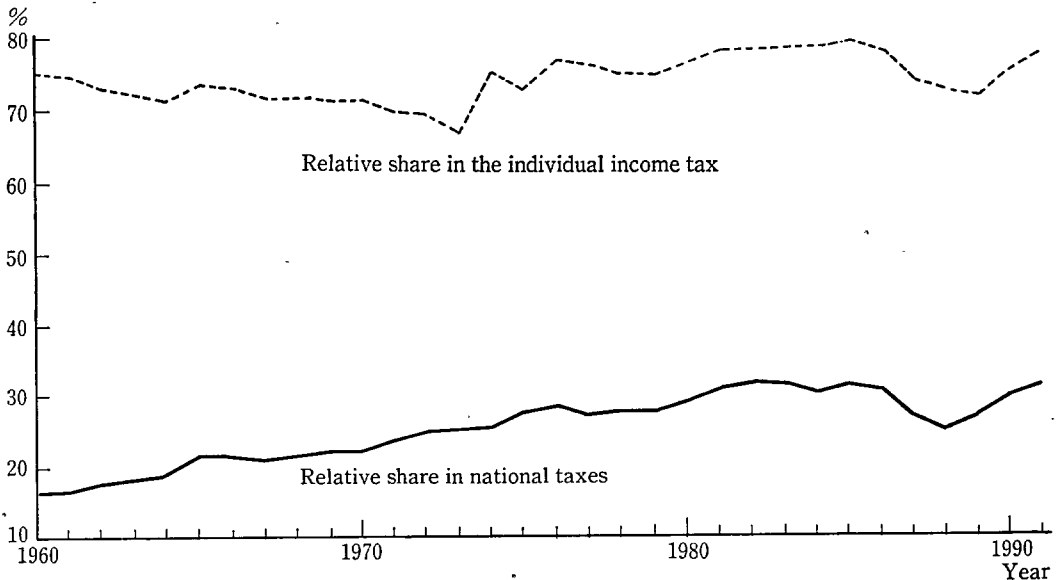
Note: Calculated from MOF, *Primary Statistics of Taxation* (Zeisei Sanko Shiryoshu), 1970, 1980 and 1991.

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[7] One of the most remarkable phenomena in the second-half of 1980s was a "bubble economy," mainly caused by easy monetary policy. Excess money risked into stock and land markets, producing the abnormal hike of asset prices. During the period 1985–90, nominal rate of GNP growth accounted for 6.0 percent.

of withholding agents (i.e., "direct taxpayers"), who have the obligation to withhold the tax at the time of income payment, accounts for 3,543,000: merely one-thirteenth of employment income earners. It is easy to understand the efficient mechanism of tax collection through withholding agents, if we compare a small number of withholding agents with a large number of self-assessed income taxpayers for filing returns: i.e., 8,547,000[8] in 1991 (see NTA, 1992).

Second, great stress should be placed on how to withhold employment income at source. For this purpose, both the withholding tax table and the year-end adjustment are prepared to calculate the tax payable and to pay it to the tax offices almost simultaneously. The amount of withholding tax on employment income is estimated every month, based on elaborate withholding tax tables (see NTA 1992, pp. 66–68). These tables are prepared by the National Tax Administration to take account of many factors, such as progressive tax rates and a variety of exemption and deductions. Since the Japanese companies generally use the monthly-paid salary system, employers easily withhold the tax due on income, based on a "withholding tax table for monthly salary payments." Similarly, a bonus, which is equivalent to a few months' salary in summer and winter in accordance with the Japanese wage custom, is also calculated by using a "withholding tax table for bonuses."

However, the use of such withholding tables provides merely a provisional calculation of the tax liability. Thus, at the end of the year, employers are requested to calculate annual income and the tax due as a whole, and to adjust for the difference between the annual tax liability and the tax amount already withheld. This is a "year-end adjustment." When such an adjustment is made every December, certain special deductions not considered in the monthly withholding table are added to recalculate total tax liability.[9] As a consequence, the year-end adjustment plays an equal role in filing a final return. Since most employees usually have no other income of Type 4 (see Table 1) or no higher income over ¥15 million, they do not need to get access to the tax offices.[10]

Given the two factors mentioned above, the withholding tax system on employment income is characteristic of the following three points (see Ozaki, 1991).

1. A great number of taxpayers for employment income earners have no relation with the tax offices. Indeed, only 3.5 million people out of 46,585 thousand taxpayers paid the income tax on employment income by tax returns in 1991.

2. Withholding agents perform the same job as the district tax offices. If they fail to collect the tax at source and to pay it to the tax offices, unpaid taxes will be re-collected directly from the agents, not income earners. Even in the case of tax delinquency, additional taxes and interest on them are paid through the agents.

3. Taxpayers are requested to present their personal data for tax purposes to their employers, not the tax offices. Therefore, taxpayers need to follow minor proce-

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[8] This figure contains some part of taxpayers, subject to withholding tax, whose income exceed over ¥15 million per year or are earned from more than two sources of income. These taxpayers are obliged to file a final return in addition to an advance payment of withholding tax.

[9] For instance, deduction for casualty losses, medical expenses, life insurance premiums, etc., are taken into consideration for a year-end adjustment.

[10] The method of withholding taxes on employment income in Japan is substantially similar to the UK accumulative PAYE system applied to Schedule E.

FIGURE 4.   TAX DELINQUENCY AS A PERCENTAGE OF REVENUE: SELECTED TAXES
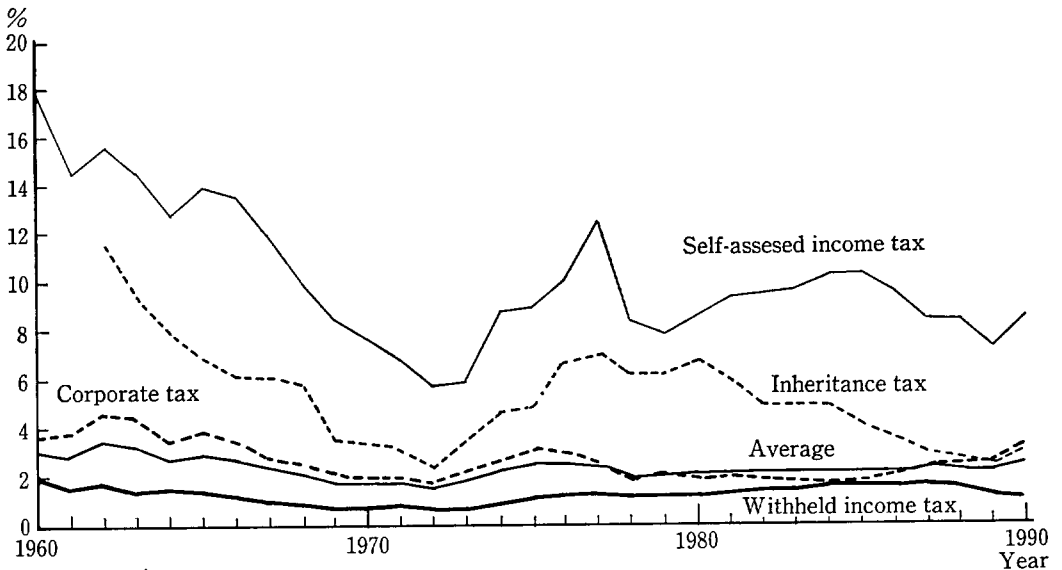
dures which are much lighter work load than self-assessed taxpayers have.

Likewise, other incomes under separate taxation, such as interest and dividends (Type 2), are equally withheld at source. Since such capital income is paid to an unspecified number of people very widely from financial institutions, withholding taxation is absolutely needed to collect the tax on such items of income adequately. In particular, because of no taxpayers identification number at present, it is impossible to tax interest, dividends and capital gains on the sale of stocks adequately in the strict sense of the term.

Additional evidence can be derived from Figure 4 to show the efficient aspect of withholding taxation. Data on tax delinquency is available by categories of national taxes, and the ratios of tax delinquency to relevant tax revenue are depicted for 1960–90 in selective four taxes. Among them, the withheld income tax has kept the lowest level of tax delinquency: revenue ratio as compared with other taxes and average of total national taxes. Obviously, the withholding tax system has been very effective in securing necessary revenues, leaving no possible delinquency of taxation behind.

IV.   *Empirical Evidence of Tax Gap—A Test of*
"Ku-ro-yon" Phenomenon

Turning to the other side of administrative efficiency, we shall focus on unfair tax burden among different income sources in relation to horizontal equity. Horizontal equity is often related to administrative practices. In principle, horizontal equity is frequently

impaired when administrative arrangements are not satisfactory.

This is the case in Japan. As noted earlier, it is widely believed, especially among salaried workers, that there are large divergences in the identification of taxable income among different classes of taxpayers. Since salaried workers are taxed at the source of income under the withholding system, their income is almost fully (90 percent) identified by tax authorities.

On the other hand, the self-employed (including practising doctors and solicitors/barristers) and farmers file their own income returns. They are not taxed fully at source and can easily dodge tax liability by underreporting their income. Reputedly, only 60 percent of the incomes of the self-employed and 40 percent of farmers' incomes are caught by the tax office. These percentages (90–60–40) are used so often in describing the present unfair situation in the Japanese tax system that a special term, "Ku-ro-yon," has been coined. "Ku-ro-yon" is a portmanteau word of Japanese numbers—9 (ku), 6 (ro), and 4 (yon). This term is, by and large, used in the same way that 'tax gap' among different tax sources are referred to in the USA.

It is very difficult to test statistically the 'ku-ro-yon' ratio. One possible method, which I have tentatively attempted, is to compare the scope of taxable income quoted in tax statistics (TS) with that which appears in national income statistics (NIS). The most difficult task is to make the necessary adjustments for obtaining a common base against which comparisons can be made.

In Table 2, differences in concept definitions are enumerated in employment, self-employed and agricultural incomes. Y stands for income recorded in national income statistics (i.e., NIS-base income), while y denotes taxable income in tax statistics (i.e., TS-base in-

TABLE 2.   CONCEPTUAL ADJUSTMENT BETWEEN TS-BASE AND NIS-BASE INCOMES[1]

	Taxable income subject to tax code	Unreported or under-reported income	Income below mini. taxable level[2]	Non-taxable income due to additional deductions[3]	Income excluded in TS, but included in NIS	Income included in TS, but excluded in NIS	Difference in coverage
	y	a	b	c	d	e	f
Employment income	income in TS y_1	?	including in y_1	including in y_1			bonus for company executives f_1
Self-employed income	the same y_2	?	b_2	c_2	special deduction for wages paid to family employees d_2	capital gains in inventory e_2	livestock farming & fishery incomes f_2
Agricultural income	the same y_3	?	b_3	c_3	the same d_3	the same e_3	

Notes: 1. TS—Tax Statistics, NIS—National Income Statistics.
2. Minimum taxable level is calculated in the case of standard household (couple and two children, including basic exemption, exemption for dependents, exemption for spouse, deduction for social insurance premiums and special deduction for blue/white return.
3. Deduction for medical expenses, deduction for life insurance premiums, deduction for fire and other casualty insurance premiums and deduction for small-scale enterprise mutual aid premiums are added to five items of minimum taxable level.

come).   The relation between the two income concepts are basically expressed as follows:

$$Y = y + a + b + c + d \qquad\qquad (1)$$

The term "a" is considered as an unreported or underreported portion of taxable in-come, presumably due to tax evasion and avoidance (see, for general discussion, Goode, 1981, Roth et al., 1989, Webley et al., 1991).   If we regard NIS-base income as a reference level[11] for comparison with taxable income recorded in tax statistics, tax gap ratio (δ) can be defined as follows.   Both sides of (1) are divided by Y,

$$1 = \frac{y + b + c + d}{Y} + \frac{a}{Y}$$

$$\delta = \frac{y + b + c + d}{Y}$$

$$= 1 - \frac{a}{y} \qquad\qquad (2)$$

δ indirectly indicates the magnitude of unreported or underreported income which may be considered to be another interesting measure.   Tax gap ratio is calculated for each income source,[12] and δ_1, δ_2 and δ_3 are linked with that of employment, self-employed and agricultural incomes, respectively.

The matching of TS-base income to NIS-base income can be justified by the fact that the two incomes are obtained statistically from two different data sources.   For instance, employment income in NIS is estimated by the Economic Planning Agency, mainly based on "Monthly Report of Working and Wage" and other related statistics of the Department of Labor, while corresponding figure in TS is practically collected by the National Tax Administration for tax purposes.   The same holds for both self-employed and agricultural incomes.[13]   Such comparison may make sense to obtain evidence of tax gap.

Procedures for tax gap estimates are rather complicated, based upon data processing by a number of different statistics.[14]   Thus, it should be emphasized that the estimates are subject to large potential errors.   In particular, this is true in the case of non-employment income, because income below minimum taxable level unrecorded in tax returns must be estimated with bold assumptions.

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[11] Of course, this assumption would not be plausible.   The value of all economic activity is unrecorded in national income accounts and presumably untaxed because of the so-called underground economy. However, since there would be no other reliable alternative, we reply upon NIS-base income as a reference to which reported taxable income is matched.

[12] Tax gap is defined by income sources, not income earners, because income earners tend to have other incomes apart from income from their major occupations.   In Japan, for example, farmers frequently earn both agricultural and employment incomes, working at near-by factories.   Thus, it is more accurate to de-fine tax gap in terms of income sources.

[13] NIS base self-employed income is estimated on the basis of *Statistics of Non-corporated Business Of-fices* (Jigyosho Tokei Chosa) and *Economic Survey of Non-corporated Business Offices* (Kojin-kigyo Keizai Chosa) (Statistics Bureau, Management and Coordination Agency).   Similarly, NIS-base agricultural in-come employs *Farmers Economic Survey* (Nohka Keizai Chosa) and Agircultural Census (Nogyo Chosa) (Ministry of Agriculture, Fishery and Forestry).

[14] For example, in order to obtain detailed classification of relevant incomes in question, I must use work-sheet-level data at the Economic Planning Agency which are fortunately available to me.

The matching for employment income is the easiest procedure among the three cases, producing most reliable result. Basic tax statistics[15] provide us with almost the necessary data pertinent to taxable income in TS, including both "b" and "c" in Table 2. Therefore, it is not necessary to attempt troublesome estimates of these two items, and only minor adjustments are made for trivial differences in concept definitions; say, bonus for company executives which is originally included in company profits.

On the other hand, both self-employed income and agricultural income require some additions to taxable income in TS. As is seen from the notes in Table 2, minimum taxable level under the income tax law is first set at a specific income level for a standard household (couple and two children) each year, and then income below such threshold is estimated by using data on the income distribution by income classes from *Employment Status Survey* (Statistics Bureau, Management and Coordination Agency).[16] Procedures for these estimates must essentially become crude, reflecting less reliable data sources. Furthermore, special deduction for wages paid to family employees should be included in tax returns. A whole process of estimation concerning the cases of non-employment income is done by attempting separate procedures between blue and white tax returns (see below).[17] Certain adjustment is also needed to change the coverage of income in the case of self-employed income (i.e., the term "f" in Table 2).

Final empirical results for 1970–90 are depicted in Figure 5 where we can find two kinds of lines for each category of income. One line is tax gap ratio itself; δ_1, δ_2 and δ_3,

FIGURE 5.   TAX GAP AMONG THREE INCOME SOURCES
—1970–1990—

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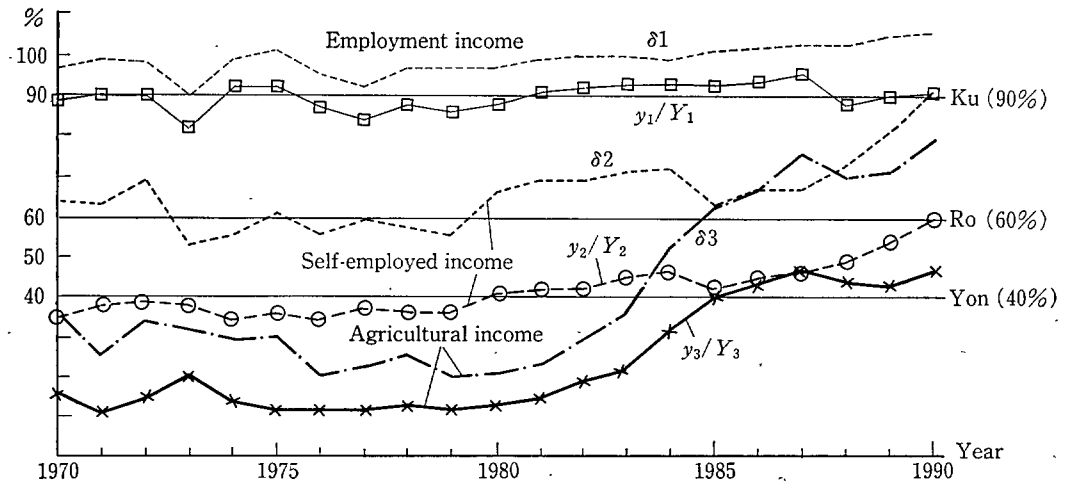
[15] Basically, *Annual Report of the National Tax Administration and Statistics on Private Wages and Salaries* (NTA) are employed.

[16] *Employment ·Status Survey* has not been published every year. In the past, data were only available in 1974, 1979, 1982 and 1987 for the period to cover our estimates. Thus, any single-year data were extended to make multiple-year estimates before or after the limited years.

[17] *Statistics on the Self-assessed Income Tax* (NTA) is employed to obtain necessary information.

and the other is a matching ratio of original income data before conceptual adjustment; $\frac{y_1}{Y_1}$, $\frac{y_2}{Y_2}$ and $\frac{y_3}{Y_3}$. Since substantial amount of estimation procedures are included to obtain the final tax gap ratio, original matching might be of some use to ascertain the accuracy of the tax gap in question.

Major fact findings are shown in the following four points. First of all, δ_1, and $\frac{y_1}{Y_1}$ in the case of employment income have substantially remained stable in the band of 90–100 percent during the period 1970–90. It can be conjectured that there would be almost no difference between NIS-base and TS-base incomes, and that "ku" ratio is justifiable by empirical data. The incomes of wage and salary earners are fully captured by the tax offices under the withholding system.

Second, self-employed income has varied the level of δ_2 to some extent, but it can be pointed out that the "Ro" ratio came into existence until about 1985. As argued shortly, it is necessary to explain upward movement of δ_2 in the late 1980s. The other line of $\frac{y_2}{Y_2}$ has moved more smoothly with a regular margin against δ_2, and the adequacy of our estimates would be reinforced by original matching ratio.

Third, the growth of δ_3 and $\frac{y_3}{Y_3}$ in the case of agricultural income are different from the other two cases. δ_3 moved below the 40 percent level for 1970–84, but it turned upward sharply after 1985. Also, $\frac{y_3}{Y_3}$ follows a similar pattern like δ_3 during the whole period. The "yon" ratio may not exactly be justified, but it is noted that δ_3 and $\frac{y_3}{Y_3}$ have been kept at the lowest level with a minor exception as compared with corresponding figures.

Fourth, judging from our estimates, it seems that tax gap among different income sources may be empirically tested to some extent in Japan in conjunction with the "Ku-ro-yon" phenomenon. Particularly, this would be the case for 1970–1985. Other studies of the tax gap also support my empirical evidence.[18]

Tax gap, as stressed previously, has been produced by different tax collections between the withholding system and tax returns. Given the existence of tax gap found above, obviously the well-developed withholding system has strengthened taxpayers' perception of unfair tax burden of wage and salary earners, while it has made tax administration more efficient. As a consequence, the conflict between efficiency and equity of tax administration has been induced to a great extent by developing the withholding collection in the Japanese tax system.

It seems, however, as seen in Figure 2, that tax gap has been narrowing in recent years.

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[18] Following my own estimate in Ishi 1983, three studies have so far tried to testify the "Ku-ro-yon" ratio: i.e., Homma et al., 1984, Hayashi 1990, Okuno et al., 1991. These estimates lead, more or less, to the same empirical results, although statistics and procedures are used quite different from each. For example, Hayashi estimates 101.3–52.5–13.3 in 1979, 99.4–58.6–14.3 in 1982 and 101.4–61.7–20.7 in 1987 as the "Ku-ro-yon" ratio. Likewise, Okuno et al. finds 104.8–60.4–27.6 in 1985 (All figures are percentages).

As far as this evidence is concerned, the conflict between the two objectives of tax administration begins to mitigate to some extent. This being the case, it would be necessary to explore the factors necessary for increasing the "Ro" and "Yon" ratios of self-employed and agricultural incomes.

Most importantly, great emphasis should be placed on the improvement of tax returns method. The self-assessment on a tax return basis are generally divided into two system; i.e., (1) blue returns and (2) white returns. When the Shoup Mission proposed tax recommendations in 1949, the blue return system was introduced to improve book-keeping and to promote honest self-assessment for taxpayers subject to income tax returns. Since then, the National Tax Administration has considered the "blue return" as the fundamental requirement for efficient tax administration. Main aim of the blue return is to encourage small- and medium-sized businesses to keep a minimum set of accounting records, but in addition certain significant advantages are offered to individuals and corporations by the tax offices (see MOF 1990, pp. 63–64).

The major advantage is that taxpayers filing a blue return are not subject to reassessment if errors cannot be found in their accounting books and records. Moreover, they are allowed to deduct reasonable amounts for wages paid to family members working in the same companies and to use special tax-free reserves (e.g., reserves for bad debts, losses due to price fluctuations, etc.). By contrast, taxpayers, who are not filing a blue return, are not given these advantages for tax purposes, but they are not obliged to keep books and records. This case is usually called the "white return" system.

Traditionally, most farmers do not file blue returns, and the tax offices estimate their income on the basis of their crops. This is considered to be major factor leading to understatement of agricultural income for tax purposes. In fact, blue returns as a percentage of total filing returns was very low for farmers until the early 1980s; 2.5 percent in 1970, 7.1 percent in 1975 and 10.2 percent in 1980. However, the blue-return ratio has sharply increased to higher values since then; 17.8 percent in 1985 and 32.0 percent in 1990. The sharp rise of using blue returns is evidently thought of as the most important factor to explain the narrower tax gap in agricultural income after 1985.[19]

The same reasoning may be, by and large, applied to the case of self-employed income, but it is not so clear-cut as the agricultural case. The corresponding percent of using blue returns merely increases from 48 percent in the early 1970s to 51–53 percent in the 1980s. More importance should be put an increasing exemption and deductions applicable to self-employed taxpayers in recent years.

V.   Concluding Remarks

In this paper, the "Ku-ro-yon" ratio does indeed seem to be approximated by these statistical procedures, although the results are far from satisfactory. Tax gap between the three income sources would probably arise from both evasion and avoidance. Ob-

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[19] In addition, attention should be paid to the long-run decline of agricultural sector structurally in Japan, reflecting the steady decrease of farming families from 5.3 million in 1970 to 4.1 million in 1990. Smaller-size farmers tend to be merged into large ones with modernized business management.

viously, it would be impossible to draw borderline distinctions statistically.

It is necessary to observe with care recent changes in tax gap, as seen in Figure 2, and to identify whether or not these phenomena would be temporal in the future. At the moment, however, let us assume that the "Ku-ro-yon" ratio is still prevalent in tax administration. A high proportion of popular complaints about the present tax system emerges from inequities of this kind. These complaints have arisen among a majority of wage and salary earners. The national atmosphere vis-a-vis inequitable income taxation has attracted wide attention among the general public. Without doubt, this is one of the inherent features built into the Japanese income tax system.

It is important to note that this atmosphere among the general public potentially supports the need to increase reliance on indirect taxes in the tax system. In the past, two sweeping tax reforms by both the Nakasone and the Takeshita cabinets attempted to introduce the value added tax in the Japanese tax system and were finally successful (see Ishi 1989, part IV and 1992). No doubt, this success was primarily supported by wage and salary earners who had major complaints about unfair tax burden due to the "Ku-ro-yon" phenomenon.

It is still uncertain whether recent tax reforms will solve the conflict between efficiency and equity of tax administration. It seems, however, that efficient administrative practices have essentially led to the adoption of VAT in Japan in order to mitigate inequities of tax burden caused by the well-developed withholding tax system.

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