Money Supply and Foreign-Trade Taxes in the Soviet Union: An International Comparison Using New Soviet Data

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Abstract

This study examines quantitatively the relationship between special foreign-trade earnings (SFEs), which effectively represent import and export taxes, and money supply in the Soviet Union. The Soviet SFEs, as well as foreign trade taxes in market economies, can be decomposed into change in money supply and redistribution of domestic funds. A change in money supply alters the net amount of available funds, whereas redistribution of funds does not. The decomposition demonstrated that redistribution accounted for about 90% of SFEs, which generated 7% to 15% of state budget revenue in the 1970s and 1980s. Thus, less than one-tenth of SFEs corresponded to net changes in domestic funds. Thus, the SFEs mechanism is not an instrument of fiscal revenue, but a by-product of comprehensive price control. The size of SFEs indicated the magnitude of price distortion, rather than the financial benefits from foreign trade. We need more data on foreign economic activities, in particular Soviet balance of payments data, to further investigate the relation between the Soviet domestic financial economy and foreign economic activities. Hopefully, the data will be discovered in Soviet archives.

1. Introduction

A substantial amount of Soviet and non-Soviet literature has addressed Soviet foreign trade. Those studies discussed the historical developments, institutions, and theoretical issues involved in Soviet foreign trade and greatly facilitated our understanding of such phenomena. However, little is known about how Soviet fo-

reign trade was related to the domestic financial economy, mainly because Soviet authorities published little monetary and financial data. The balance of payments data in both rubles and US dollars (or any other currency) after 1938 are unavailable (Wiles, 1968), and the Soviet state-budget data typically did not include financial flows related to foreign economic activities, such as export subsidies and import taxes. Gosbank, the state bank, which played the combined role of central bank and commercial bank, and the Foreign Trade Bank, which conducted foreign-exchange transactions, published very limited data and information on their activities (Powell 1972; IMF *et al.*, 1991).

The opening of archival material to the public following the collapse of the Soviet Union changed this situation. Soviet economic data have become increasingly available, although they are still far from sufficient. This study uses newly-available data to quantitatively review the relationship between money supply and foreign-trade, focusing on special foreign-trade earnings (SFEs).

SFEs were an economic phenomenon peculiar to the Soviet economy and may be roughly understood as import and export taxes (subsidies if SFEs were negative). The first question on SFEs we try to answer is how large they were. A number of scholars have estimated the amounts of SFEs, or the gross output of foreign trade (GOF), which is closely related to SFEs (see Treml *et al.*, 1972; Sverdlik, 1981; Treml and Kostinsky, 1982; Tabata, 1989). We will discuss the difference between SFEs and GOF later.

The second question we try to answer is to what extent SFEs corresponded to net flow of foreign-funds, that is, net change in money supply, and to redistribution of domestic funds. SFEs in the Soviet Union and foreign-trade taxes in market economies can be decomposed into two parts: foreign-trade balance, and redistribution of domestic funds. A foreign-trade balance corresponds to a change in the central bank's net foreign-assets that leads to a change in money supply, whereas the redistribution of domestic funds does not alter the total amount of funds within an economy.

In market economies, usually little attention is paid to the de-

composition of foreign-trade taxes, because the foreign-trade taxation and the foreign-trade balance are regarded as separated issues. Foreign-trade taxation is the government method of redistributing funds raised by foreign trade and influencing decision making in the private sector on foreign trade, whereas the foreign-trade balance is the result of decisions made by the private sector.

In contrast, for understanding SFEs, we need to know to what extent SFEs corresponded to net flows of foreign-funds and to the redistribution of existing domestic funds. It is difficult to understand that the SFEs' main role is to regulate foreign trade or to redistribute existing domestic funds. In the Soviet Union, the government itself made almost all decisions on foreign trade. SFEs definitely had a function to redistribute funds, but it was generally unclear as to what kind of economic meaning redistribution of funds between the government and the enterprise sector had in the Soviet economy, because redistribution occurred not between economic sectors under different ownership, but within the single state sector. Whether or not taxes were levied on export revenue, the government collected virtually all the profits of state enterprises. Furthermore, whether or not customs taxes were levied on imports, the government must have financed imports, including the taxes on imports, because virtually all import transactions needed to be included in the state economic plan in both material and financial terms (see Quigley, 1974, pp. 163; Podshivalenko, 1983, pp. 137-142; Shelikhov and Zelikman, 1984, pp. 82, 302-310; Zverev, 1990, pp. 40, 105-107). The only potential instances where enterprises might have been required or allowed to use their own funds for imports were in the decentralized, small-scale investment projects that were not included in the state capital investment plan (see Zverev, 1990, pp. 112-124). Thus, the function of distributing funds newly raised by foreign trade seemed to be the only significant function the SFEs mechanism must have fulfilled.

The third question is to what extent SFEs made the Soviet relative prices different from the world market relative prices. SFEs distorted the Soviet Union's relative price system against the world's relative price system, just like foreign-trade taxes do in a market eco-

nomy. It is probable that prices were distorted more extensively as SFEs became larger. This leads to the question: what the Soviet economy gained from this price distortion?

This study also compares the Soviet SFEs with foreign-trade taxes in other economies to see whether the SFEs were unique. As SFEs are similar to foreign-trade taxes in a market economy, we can assume that the earlier three questions apply to foreign-trade taxes in market economies as well. Special attention is paid to comparisons between the Soviet Union and Russia in the international context.

The remainder of the paper is structured as follows. The next section briefly reviews the institutional background of Soviet foreign trade, Soviet banking, the mechanism used to generate SFEs, and the concepts of SFEs and GOF. This is followed by the section that explains the data and methods used in this study. As is usual with studies on other Soviet economic phenomena, we need to use a fairly wide remit to clarify the economic concepts related to SFEs and to discuss the coverage and definitions of the data used. The following section reports the results. These show that the Soviet SFEs were uniquely large, the SFE tax rates were uniquely high, and the redistribution of domestic funds accounted for about 90% of SFEs on average. The final section discusses the results and their implications for understanding SFEs and the Soviet command economy.

2. Institutional settings and concepts of Soviet foreign trade

2.1 Special foreign-trade earnings

The Soviet Union had a single official exchange rate (see Wiles, 1968, pp. 130-131). Foreign-currency transactions were converted to rubles at the official exchange rate and then recorded in the accounting books of the Soviet banking system (Zverev, 1990, pp. 59, 136). However, the official exchange rate was not expected to, and never did, fulfill the function of relating the relative prices of goods in the world market to the relative prices of the same goods in the Soviet economy. Typically, the ruble price of a good obtained by converting

the foreign-currency price at the official exchange rate significantly differed from the domestic ruble price of the same good (see Hanson, 2003, p. 201). Thus, for the purpose of this study, we refer to the ruble price derived from the foreign-currency price at the official exchange rate as the price in *foreign-trade rubles* to distinguish it from the price in *domestic rubles*[1].

The difference between the prices of a good in *foreign-trade rubles* and *domestic rubles* was adjusted using a "price equalization" mechanism to provide import and export subsidies and to collect import and export taxes. Equation (1) models this mechanism at both the microeconomic and macroeconomic levels (Smirnov, 1960, pp. 345-363; Wolf, 1988b, pp. 5-6; Zverev, 1990, pp. 42-43, 136):

$$SFEs = (M_d - M_f) - (E_d - E_f) = (M_d - E_d) + (E_f - M_f) \qquad (1)$$

where *SFEs* represents special foreign-trade earnings, M_d and E_d denote imports and exports respectively in *domestic rubles*, and M_f and E_f denote imports and exports respectively in *foreign-trade rubles*. By definition, $E_f = oe^*E$ and $M_f = oe^*M$, where *oe* denotes the official exchange rate expressed in units of rubles per unit of foreign currency, and E and M are imports and exports respectively in their foreign currency prices (i.e., world market prices) expressed in foreign currency (for example, in US dollars).

The price equalization mechanism operated as follows. In a situation involving the import of a good of foreign currency value M, the Foreign Trade Bank paid the value M in foreign currency to the foreign seller for the imported good, and the bank provided a ruble loan of M_f to the foreign-trade organization (FTO) that conducted the import transaction. FTOs were under the jurisdiction of the Ministry of Foreign Trade and had the exclusive right to conduct foreign-trade transactions until 1987, when the liberalization of foreign trade began (see Zverev, 1990, p. 62). The FTO repaid the ruble loan using the revenue M_d it received from selling the good in question

[1] *Foreign-trade ruble* may be referred to as *foreign exchange ruble* and *valuta ruble* in other publications.

to a Soviet domestic enterprise. If the price in *foreign-trade rubles* was higher than that in domestic rubles ($M_f > M_d$), the difference $M_f - M_d$ was paid to the FTO as a subsidy. However, if the price in *domestic rubles* was higher than that in *foreign-trade rubles* ($M_d > M_f$), the difference $M_d - M_f$ was collected from the FTO as an import tax.

Exports were regulated in a similar fashion. The Foreign Trade Bank granted a ruble loan of E_d to an FTO. The FTO then paid the loan amount in *domestic rubles* to the Soviet exporter. The foreign buyer paid the cost of goods E in foreign currency to the Foreign Trade Bank. The Foreign Trade Bank paid the amount E_f to the FTO. Using this amount, the FTO repaid the Foreign Trade Bank loan E_d it had received. If $E_f > E_d$, the difference $E_f - E_d$ was collected from the FTO as an export tax. If $E_d > E_f$, the difference $E_d - E_f$ was transferred to the FTO as an export subsidy.

This price equalization mechanism ensured the maintenance of the state's monopoly on foreign trade and foreign exchanges, which Soviet authorities regarded as one of the merits of the socialist economy, in the following manner (Pozdnyakov, 1969; Quigley, 1974; Berman and Bustin, 1975; Zverev, 1989, pp. 9-10). First, FTOs and domestic enterprises did not directly handle foreign currencies and exchanges. Thus, in institutional terms, the foreign and domestic money flows were completely separate. Second, the domestic relative price system was insulated from the relative price system of the world market.

Figure 1 visualizes Equation (1). The arrows in Figure 1 represent the money flows in Equation (1) as well as the directions of those flows. Figure 1 can as well show the taxation (or subsidization) on exports and imports in a market economy, if we assume that E_f and M_f are defined according to the System of National Accounts (SNA) and FTOs are ordinary trading companies. The SNA values exports and imports at their f.o.b. prices, that is, at the exporter's customs frontier (SNA 1968, paragraph 6.3; SNA 1993, paragraph 6.235; SNA 2008, paragraph 3.149). Thus, the relations between E_f and E_d, and between M_f and M_d are respectively:

$$E_f = E_d + ETX \tag{2}$$

$$M_f + MTX = M_d \tag{3}$$

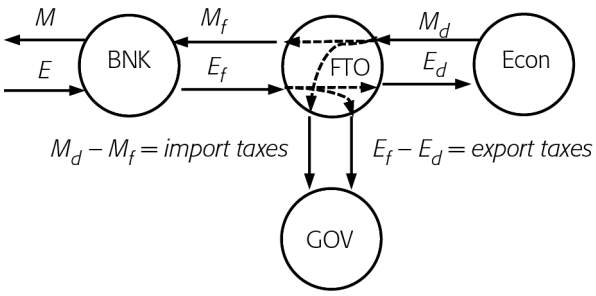
where ETX and MTX represent export and import taxes (subsidies if negative), respectively. Substituting Equations (2) and (3) into Equation (1), we obtain

$$\begin{aligned} SFEs = (M_d - E_d) + (E_f - M_f) = (M_d - E_d) + \\ + [(E_d + ETX) - (M_d - MTX)] = ETX + MTX \end{aligned} \tag{4}$$

Equation (4) indicates that Soviet SFEs and foreign-trade taxes in market economies are formally the same.

Equation (4) also shows that SFEs and foreign-trade taxes can be decomposed into the redistribution of domestic funds, $M_d - E_d$, and the foreign-trade balance, or change in money supply, $E_f - M_f$. The economic meaning of the decomposition becomes clear if we assume that foreign trade is balanced: $E_f - M_f = 0$. Even in this case, foreign-trade taxes (or subsidies) can exist. It is obvious that foreign-trade tax in this case fully corresponds to the redistribution of domestic funds between the government and the enterprise sectors because there is no net inflow or outflow of foreign-funds as $E_f - M_f = 0$.

Figure 1
Funds flows of foreign-trade transactions



Notations: BNK: the banking system, FTO: the foreign-trade organizations, Gov: the government, Econ: domestic enterprises. Other notations follow those in Equation (1).
Note: The arrows represent funds flows and their directions. If $M_d - M_f$ and $E_f - E_d$ are negative (subsidies), the direction of their arrows should be inverted. The commercial and transportation margins are ignored.

2.2 SFEs and Gross output of foreign trade

The term SFEs and its variants are occasionally used in other studies to refer to the GOF, another unique aspect of the Soviet economy. SFEs and GOF are closely related but distinct concepts. It seems necessary to clarify the difference between the two concepts, as even Russian experts sometimes appear confused[2].

GOF is a component of the value added, and thus a component of the produced national income (PNI) as defined in the *Material Product System*, the socialist national-accounting system (see Quigley, 1974, pp. 103-126; Smirnov, 1978; Zverev, 1990, p. 107). GOF was defined as follows:

$$GOF = (M_d - E_d) + (E_f - M_f) \cdot a \qquad (5)$$

where a denotes the adjustment coefficient that is defined as $a = M_d / M_f$ if $M_f > E_f$ and $a = E_d / E_f$ if $E_f > M_f$ (Treml *et al.*, 1972, pp. 147-180; Holzman, 1974, pp. 317-346; UN, 1977, pp. 35-36; Smirnov, 1978; UN, 1989, pp. 28-31; UN, 1996, pp. 214-215). The remaining notation is the same as in Equation (1). As Equations (1) and (5) show, the definitions of SFEs and GOF differ only in the existence of the adjustment coefficient a: Equation (1) can be regarded as a special case of Equation (5) where the adjustment coefficient has a fixed value of 1.

The difference in the equations is negligible; however, the economic meanings of SFEs and GOF differ. As the definition of the adjustment coefficient suggests, GOF can be calculated only at the macroeconomic level, where the amount of foreign-trade balance in *foreign-trade rubles*, $M_f - E_f$, is known to calculate the value of the adjustment coefficient a. GOF was therefore calculated as a part of national accounting. On the other hand, SFEs represented the fiscal

[2] Belkindas and Ivanova (1995), who explained the "earnings from foreign trade" and the macroeconomic balance of supply and use of goods, seemed to pay little attention to the difference between SFEs and GOF. It was algebraically obvious that Belkindas and Ivanova's (1995, p. 46) equation used for the explanation holds only if the adjustment coefficient, C, is equal to 1. The adjustment coefficient makes SFEs and GOF different as explained in the following.

revenue (or expenditure) from the price equalization mechanism and thus were calculated for individual foreign-trade transactions. This study concerns SFEs, not GOF[3].

3. Data and Methods

The appendix shows the Soviet data and their sources. The data on market economies are from government revenue data in the World Bank (2015) and OECD (2015). The government revenue data include data on "taxes on exports" and "customs and other import duties." Samples that do not show the data of taxes on exports and customs and other import duties separately were excluded from the analysis. The government revenue data still cover 153 countries, including Russia, for the period from 1965 to 2012. The data of most OECD countries cover the entire period, whereas the time series of other countries are shorter. Hereafter, we use the term "market economies" to refer to the countries in the data set for simplicity, although the countries include some countries whose economies are not entirely market economies, for example, China.

The sum of "taxes on exports" and "customs and other import duties" are assumed to be the equivalent of SFEs. E_f and M_f represent export and import in the national accounting data, respectively, for market economies. Consequently, E_d and M_d of the market economies are defined as $E_d = E_f$ – (taxes on exports) and $M_d = M_f$ + (customs and other import duties), respectively. Both "taxes on exports" and "customs and other import duties" are defined in their net terms. Taxes and subsidies on exports are offset; the same applies to taxes and subsidies on imports. It is, therefore, not possible to calculate the gross tax and subsidy rates on imports and exports. The

[3] It is a mystery why the GOF definition includes the adjustment coefficient. Smirnov (1978) criticized the methodology used to calculate GOF. Wolf (1987, pp. 127-128) pointed out that the role of the adjustment coefficient was unclear. Tabata (1989) and Kuboniwa (2007, 2012a) discuss the GOF methodology in detail.

data of market economies nevertheless have minor problems, whereas the Soviet data involve a number of issues we need to discuss. In the rest of this section, we discuss the Soviet data and explain the methods used in our analysis.

3.1 Issues Concerning the Soviet Data

3.1.1 Foreign trade in domestic rubles

We need export and import data in both *domestic* and *foreign-trade rubles* to calculate SFEs. The data on foreign trade in *foreign-trade rubles* are available for almost the entire Soviet period, whereas the availability of data on foreign trade in *domestic rubles* is limited. Treml and Kostinsky (1982, p. 15) estimated the foreign trade in *domestic rubles* for the period from 1955 to 1978. Their results, however, turned out to be overestimations, on average, by around 20% for imports and 25% for exports. Thus, we do not use their estimates or other estimates based on Treml and Kostinsky (1982).

Instead of calculating SFEs, we use the customs-tax series in the official state budget data available for the period from 1928 to 1970 as proxy for SFEs (see the appendix). The customs-tax series probably include foreign-trade taxes other than SFEs, but it is certain that they do not include subsidies on exports and imports[4]. Thus, the customs-tax series overestimate the SFEs before 1975, when relatively large export subsidies are assumed to have existed (see Figure 2). A calculation using the data available indicates that customs-tax revenues were larger than SFEs by 38 to 122%. The customs-tax series, nevertheless, provide useful information about SFEs, as the size of customs tax revenue gives an upper bound for the amount of SFEs.

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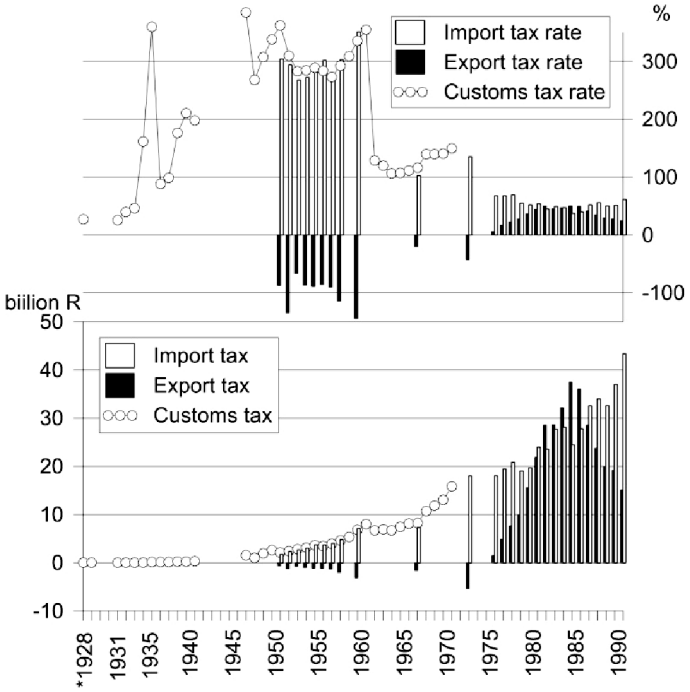
[4] Archive material of an official report on the 1970 state budget from the *Gosudarstvennyi Arkhiv Rossiiskoi Federatsii* (GARF, the state archive of the Russian federation) states that customs-tax revenues include revenues from exports (GARF/R7523/104/112D, p. vi). Archival materials are referred to in the conventional manner: *The name of the archive, Fond number/Opisi number/Delo number/ List number* [if available] such as GARFx/y/z/x. Please see the archive materials section in the paper's references section.

Figure 2
Soviet taxes on import and export



Sources: See the appendix.
Notes: import tax rate: net import tax/import in domestic rubles; export tax rate: net export tax/export in domestic rubles; customs tax rate: customs tax/import in domestic rubles.

3.1.2 Foreign-trade balance in foreign-trade rubles and money supply

Another problem with Soviet data relates to the correspondence between change in money supply caused by foreign trade and the foreign-trade balance in *foreign-trade rubles*. Data on foreign-trade balance in *foreign-trade rubles* are available for almost the entire Soviet period, whereas the data on Gosbank's net foreign-assets position are also available until 1987. The data of Gosbank's net foreign-assets position before and after 1988 are not comparable because of the major institutional changes of the Soviet banking system in 1988 (see Kashin

and Mikov, 2010). Although the availability of data is high, the problem is that both series do not seem to appropriately reflect the changes in money supply caused by foreign trade.

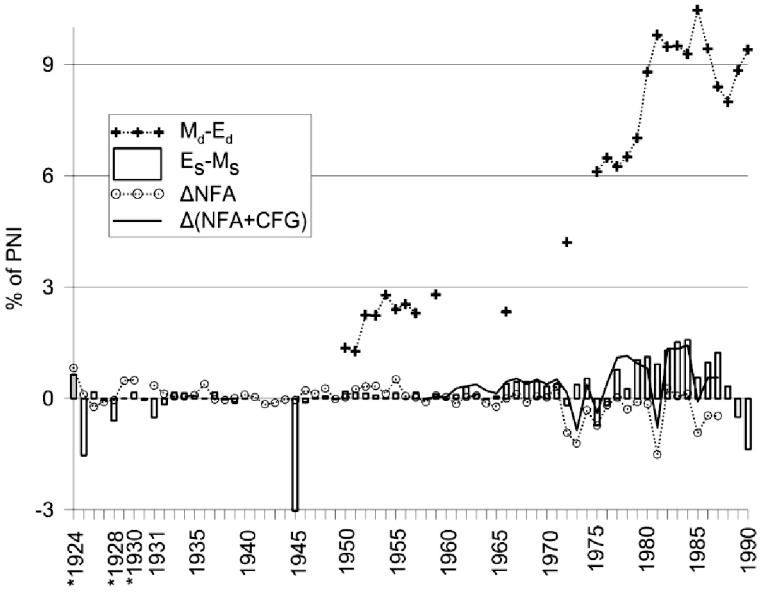
The first difficulty is with "offshore" foreign-exchange transactions. Zverev (1989, pp. 64-65) shows that Gosbank's accounts did not completely record the foreign-currency borrowings used to finance imports for public purposes and the aggregate foreign-exchange shortfalls. This was because borrowed foreign-currency funds did not have to be converted to corresponding ruble funds, but could instead be directly used to pay for imports. In these offshore foreign-exchange transactions, it was highly likely that Gosbank did not record the foreign-currency payments made to foreign merchants, whereas the foreign-trade statistics recorded the import of goods and the budget statistics recorded the corresponding import tax revenues and SFEs (see Birman, 1981, pp. 60-81).

The data necessary to obtain the entire picture of Soviet foreign-currency flows including the "offshore" transactions, namely, the balance of payments data, are unavailable (see Wiles, 1968, pp. 81-122). Commercial banks funded with Soviet capital and stationed outside the Soviet Union such as the *Moskovskii Narodnyi Bank* in London and the *Bank Severnyi Evropy* in Paris seemed to have been primarily engaged in "offshore" foreign-currency transactions (Gekker, 1967; Zverev, 1989, p. 23). The activities of those banks were not well understood.

The second difficulty is that, by definition, foreign-trade balance was not the sole factor that changed Gosbank's foreign-assets position. In particular, Gosbank's balance sheet item *Credits to foreign governments* (CFGs) seemed to be the most significant factor increasing the uncertainty of correspondence between changes in Gosbank's net foreign-assets and changes in money supply caused by foreign-trade. From Kashin and Mikov (2010), Gosbank's foreign-assets and liabilities include its correspondent account balances, loans and liabilities in foreign currency, foreign exchange and currency holdings, and gold and precious metals. CFGs were included in Gosbank's foreign-assets until 1957, and then they became an independent item

in Gosbank's balance sheet. The foreign-assets share in Gosbank's balance sheet total is approximately 20% in the first half of the 1920s (see the appendix). The share then gradually decreased to a negligible level in 1946, began to increase again in 1947, then sharply decreased in 1958, and remained small thereafter. The separation of CFGs from foreign-assets accounted for the major part of the sharp decrease in 1958 (Kashin and Mikov 2010, pp. 56, 86). If we include CFGs in foreign-assets, Gosbank's foreign-assets would have continued to increase after 1958 as well (see the appendix and Figure 3).

Figure 3
Money supply, foreign assets, and foreign trade



Sources: See the appendix.
Notations: See the text.

According to Zverev (1990, pp. 89, 174-175), the Soviet Union's CFGs primarily consisted of their claims on other socialist countries, which seemed to comprise the accumulated imbalances in the barter

trade within the *Council for Mutual Economic Assistance* (CMEA), the socialist international economic organization. In case of an export surplus with a CMEA country, Soviet exporters received rubles from Gosbank or the Soviet government for their exports, as by definition the socialist country purchasing these goods did not pay for the goods. This process increased Gosbank's liabilities to Soviet enterprises as well as its claims on the socialist country, which probably were CFGs. If the Soviet Union's CFGs mostly consisted of debts of other socialist countries against the Soviet Union, it would be better to include the CFGs in Gosbank's foreign-assets.

Figure 3 compares the foreign-trade balance in *foreign-trade rubles* ($E_f - M_f$), the changes in Gosbank's net foreign-assets excluding and including CFGs [(ΔNFA) and $\Delta(NFA + CFGs)$], and the foreign-trade balance in *domestic rubles* ($M_d - E_d$) as percentages of PNI. Figure 3 demonstrates that the differences between $E_f - M_f$ and ΔNFA were generally small before 1957, except in some sporadic years. After 1957, the differences between $E_f - M_f$ and ΔNFA were relatively large, but the differences between $E_f - M_f$ and $\Delta(NFA + CFGs)$ remained small. More importantly, the differences between $E_f - M_f$, ΔNFA, and $\Delta(NFA + CFGs)$ were negligible relative to the foreign-trade balances in *domestic rubles*, $M_d - E_d$. It is, nevertheless, difficult to judge which series represent changes in money supply caused by foreign-trade best. We use all of $E_f - M_f$, ΔNFA, and $\Delta(NFA + CFGs)$ for the analysis of Soviet SFEs for caution, while we use only the series of $E_f - M_f$ in international comparison for simplicity.

The third difficulty in the correspondence between foreign-trade balance and money supply is that there was another Soviet bank, the Foreign Trade Bank, which handled foreign currency transactions. Gosbank's balance sheet included the balance sheet of the Foreign Trade Bank since 1961 following the merger of Gosbank and the Foreign Trade Bank. Thus, the foreign-assets position of the Foreign Trade Bank was not a cause for concern after 1961. Moreover, according to Kashin and Mikov (2010, pp. 58, 88), the merger caused only a small change in Gosbank's balance sheet at that time: the consolidation of these two banks increased Gosbank's foreign-settle-

ment account balance by only 7 million rubles, or 0.01% of Gosbank's balance sheet total at the consolidation. Because the Foreign Trade Bank's weight in the foreign-exchange transactions was negligible relative to that of Gosbank, we do not have to bother much about the Foreign Trade Bank before 1961 as well. While the Foreign Trade Bank had conducted only non-commercial foreign-currency transactions, Gosbank had conducted commercial foreign-currency transactions before the consolidation. This seems to explain the small weight of the Foreign Trade Bank in foreign-exchange transactions.

3.2 Methods

We analyze the Soviet SFEs and foreign-trade taxes in market economies from three points: the size of SFEs and foreign-trade taxes, the ratio of change in money supply to SFEs and foreign-trade taxes, and the price-distortion rate. Hereafter, we use the terms "SFEs" and "foreign-trade taxes" interchangeably for simplicity.

3.2.1 Size of Soviet SFEs and foreign-trade taxes

For the Soviet economy, it seems reasonable to measure the size of SFEs by the ratio of SFEs to PNI. However, it is convenient to use also the ratio of SFEs to GDP to compare the Soviet SFEs and foreign-trade taxes in market economies. As data on the Soviet nominal GDP were unavailable, we estimated them using a rough method of multiplying the nominal Soviet PNI by a fixed coefficient of 1.3. The multiplier of 1.3 is the average of the nominal GNP to nominal PNI ratio for the Russian federation from 1961 to 1990 estimated by Kuboniwa and Ponomalenko (2000). It has been empirically shown that the PNI of a socialist country is about 70 to 80% of the country's GNP (Marer 1985, p. 16; IMF *et al.* 1991, vol. 1, p. 161). The multiplier of 1.3, that is, the ratio of PNI to the GNP of 0.77, seems reasonable. The difference between Soviet GDP and GNP was negligible because the weight of foreign economic activities was small in the Soviet economy.

3.2.2 Ratio of change in money supply to SFEs and foreign-trade taxes

The ratio of change in money supply to SFEs is defined as $|(E_f - M_f)/SFEs|$. The definition is based on the decomposition of *SFEs* according to Equations (1) and (4):

$$\frac{SFEs}{SFEs} = 1 = \frac{M_d - E_d}{SFEs} + \frac{Ef - M_f}{SFEs} \tag{6}$$

The sign of the second term on the right-hand side of Equation (6) changes depending on the signs of both $E_f - M_f$ and *SFEs*, which can be either positive or negative independently from each other. To avoid unnecessary complication, the ratio is defined as the absolute value of $(E_f - M_f)/SFEs$. The analysis aims to show to what degree SFEs are covered by change in money supply or net foreign-funds flow. Money supply increases in the net term if $E_f - M_f$ is positive, whereas loan supply increases in the net term if $E_f - M_f$ is negative. The absolute value of $E_f - M_f$ indicates the net amount of foreign-funds, which are either earned or borrowed.

The ratio can be far larger than 1 in market economies, mostly because foreign-trade taxes are usually very small in market economies. For example, if the ratio is 10, it can be understood that the net change in money supply can cover the SFEs 10 times. In this example, the SFEs are a small portion (one-tenth in this example) of the foreign-funds, which are earned by export surplus or borrowed from abroad due to import excess, collected by the government. Note that we cannot derive the ratio of change in money supply to foreign-trade taxes for about 15% of the samples of market economies (407 in the 2689 samples) because their foreign-trade taxes or subsidies are zero. Most of the European OECD countries do not have foreign-trade taxes after 1998[5].

[5] OECD (2015) indicates zero if the amount is less than fifty thousand Euros.

3.3.3 Price-distortion rate

The size of SFEs and foreign-trade taxes do not properly reflect the magnitude of price distortions caused by SFEs and foreign-trade taxes, because subsidies are the subtraction factors in the calculation of SFEs and foreign-trade taxes. Subsidies, however, cause price distortions, too. Because detailed data on subsidies on each export and import are not available both for the Soviet Union and market economies, a minimal adjustment to the calculation method of SFEs and foreign-trade taxes was done in the definition of the price-distortion rate:

$$PD = \frac{\left|M_d - M_f\right| + \left|E_f - E_d\right|}{E_f + M_f}$$

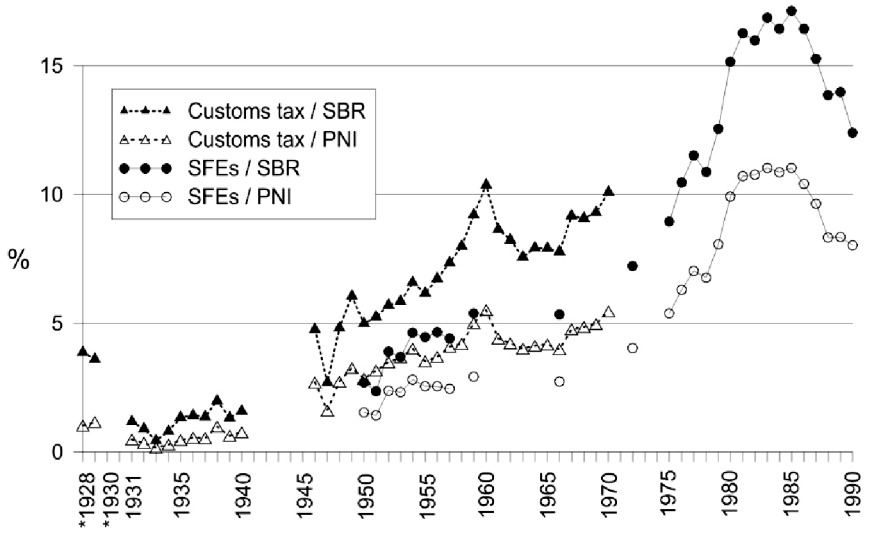
where *PD* stands for the price-distortion rate. The numerator indicates the total of the net deviations between the world and domestic prices for each export and import; the deviser is the total turnover of foreign trade. *PD* roughly indicates the significance of price distortions in foreign-trade decision making. Few samples recorded significant net-amounts of export or import subsidies, excluding export subsidies in the Soviet Union before 1960 and China for 2002. In all other cases where subsidies are negligibly small or do not exist, it is more appropriate to understand *PD* as the effective tax rate on foreign trade.

4. Results

4.1 Soviet SFEs

Figure 4 shows the size of Soviet SFEs in terms of ratios of SFEs to PNI and to the total state-budget revenue. The size of SFEs tended to increase from the 1930s to the end of the Soviet system. The size of SFEs in 1950 was already large by international comparison, as shown later. It increased to well over 10% of PNI (8% of GDP) and around 15% of the total state budget revenue in the 1980s.

FIGURE 4
Soviet SFEs and customs tax

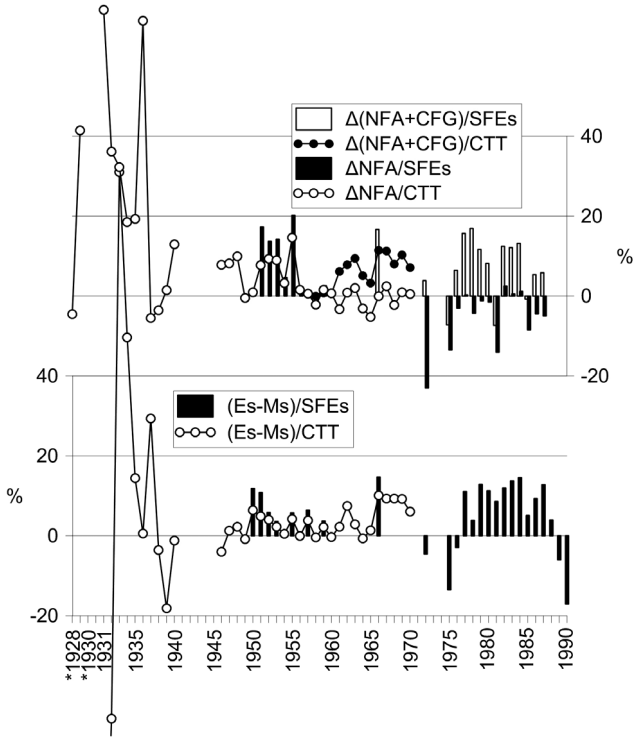


Sources: See the appendix.
Notations: SBR: the total state-budget revenue; PNI: produced national income.

Figure 5 shows the Soviet ratio of change in money supply to SFEs. The ratios are calculated using $E_f - M_f$, ΔNFA, and $\Delta(NFA + CFGs)$ for the indicator of change in money supply, and SFEs and customs taxes for the indicator of SFEs amount. Note that Figure 5 shows the value of $(E_f - M_f)/SFEs$ with its negative or positive sign, because the Soviet SFEs were positive in all sample years and therefore the sign of the ratio unambiguously indicates the sign of the foreign-trade balance in *foreign-trade rubles*.

From Figure 5, we first learn that all plots depict essentially similar results; they move differently but fall within a similar range. The $\Delta NFA/SFEs$ and $\Delta NFA/CTT$ plots move differently from the other plots and their signs are mostly negative. This is not surprising if we consider the relatively large size of CFGs with respect to the net foreign-assets. The difference between the $\Delta NFA/SFEs$ and $\Delta NFA/CTT$ plots and the other plots suggests that $\Delta(NFA + CFG)$

Figure 5
Ratio of money supply to SFEs



Sources: See the appendix.
Notations: See the text.

better corresponds to the foreign-trade balance in *foreign-trade rubles* than Δ*NFA*. This also supports the explanation in the previous section that CFGs primarily consisted of foreign-trade imbalances with the CMEA countries.

The second finding from Figure 5 is that the changes in money supply accounted for only a small portion of the SFEs. The ratio had relatively large absolute values for a few years in the 1920s and 1930s. However, all plots fall within the range of plus or minus 20% after 1938, except for one case of 23% in 1972 for $\Delta NFA/SFEs$. The simple average of absolute values for the ratios from 1950 to 1990 was 8.4%, 4.2%, 6.7%, 3.4%, and 9.1% for $(E_f - M_f)/SFEs$, $(E_f -$

M_f)/*CTT*, Δ*NFA*/*SFEs*, Δ*NFA*/*CTT*, and Δ(*NFA* + *CFG*)/*SFEs*, respectively. That is, at least, 90% of the SFEs corresponded to the redistribution of domestic funds, and net inflows or outflows of foreign-funds accounted for, at the most, 10% of the SFEs.

With regard to price distortions, Figure 2 showed that the import-tax rate was around 300% and the export-subsidy rate was around 100% in the 1950s. Export subsidies seemed to disappear at the macroeconomic level before 1975, and export-tax revenues were recorded after 1975. This change probably reflected the increased oil exports since the early 1970s. Both the import and export-tax rates after 1975 were lower than those in the 1950s, although they were still at around 50%. The high tax rates suggest that the Soviet SFEs caused significant price distortions during the entire Soviet period. The international comparison in the next section confirms the uniquely high Soviet SFEs tax rates.

4.2 Comparison between the Soviet Union and market economies

Table 1 summarizes the results of international comparisons. Figures 6-8 show the distributions as well as the cumulative distributions of the size of SFEs, the ratio of change in money supply to foreign-trade taxes, and the price-distortion rates. Note that the number of samples varies by indicators, as discussed in the previous section (see Table 1).

4.2.1 Size of foreign-trade taxes

The ratios of foreign-trade taxes to GDP of some countries are equal to, or larger than, the maximum size of 8.5% for the Soviet Union in 1983 and 1985. Those were small developing economies, except for 8.4% for Russia in 2008[6]. Note that Figure 6 omits the lar-

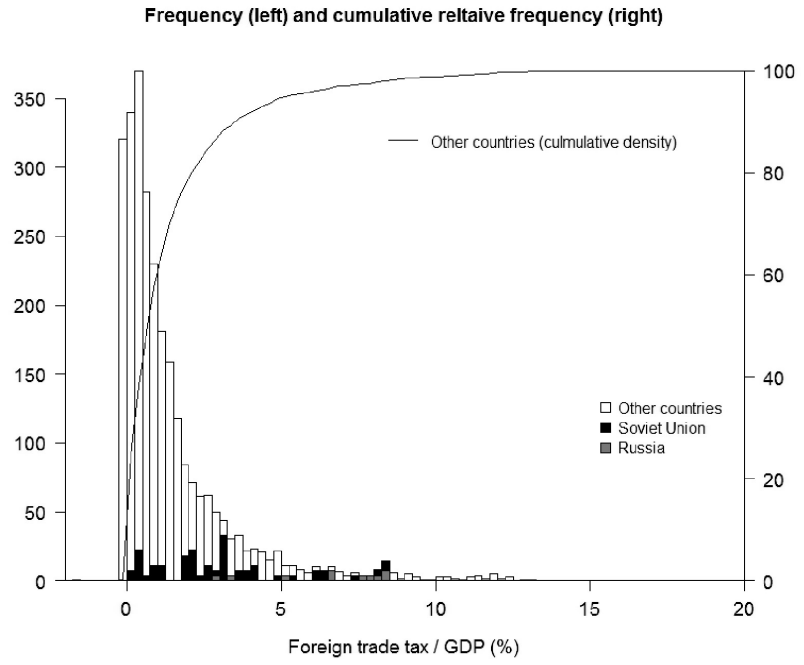
[6] The countries that indicated the size of foreign-trade taxes larger than 7% of GDP were Bahamas, Botswana, Belarus, Cote d'Ivoire, Cyprus, Fiji, Gambia, Kiribati, Lesotho, Liberia, Namibia, Maldives, Papua New Guinea, Tunisia, St. Kitts and Nevis, and St. Vincent and the Grenadines.

Table 1
The summary of the international comparison

	OC	RUS	SFE	CTT
	Tax/GDP (%)			
Minimum	-1.61	2.99	1.09	0.13
1st Quantile	0.26	5.42	2.04	0.76
Median	0.79	7.09	5.22	2.69
Mean	1.48	6.50	4.85	2.20
3rd Quantile	1.78	8.07	7.52	3.22
Maximum	31.71	8.37	8.48	4.24
SD	2.19	2.01	2.72	1.35
N	2689	10	27	37
	|B/Tax| (%)			
Minimum	0.02	91.78	0.02	0.01
1st Quantile	151.22	111.18	4.56	1.30
Median	365.05	137.12	8.58	4.02
Mean	878.44	181.33	8.42	14.22
3rd Quantile	993.81	227.60	12.39	9.53
Maximum	9760.00	361.04	17.05	104.56
SD	1333.61	98.03	4.74	25.01
N	2282	10	27	36
	PD (%)			
Minimum	0.00	5.01	37.60	14.66
1st Quantile	0.40	10.00	44.14	55.26
Median	1.25	13.37	47.16	95.45
Mean	2.43	12.16	59.06	99.24
3rd Quantile	3.16	15.36	85.11	143.03
Maximum	77.09	15.69	100.82	208.43
SD	3.71	4.08	22.56	53.90
N	2687	10	27	36

Notations: OC: other countries = all countries excluding Russia and the Soviet Union; RUS: Russia; SFE: the Soviet SFEs samples; CTT: the Soviet custom tax samples; Tax/GDP: the ratio of foreign-trade taxes to GDP; |B/Tax|: the ratio of change in money supply to foreign-trade taxes, PD: the price-distortion rate, SD: the standard deviation, N: the number of samples.
Notes: Negative values of Tax/GDP indicate net export subsidies.
Sources: see the text.

FIGURE 6
Size of foreign-trade taxes



Sources: See the text.

gest value of 31.7% for Lesotho in 1993 for better appearance. In addition to Russia, 5% for the United Kingdom in 1978 was uniquely high for a developed economy. Table 1 and Figure 6, nevertheless, show that the size of Soviet SFEs was undoubtedly large by international comparison. We may say that the size of Soviet SFEs was not extremely large until 1975, when the Soviet SFEs was 4.1% of GDP, because around 10% of all samples (257 in the 2766 samples) showed a size larger than 4%. After 1975, the size of Soviet SFEs increased to around 8% in the 1980s. We may say that the size of Soviet SFEs was extremely large after 1975 by international comparison.

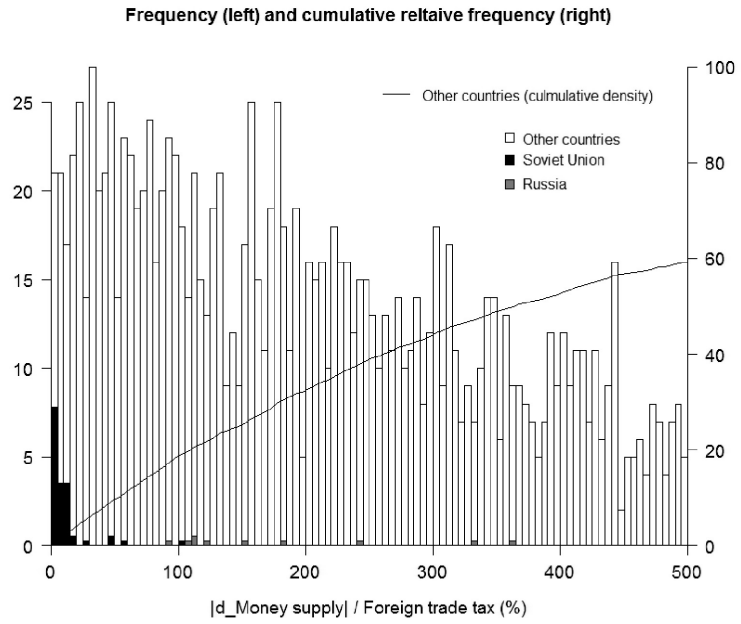
The Russian size of foreign-trade taxes in the 2000s was as large as in that in the Soviet Union in the 1980s. Because the ratio of the total state budget revenue to GDP was much lower in Russia in the

2000s than in the Soviet Union during the 1980s, we can say that Russia in the 2000s depends on foreign-trade taxes heavier than the Soviet Union in the 1980s.

4.2.2 The ratio of change in money supply to foreign-trade taxes

Figures 5 and 7 revealed the uniqueness of the Soviet SFEs. Figure 5 showed that the Soviet ratio of change in money supply to foreign-trade taxes was mostly lower than 20%. In contrast, only 57 in the 2282 samples (around 2.5%) showed the ratio lower than 20% (see Table 1 and Figure 7). Note that the horizontal axis of Figure 7 is truncated at 500% for better appearance. The 57 samples that showed the ratio lower than 20% comprised a variety of countries in-

Figure 7
Ratio of change in money supply to foreign-trade taxes



Sources: See the text.

cluding Canada, Australia, India, Korea, Japan, and other small developing economies. It is difficult to find a specific pattern of market economies that have low ratios. It is likely that they were rather random cases where a modest amount of foreign-trade taxes was recorded and the foreign-trade balance happened to be very small.

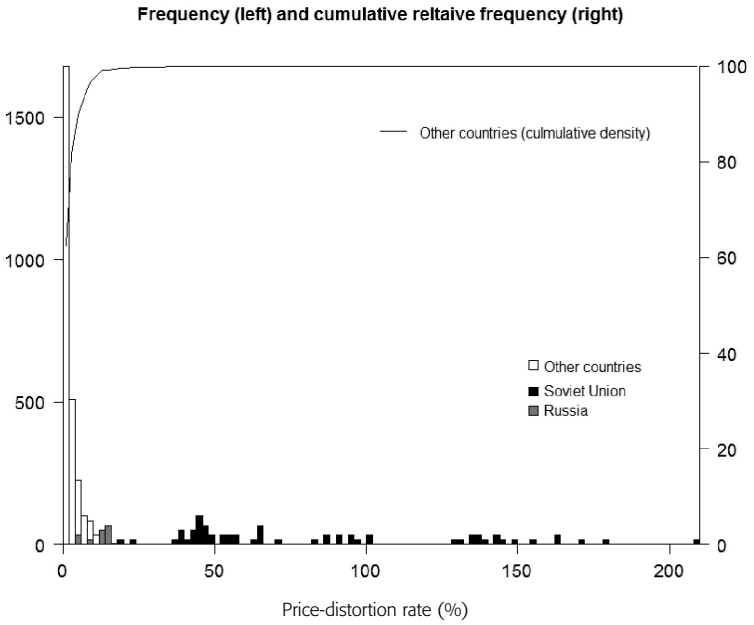
More than 80% of all samples showed the ratio higher than 100%. That is, the redistribution of domestic funds was smaller than the corresponding net change in money supply caused by foreign-trade. In these cases, foreign-trade taxes were a minor part of the foreign-funds raised either by export revenue or by borrowings from abroad. Note that 257 samples that showed zero foreign-trade taxes were excluded; we may understand that those samples have infinitely large ratios. As Figure 5 showed, the Soviet ratio of change in money supply to SFEs was 5 to 10% on average and 20% at the highest. The Soviet ratio is uniquely low by international comparison.

The Russian ratio of change in money supply to foreign-trade taxes was always over 100%, except for 2012, when it was 92%. Thus, Russia's foreign-trade tax revenues can be fully covered by net increases in foreign-funds generated from oil and gas exports (see Kuboniwa 2012a). Russia depends heavily on foreign-trade taxes, but those tax revenues are based on net inflows of foreign-funds earned by oil and gas exports. This is one difference between the Soviet SFEs and Russian foreign-trade taxes.

4.2.3 The price-distortion rate

Figure 8 shows that the Soviet price-distortion rate is by far higher than those for market economies. Only India, Myanmar, Lesotho, Pakistan, and Russia recorded an effective foreign-trade tax rate higher than 14.7%, which was the lowest price-distortion rate for the Soviet Union. The highest rate in the market economies was 77.1% in Myanmar for 2004. Myanmar also recorded the second (46.5% in 1996) through to ninth highest rates (26% in 1990). India recorded the tenth highest in 1990 (23%). This tenth highest rate in the market economies is far lower than the median rate of 47.2% for the Soviet

Figure 8
Price-distortion rate



Sources: See the text.

SFEs samples. Table 1 and Figure 8 confirmed that the Soviet price-distortion rate is high, literally beyond comparison: the frequency distributions for the Soviet Unions and market economies are almost completely separated.

The Russian price-distortion rate, which ranged from 5% in 2002 to 15.8% in 2008, was high in market economies. Russia is unique in that significant amounts of her export taxes contribute to the high price-distortion rates. No other country has recorded significant amounts of export taxes except Argentine in 2002 through to 2004 and the Soviet Union after 1975 (see Figure 2). Large export taxes on oil and gas undoubtedly increase the Russian effective tax rates. Indeed, we know that there were significant differences between domestic and world-market energy prices in Russia and they cause significant price distortions (Henderson, 2011; Kuboniwa, 2014).

5. Discussion

This study quantitatively examined Soviet SFEs using the newly available data on Soviet foreign trade in *domestic rubles*, Gosbank's balance sheets, and Soviet state-budget revenues. The analysis showed that the Soviet SFEs were mostly accounted for by the redistribution of domestic funds within the government-state enterprises sector and largely irrelevant with respect to net changes in money supply or net flows of foreign-funds. The comparative analysis of Soviet SFEs and foreign-trade taxes in market economies confirmed that this feature of Soviet SFEs was unique.

The result does not contradict the fact that foreign-funds inflows contributed to Soviet economic development. Foreign borrowings following the advent of *detente* in the early 1970s and the surge of oil export revenue after the 1973 oil shock sharply increased inflows of foreign-funds to the Soviet economy (Holzman, 1976, pp. 159-170; Garvy, 1977, pp. 147-151; Nove, 1992, pp. 391-393). The increased inflow of foreign-funds enabled the Soviet Union to import a greater quantity of goods without increasing its exports, which undoubtedly extended the life of the Soviet regime (IMF *et al.*, 1991, p. 119; Hanson, 2003, pp. 119-124, 154-162). It was certain that the Soviet economy benefitted from the foreign-funds it obtained through its foreign borrowings and oil exports. However, the following two points should be noted. First, the Soviet economy spent the foreign-funds in the process of enjoying the windfall. Second, the Soviet economy could enjoy the windfall with or without SFEs.

The increased foreign-trade turnover in both nominal and real terms after the early 1970s certainly extended the tax base of SFEs, and the increase in SFEs clearly contributed to increasing state budget revenues. However, the increases in SFEs were largely due to the increased transfer of existing domestic funds from the state enterprise sector to the government. The Soviet foreign-trade balances in terms of *foreign-trade rubles* were mostly small, whether positive or negative, and consequently led to small changes in money supply. The data on Gosbank's net financial assets also supported that fo-

reign-trade caused only small changes in money supply. The net financial contribution of SFEs to the Soviet economy was small.

The SFEs mechanism was not a tool to control foreign-trade activities, because the Soviet government monopolized foreign trade and foreign funds, and the Soviet state enterprises had little authority to make decisions on foreign trade. Nor did the main purpose of the SFEs mechanism seem to be generating additional state budget revenues, because the government must have financed the import costs including foreign-trade taxes for state enterprises so far as the import transactions were included in the national economic plan. Furthermore, the Soviet government was able to collect all profits of the state enterprises without the SFEs mechanism. Then, what was the economic function of the SFEs mechanism?

It seems most appropriate to regard SFEs as a by-product of the Soviet policy of comprehensive price control. The SFEs did not seem to have any other active role in Soviet economic management. If foreign-trade transactions had been valued either at only the Soviet domestic prices or at the world market prices, SFEs would have disappeared. However, it was impossible to exclude SFEs without denying the very existence of the Soviet regime. The Soviet regime aimed to separate the foreign and domestic relative price systems (see, Wolf, 1988b, pp. 9-12; Zverev, 1990, p. 30). If the Soviet regime had been willing to accept the world market prices, the entire mechanism of price control, including the "price equalization-SFEs" mechanism, would have been unnecessary and, consequently, SFEs would not have existed. SFEs were the consequence of the Soviet government's foreign-trade monopoly and comprehensive price-control. From the Soviet perspective, the large size of SFEs and the high effective tax rates on foreign trade vindicated its "successful" price-control policy: the Soviet government was able to insulate such a deeply harmful world relative price system from the Soviet domestic relative price system. From this perspective, SFEs were, indeed, a phenomenon specific to the Soviet economy.

This study confirmed that SFEs were largely related to the redistribution of existing domestic funds. Given this result, we may have

to re-evaluate the soundness of the Soviet state budget of the 1970s and 1980s, when SFEs accounted for 7 to 15% of the state budget revenues (see Figure 4). Kashin and Kozlova (2013, pp. 163-176) showed that the Soviet government secretly borrowed money from Gosbank from 1968 through to the end of the Soviet regime. The amount of the secret finance reached up to 5 to 10% of the total state budget revenue during the 1970s and 1980s. It is, however, unclear how SFEs were related to the Soviet state budget and how foreign-funds flows were related to the overall Soviet flow of funds. It is not easy to conduct a comprehensive analysis of the Soviet financial economy. Such analyses may require detailed data on the Soviet Union's balance of payments and state budgets; this material might be awaiting researchers in Soviet archives.

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Appendix
The Soviet data

Year	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	FA	CFG	FL	TTL	PNI	SBR	E_s	M_s	E_d	M_d	CTT	GOF
*1922	28.1	-	5.8	143	-	-	-	-	-	-	-	-
*1923	147.4	-	14.9	665	-	-	218	143.2	-	-	-	-
*1924	301.0	-	70.1	1248	11970	2320	337	260	-	-	-	-
*1925	301.4	-	55.7	2301	14260	3000	608	827	-	-	-	-
*1926	256.7	-	59.5	2723	21540	4070	725	689	-	-	-	-
*1927	306.1	-	129.7	3806	23370	5390	746	758	-	-	-	-
*1928	308.6	-	143.9	4389	25010	6670	803	953	-	-	258	-
*1929	433.1	-	142.4	5519	26330	8430	-	-	-	-	304	-
*1930	590.9	-	163.5	9354	27480	12990	924	881	-	-	-	-
1930	585.5	-	145.5	10869	43690	5320	1036	1059	-	-	-	-
1931	720.0	-	78.7	16577	57250	23860	811	1105	-	-	281	-
1932	839.0	-	95.7	22176	80430	31630	575	704	-	-	282	-
1933	942.2	-	146.9	25541	97000	35770	495	348	-	-	161	-
1934	958.9	-	94.1	28905	128700	46500	418	232	-	-	375	-
1935	1080.2	-	47.4	39076	185500	64660	367	241	-	-	869	-
1936	2224.5	-	369.1	49709	213840	83390	1359	1353	-	-	1194	-
1937	2512.9	-	730.2	56581	243800	96570	1729	1341	-	-	1322	-
1938	2345.4	-	653.8	54107	257400	127480	1353	1444	-	-	2542	-
1939	2601.3	-	879.0	57863	328800	156010	611	987	-	-	2077	-
1939	318.5	-	879.0	57863	—	—	—	—	—	—	—	—
1940	860.2	-	1050.0	66869	368200	180240	1412	1445	-	-	2858	-
1940	860.2	-	1050.0	66872	—	—	—	—	—	—	—	—
1941	779.0	-	828.3	80793	404100	191400	-	-	-	-		-
1942	703.0	-	1294.8	93820	330100	182840	-	-	-	-		-
1943	721.2	-	1793.4	111634	418600	209990	-	-	-	-		-
1944	834.9	-	2031.7	121947	489600	268740	-	-	-	-		-
1945	1199.2	-	2557.7	133644	441400	302030	1433	14805	-	-		-
1945	1200.0	-	2558.0	133644	—	—	—	—	—	—	—	—
1946	2255.7	-	2399.0	131390	573000	325440	3405	4031	-	-	15499	-
1947	2689.3	-	1980.6	118095	643700	386190	4021	3891	-	-	10429	-
1948	4841.1	-	2169.9	147024	721700	410490	6871	6433	-	-	19794	-
1949	4928.1	-	2372.7	194834	810400	437000	7603	7831	-	-	26509	-

(continued)

Year	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	FA	CFG	FL	TTL	PNI	SBR	E_s	M_s	E_d	M_d	CTT	GOF
1950	5360.2	-	2604.9	185805	740400	422800	7179	5824	13462	23549	21078	10087
1951	6895.4	-	2224.1	205135	780900	470330	9163	7963	21489	31387	24692	9948
1952	9546.7	-	2220.9	229459	812600	497700	11159	10024	18624	36895	28386	18211
1953	12438.0	-	2281.6	238642	856900	539810	11791	11076	22066	41262	31539	19196
1954	14189.1	-	2832.6	224325	918300	558560	12892	12727	24372	50037	36793	25665
1954	14189.1	-	2832.6	224325	–	–	–	–	–	–	–	–
1955	18788.5	-	2347.8	235605	985000	564300	13694	12242	25440	49178	34777	23638
1956	20172.9	-	3129.8	284420	1068000	585900	14446	14451	27521	54736	39408	27216
1957	4563.5	15960.3	3201.0	306791	1128000	626900	17526	15751	37578	63475	46063	25897
1958	2703.7	17127.1	2510.5	362295	1277000	672000	17190	17399			53702	35844
1959	4011.7	16612.3	2785.6	463865	1362000	740150	21763	20293	53200	91500	68183	44430
1960	4107.9	16496.0	2324.5	491731	1450000	770780	22252	22515			79949	48318
1960	873.7	3682.0	523.4	52112	–	–	–	–	–	–	–	–
1961	853.1	4320.6	726.0	56561	152900	78000	5399	5245			6751	5494
1962	967.6	4807.6	782.2	60555	164600	84300	6327	5810			6941	5395
1962	967.6	4807.6	782.2	73859	–	–	–	–	–	–	–	–
1963	1150.5	5313.8	832.0	68134	168800	89500	6545	6353	-	-	-	5000
1964	952.9	5926.4	868.6	75846	181300	94400	6916	6963	-	-	-	5820
1965	850.8	6610.8	1188.8	82092	193500	102300	7359	7252	-	-	-	6044
1966	807.4	7559.0	1147.0	92861	207400	106300	7957	7122	9581	14423	-	5812
1967	1344.2	8513.0	1424.8	105566	225500	117200	8687	7683	-	-	-	6850
1968	1505.0	9736.8	1857.0	119646	244100	130800	9571	8469	-	-	-	7737
1969	1945.8	10953.3	2176.6	130336	261900	140000	10490	9294	-	-	-	8742
1970	2396.6	11998.8	2554.3	145935	289900	156700	11520	10559	-	-	15806	10783
1970	2396.6	13381.3	1070.4	145935	–	–	–	–	–	–	–	12098
1971	3486.0	13979.7	1183.0	161547	305000	166000	12425	11232	-	-	-	–
1971	3486.0	13979.7	1184.4	161547	–	–	–	–	–	–	–	13492
1972	1677.9	17373.2	2282.1	179693	313600	175100	12734	13310	18121	31324	-	–
1973	2118.9	18535.5	6798.6	202036	337800	187800	16802	15544	-	-	-	14910
1974	3451.0	21004.7	9257.7	229647	354000	201300	20738	18829	-	-	-	15613
1975	3134.1	22233.3	11582.3	252339	363300	218800	24034	26670	22524	44723	-	19165
1976	4135.1	24536.3	13314.7	284782	385700	232200	28022	28733	23161	48172	-	24288
1977	5158.3	28932.3	14259.7	318855	405600	247800	33255	30093	25574	50944	-	27812
1978	5639.4	35063.5	15985.4	349095	426300	265800	35667	34554	25804	53592	-	29520

(continued)

Year	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	FA	CFG	FL	TTL	PNI	SBR	E_s	M_s	E_d	M_d	CTT	GOF
1979	7982.1	39600.8	18742.7	384866	438300	281500	42426	37881	26798	57582	-	34487
1980	9435.6	44039.8	20883.0	429846	462200	302700	49634	44463	27739	68449	-	44391
1981	10653.4	47528.9	29428.4	481894	486700	320600	57108	52631	28530	76203	-	50897
1982	12361.8	53137.3	29729.4	525473	523400	353000	63165	56411	34500	84139	-	54730
1983	13759.5	60144.6	30815.6	567871	547200	357900	67891	59589	35676	87711	-	57546
1984	15238.8	67582.8	31580.5	607707	569600	376700	74386	65373	36912	89790	-	59297
1985	14696.5	72498.1	36431.5	645017	578500	372600	72664	69429	36642	97202	-	63704
1986	15706.2	78497.5	40163.4	670548	587400	371600	68285	62586	39737	95132	-	58745
1987	13638.0	84716.1	40948.9	715772	599600	378400	68142	60741	44350	94731	-	55289
1988					630845	378900	67115	65040	47196	97627		51839
1989					673702	401900	68742	72137	49536	109108		57238
1990					728185	471800	60757	70728	45634	114097		54968

Note:
The unit is one million current rubles. Note that a denomination which made ten old rubles equal to one new ruble was done in 1961. Columns (a) to (d) show the stock data for Gosbank's balance sheet items at the end of the year. A year with an asterisk (*) indicates the economic year began in October of the previous year and ended on September 30 of the year indicated. When two entries in (a) to (d) for the same year, the first is compiled using the old methodology and the second with the new methodology. Columns (e) to (l) show the flow data in the year. The symbol '-' indicates a figure is unavailable. The marking '—' indicates the figure is not defined.

Notations and Sources:

Columns (a) to (d), Gosbank balance-sheet items: FA: foreign assets, CFG: credits to foreign governments, FL: foreign liabilities, TTL: the balance total. All balance-sheet data are from Kashin and Mikov (2010). The figures for 1988-1990 are omitted, as they are incomparable due to the banking reform in 1988.

Column (e): Nominal produced national income (PNI): RGAE(7733/4/1052/51) for 1923/24–26/27. The figures for 1927/28–31 and 1935 are based on the data in Vainshtein (1969). The amounts of turnover tax were added to the original Vainshtein figures of 1927/28–31, following Suhara (2008). The 1933 figure was estimated by Suhara (2008). The 1932, 1934, and 1936 figures were interpolated. RGAE 1562/41/65/36 for the figures of 1937 to 1949. Various issues of Narkhoz for the figures after 1950. When two or more sources give slightly different figures for the same year, the figure of the newest source was taken.

Column (f): State budget revenue (SBR): RGAE (7733/15/491/25,29) and RGAE (7733/36/1847/119,127,129) for 1923–1937. Note the figures for 1923–1937 were adjusted to the budget classification for 1938 and after; RGAE(7733/36/1847/115–7) explains the detail of the adjustments. RGAE (1562/41/543/21–25) and RGAE(1562/41/654/9) for the figures of 1931–1962 except the figures for 1940–1945. Goskomstat SSSR (1990, p. 15) for 1940–1945. Various issues of Narkhoz for the figures after 1962. When two or more sources give slightly different figures for the same year, the figure of the newest source was taken.

Columns (g) and (h): Export (Es) and Import (Ms) in valuta rubles: RGAE(1562/41/114/259) for 1923–1955. Various issues of Narkhoz for the figures after 1962. When two or more sources give slightly different figures for the same year, the figure of the newest source was taken.

Column (i) and (j): Export (Ed) and Import (Md) in domestic rubles: RGAE(1562/33/3107/200)

for 1950–1957. Aganbegan and Granberg (1968, pp. 94–95) for 1959. Ministerstvo ekonomicheskogo razvitiya Rossiiskoi Fedratsiya (Ministiry of Economic Development of the Russian Federation) (Kuboniwa 2012b) for the other years.

Column (k): Custom tax (CTT): RGAE (1562/41/543/15–20) and RGAE (1562/41/654/9) for *1929 to 1962. GARF (R7523/104/112D) for 1970. This is an item of the state budget revenue.

Column (l): Gross output of foreign trade (GOF): RGAE(1562/33/3107/200) for 1950–1957. RGAE (1562/33s/4925/32–33) for 1958–1962. IMF et al.(1991) and Kuboniwa (2012a, 2012b) for other years.

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