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Tax and Subsidy Policies for the Medical Service Sector and the Pharmaceutical Industry: A Computable General Equilibrium Approach

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Abstract

This paper presents a computable general equilibrium (CGE) framework to numerically examine the effect of tax and subsidy policies on the medical service sector and the pharmaceutical industry. The generalized framework with the latest Japanese input-output table of year 2005 with 108 different production sectors provides the following results: A welfare gain is aproximately 97,402 million yen when the subsidy rate of the sector of private hospitals and the medical analyzing industry increases by 10 percent if the government budget is not consiered explicitly, while the same policy reversely induces aproximately a 54,256 million yen welfare loss if the government finances the shortage caused by the policy change by a non-distionary income tax on individuals. Furthermore, the effect of tax and subsidy policies on individual medical sectors differs, while the high dependency of the pharmaceutical industry with other medical sectors can be found. In particular, the pharmaceutical industry is most better off not by a decrease in its own production tax rate but by a decrease in the production tax rate of the sector of private hospitals and the medical sample analyzing industry.

Keywords: Computable General Equilibrium (CGE) Model, Medical Service, Pharmaceutical Industry, Taxation, Subsidy, Simulation

JEL Classification: C68, H51, and H53

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1 Introduction

This paper presents a computable general equilibrium (CGE) framework to numerically examine the effect of tax and subsidy policies on the private medical service sector and the pharmaceutical industry[1].

This paper uses the latest Input-Output table of Japan of year 2005 with 108 different production sectors, and it evaluates the effect of several tax and subsidy policies on the private medical service sector and the pharmaceutical industry in Japan. By using the actual input-output table, the paper has successfully realized the real Japanese economy within the model. The purpose of this paper is to develop a general framework to numerically explore several government policies related to medical and health services, and it is thus applicable to any other countries, although the Japanese input-output table has been used in this paper.

Japan is going to experience very rapid as well as high population aging in the near future, which any developed countries have not experienced ever. The National Institute of Population and Social Security Researrch predicts the more than 40% aging rate at its peak level around year . Furthermore, the total number of the Japanese population has already started to decrease in year 2006 from 120 million, and the forcased total population of Japan by the National Institute of Populationa and Social Security Research reaches approximately 70 million at its stable level in year .A future decrease in the toal popultion would likely result in decreasing GDP, and stable future growth of the Japanese economy needs a merging setor to stimulate the economy in an aging Japan with its decreasing totoal population in the future.. An aging population will induce more demand for medical services, and the private medical sector is expected to play a more important role not only to stimulate the economy but also to complement the public health services.

The private medical service sector has been taxed and subsidized in Japan. The increasing importance of the private medical service sector implies that the government can more strategically use its tax and subsidy policies related to the private medical sector in

[1]FORTRAN programmes have been used for the numerical calculation in this paper.

order to achieve stable economic growth as well as to maintain the sustainable public health services in an aging Japan. The purpose of this paper is to numerically examine the effect of such policies that affect the private medical service sector within a general equilibrium framework. The paper also considers several financing methods of the government in order to finance the shortage in the revenue caused by policy changes by explicitly incorporating the government budget constraint, and it highlights that different financing methods induce very different effects on welare. Since a general equilibrium model is employed, all possible linkages of economic activities are taken into account. The latest input-output table with 108 different intermediate production sectors is used to estimate parameter values, and the benchmark model successfully reflects the real economy. The employed model is computable, and the effect of government policies can be examined numerically. Thus, the comparison of several simulated cases with the benchmark model gives us realistic evaluations of the effect of several government policies on the medical service sector. The welfare comparison is also given, and the effect of polciy changes is examined not only on each medical sector but also on the whole economy..

Simulation results are as follows. First of all, since the medical service sector which includes private hospitals and private medical sample analyzing firms is the largest and its subsidy rate is also the higest among all other medical sectors, the subsidy for this sector is the best policy instrument among all other tax and subsidy policies in order to enhance the welfare of the whole Japanese economy, as long as the government does not consider its budget constraint explicitly: A welfare gain is measured to be approximately 97,402 million yen when the subsidy rate of the sector increases by 10%. The 10% increase in the subsidy rate is also the most preferable for all individual medical sectors as well. Secondly, however, if the budget constraint of the government is explicitly considered and the shortage of the revenue is financed by a non-distortionary income tax on individuals, then such a policy becomes worst, and the effect becomes reverse: A welfare loss by such a policy is measured to be approximately 54,256 million yen. This is an expected result, since any plicy change in a distionary tax results in the largest welfare loss when a non-distriontary tax is used in order to fiance the shortage in the government revenue caused by the change in the distortionary tax. Tis is always correct, and the welare loss is measured to be approximately 54,256 million yen when a 10% incerase in the subsidy rate (distortionary) is followed by an increase in the income tax.rate (non-distortionary). This simulation result highlights the importance of the financing method in order to fullfil the government budget constraint. Since a policy without the consideration of the (current) budget constraint corresponds to a debt financing policy, the policy implication of this result is that the best policy for the whole economy when it were financed by issuance of the government bonds becomes worst if the financing method is replaced with a non-distortionary tax. Actually, a distionary tax should be used to finance the shortage in the revenue caused by the same policy in stead of using a non-distortionary tax, in order to minimize an efficiency (welfare) loss, which is induced by an increase in the tax rate. Thirdly, the effect of tax and subsidy policies on individual medical sectors differs. There is always a trade-off among different medical sectors in terms of the effect on their net benefits, or factor payments except for the pharmaceutical industry. Fourthly, the high dependency of the pharmaceutical industry with other medical sectors is found. In particular the pharmaceutical industry heavily depends on the medical sector of private hospitals and the medical sample analyzing industry. Finally, the pharmaceutical industry is most better off not by a decrease in its own production tax rate but by a decrease in the production tax rate of private hospitals and the medical sample analyzing industry.

The paper is organized as follows. The next section explains the numerical model, and Section 3 simulates several scenarios with results and evaluations. Section 4 concludes the paper.

2 Numerical Analysis

In order to obtain the numerical effects of tax and subsidy policies on the medical and health related sectors as well as on welfare of the economy, this paper uses the latest input-output table of Japan within a general equilibrium framework, in order to make the simulation analysis realistic. By using the actual input-output table of Japan, the paper has successfully realized the real economy within the model. This paper employs the conventional static computable general equilibrium (CGE) model with the actual input-output table of Japan of year 2005. Note that all parameter values in the model are calculated by using the actual data, so that the calculated values of endogenous variables obtained within the model also become quite realistic.

2.1 Data

The latest input-output table of Japan of year 2005 with 108 different intermediate sectors has been used in order to construct the social accounting matrix (SAM). The SNA data has also been used to obtain the amount of aggregate private savings. The last sector, namely the 108th sector, includes all unclassified items. Since the value of its factor payments of some intermediate sectors becomes negative[2], this paper has integrated the 108th sector with the 106th sector which includes all other services. The integration makes the actual input-output table data consistent to the model, and it is assumed in this paper that there are 107 different production sectors, all of which are allowed to have intermediate production processes. Based on this simplification, the social accounting matrix (SAM) has been made, which is given in Appendix. Note that the following production sectors are particularly relevant to this paper; Medicaments ($i = 26$), Medical Service and Health ($i = 94$), Social Security ($i = 95$), and Nursing Care ($i = 96$). The economic activities of the pharmaceutical industry is shown in Medicaments ($i = 26$), and the private medical service sector such as private hospitals is categorized in Medical Service and Health ($i = 94$). The private medical sample analyzing

[2]Labor income and capital income are factor payments.

industry[3] is also categorized in Medical Service and Health ($i = 94$). Nursing Care ($i = 96$) shows the economic activities of the industry of the long-term care for the elderly. Social Security ($i = 95$) includes activities of private nurseries, and nursing homes.

2.2 Model

The computable general equilibrium model of this paper employs the conventional static model[4]. The Japanese economy is assumed to consist of 107 different sectors, households, the government, and the investment firm sector. All 107 industries are allowed to have intermediate production processes, and they are assumed to maximize their profit. Households are assumed to maximize their utility over 107 different consumption goods. The government is assumed to determine its tax revenue, the amount of subsidies, and its consumption in order to satisfy its budget constraint. The economy is assumed to be fully competitive, so that all prices are determined in the relevant markets in order to equate the amount of demand to the amount of supply at its fully competitive price level in equilibrium. Note that the model is static and thus the short-run effect is only investigated. Thus, it is assumed for simplicity that factor inputs are not mobile among different sectors in the short-run.

<Households>

Households are assumed to be homogenous, and their utility is given by:

$$U\left(X_1, X_2, \cdots, X_{107}\right) = \prod_{i=1}^{107} X_i^{\alpha_i}, \tag{1}$$

where X_i denotes consumption of good i. $\sum_{i=1}^{107} \alpha_i = 1$ is assumed. i denotes each sector. The parameter value of each α_i is determined by using the actual social accounting matrix,

[3]A typical firm categorized in this industry is a blood test examination firm.

[4]In terms of the conventional static model, see Ballard, Fullerton, Shoven, and Whalley (1985), Shoven and Whalley (1992), and Scarf and Shoven (2008). In particular, the model used in this paper is similar to Hosoe, Ogawa, and Hashimoto (2004). Regarding the dynamic model, it is conventional to employ an overlapping generations model In terms of computable overlapping generations model within a general equilibrium framework, see Auerbach and Kotlikoff (1987). Kato (1998), Kato (2002b), Kato (2002a), and Ihori, Kato, Kawade, and Bessho (2006) also apply the dyanamic model to several policies in Japan.

which is given in Table 1.

Households are assumed to maximize (1) with respect to their consumption goods subject to their budget constraint such that:

$$\sum_{i=1}^{107} p_i X_i = I \left(1 - \tau^I\right) - S^I,$$

where p_i and I denote the price of good i and income, respectively. τ^I is the proportional income tax rate, and it is calculated by using the actual social accounting matrix. S^I denotes the amount of savings, and households are assumed to save the constant amount relative to their disposal income. The amount of savings is assumed to be given by

$$S^I = s^I \left(1 - \tau^I\right) I,$$

where the constant ratio, s^I, is given exogenously[5]. The value of s^I has been calculated by using the actual SAM. The calculated values of τ^I and s^I are given in Table 1. Then income is given by

$$I = \sum_{i=1}^{107} r_i \overline{K_i} + \sum_{i=1}^{107} w_i \overline{L_i},$$

where r and w denote the rental cost and the wage rate, respectively. $\overline{K}$ and $\overline{L}$ are endowments of capital and labour, respectively. The factor payments change as r or w changes. Note that the amounts of $r_i \overline{K}_i$ and $w_i \overline{L_i}$ are both obtained from the actual social accounting matrix.

The first order conditions yield the demand functions such that:

$$X_i = X_i \left(p_i, Y; \alpha_i\right) = \frac{\alpha_i I \left(1 - \tau^I\right) \left(1 - s^I\right)}{p_i}, \;\; i = 1, 2, \cdots, 107. \tag{2}$$

Note that α_i can be calculated by using (2) and the actual social accounting matrix so

[5]The assumption that the ratio is exogenously given is made only for the model to be consistent to the actual social accounting matrix, and this assumption is very common in the literature.

that:

$$\alpha_i = \frac{p_i X_i}{I\left(1-\tau^I\right)\left(1-s^I\right)} = \frac{p_i X_i}{\left(1-s^I\right)\left(1-\tau^I\right)\left(\sum_{j=1}^{107} r_j \overline{K_j} + \sum_{j=1}^{107} w_j \overline{L_j}\right)}, \quad i = 1, 2, \cdots, 107,$$

where both the values of the denominator and the numerator can be obtained from the actual social accounting matrix. The estimated values of α_i are given in Table 1.

<Private Firms>

Following the conventional assumption, the multiple decisions by each firm are described by the tree structure, where each firm is assumed to make a decision over several different items. In the tree structure, the optimal behavior of each firm which makes a decision over different items is described as if the firm always makes a decision over two different items at different steps. Each firm makes a decision over different items; the amount of exports of its own product, the amount of imported goods and intermediate goods used for its production, and the amount of labor and capital. This assumption simplifies a complicated decision over several items by each firm. Each step is also shown in Figure 1.

At step 1, a private firm, i, is assumed to use labor and capital to produce its composite goods, Y_i. Then, the firm is assumed to produce its domestic goods, Z_i, by using its own Y_i and $X_{i,j}$ at the second step. $X_{i,j}$ denotes the final consumption goods produced by firm j used by firm i for its production. Thus, $X_{i,j}$ is the amount of the final consumption goods produced by firm j for the intermediate production process of firm i. At the third step, the firm is assumed to decompose its domestic goods, Z_i, into exported goods, E_i, and final domestic goods, D_i. This step is concerned about its optimal decision over the amount of its product to be exported. At the final step (the fourth step), the firm is assumed to produce its final consumption goods, Q_i, by using its final domestic goods, D_i, and imported goods, M_i. This step corresponds to its optimal decision over how much it uses imported goods, M_i, and its own goods, D_i, to produce its final consumption goods, Q_i, which are consumed by domestic households. The assumption of this tree structure in terms of different decisions can incorporate firm's complicated decisions over the amount of exports of its own product, the amount of imported goods and intermediate goods which the firm uses in its production process, and the amount of factor inputs into the model in a tractable way.

Note that all market clearing conditions are used to determine all prices endogenously in their corresponding markets, and also that at each step the private firm is assumed to determine the amount of relevant variables in order to maximize its profit.

By the assumption of the above tree structure, all decision making processes can be simplified, and the optimal behavior about all different decisions can be incorporated as follows:

Step 1: The production of composite goods

Each firm is assumed to produce its composite goods by using capital and labor. Each firm is assumed to maximize its profit given by:

$$\pi_i = p_i^Y Y_i\left(K_i, L_i\right) - r_i K_i - w_i L_i, \tag{3}$$

where Y_i and p_i^Y denote the composite goods produced by firm i and its price, respectively. K_i and L_i denote capital and labor used by firm i in order to produce its composite goods, respectively. The production technology is given by:

$$Y_i\left(K_i, L_i\right) = K_i^{\beta_{K,i}} L_i^{\beta_{L,i}},\ i = 1, 2, \cdots, 107, \tag{4}$$

where $\beta_{K,i} + \beta_{L,i} = 1$ is assumed for all $i = 1, 2, \cdots, 107$. Each firm is assumed to maximize (3) with respect to labor and capital subject to (4), and the first order conditions yield the demand functions such that:

$$K_i = K_i\left(p_i^Y, r_i, w_i; \beta_{K,i}, \beta_{L,i}\right) = \frac{\beta_{K,i}}{r_i} p_i^Y Y_i, \tag{5a}$$

$$L_i = L_i\left(p_i^Y, r_i, w_i; \beta_{K,i}, \beta_{L,i}\right) = \frac{\beta_{L,i}}{w_i} p_i^Y Y_i,\ \ i = 1, 2, \cdots, 107. \tag{5b}$$

Note that $\beta_{K,i}$ and $\beta_{L,i}$ can be calculated by using (5a), (5b), and the actual social accounting matrix so that:

$$\beta_{K,i} = \frac{r_i K_i}{p_i^Y Y_i},$$
$$\beta_{L,i} = \frac{w_i L_i}{p_i^Y Y_i},\ \ i = 1, 2, \cdots, 107,$$

where $r_i K_i, w_i L_i$, and $p_i^Y Y_i$ can be obtained from the actual social accounting matrix. The estimated values of $\beta_{K,i}$ and $\beta_{L,i}$ are given in Table 1.

Step 2: The production of domestic goods

Each firm is assumed to produce domestic goods, Z_i, by using intermediate goods and its own composite goods, which production has been described at step 1. The optimal behavior of each firm in terms of the production of domestic goods can be described such that:

$$\underset{Y_i, X_{i,j}}{Max}\ \pi_i = p_i^Z Z_i - \left(p_i^Y Y_i - \sum_{j}^{107} p_j^X X_{i,j}\right),$$
$$st \quad Z_i = \min\left(\frac{X_{i,j}}{ax_{i,j}}, \frac{Y_i}{ay_i}\right),\ \ i = 1, 2, \cdots, 107,$$

where $X_{i,j}$ and p_j^X denote intermediate good j used by firm i and its price, respectively. p_i^Z is the price of Z_i. $ax_{i,j}$ denotes the amount of intermediate good j used for producing one unit of a domestic good of firm i , and ay_i denotes the amount of its own composite good for producing one unit of its domestic good. The estimated values of ay_i are given in Table

1[6]. Note that the production function at this step is assumed to be the Leontief type. Using $ax_{i,j}$ and ay_i, and assuming that the market is fully competitive, the zero-profit condition can be written by:

$$p_i^Z = p_i^Y ay_i + \sum_j^{107} p_j^X ax_{i,j},\ i = 1, 2, \cdots, 107.$$

Step 3: Decomposition of Domestic Goods into Exported Goods and Final Domestic Goods

The optimal decision made by firm i in terms of the amount of exports of its own goods is described as the the decomposition of Z_i ($i = 1, 2, \cdots, 107$) into exported goods, E_i, and final domestic goods, D_i. Each firm is assumed to maximize its profit such that:

$$\pi_i = p_i^e E_i + p_i^d D_i - (1 + \tau_i^p - \tau_i^s)\, p_i^Z Z_i, \tag{6}$$

where p_i^e and p_i^d denote the price when the domestic goods are sold abroad, and the price when the domestic goods are sold domestically, respectively. Note that p_i^e is measured in the domestic currency. τ_i^p and τ_i^s are the tax rates of a production tax imposed on the production of Z_i and the subsidy rate, respectively. The values of τ_i^p and τ_i^s are calculated by using the actual social accounting matrix, and the calculated values are given in Table 2-1 and 2-3. The decomposition is assumed to follow the Cobb-Douglas technology such that:

$$Z_i = E_i^{\kappa_i^e} D_i^{\kappa_{ii}^d},\ i = 1, 2, \cdots, 107, \tag{7}$$

where $\kappa_i^d + \kappa_i^e = 1$ ($i = 1, 2, \cdots, 107$) is assumed. Each firm is assumed to maximize (6) with respect to E_i and D_i subject to (7), and the first order conditions yield

[6] The estimated values of $ax_{i,j}$ are not presented in Table 2, since the number of the estimated values reach 11,449. The estimated values are given upon request.

$$E_i = E_i\left(p_i^e, p_i^d, p_i^Z; \tau_i^p, \tau_i^s, \kappa_i^d, \kappa_i^e\right) = \frac{\kappa_i^e\left(1+\tau_i^p-\tau_i^s\right)p_i^Z Z_i}{p_i^e}, \tag{8a}$$

$$D_i = D_i\left(p_i^e, p_i^d, p_i^Z; \tau_i^p, \tau_i^s, \kappa_i^d, \kappa_i^e\right) = \frac{\kappa_i^d\left(1+\tau_i^p-\tau_i^s\right)p_i^Z Z_i}{p_i^d}, \ i = 1, 2, \cdots, 107. \tag{8b}$$

Note that κ_i^e and κ_i^d can be calculated by using (8a), (8b), and the actual social accounting matrix so that:

$$\kappa_i^e = \frac{p_i^e E_i}{\left(1+\tau_i^p-\tau_i^s\right)p_i^Z Z_i},$$
$$\kappa_i^d = \frac{p_i^d D_i}{\left(1+\tau_i^p-\tau_i^s\right)p_i^Z Z_i}, \ i = 1, 2, \cdots, 107,$$

where $p_i^e E_i$, $p_i^d D_i$, $p_i^Z Z_i$, $\tau_i^s p_i^Z Z_i$, and $\tau_i^p p_i^Z Z_i$ can be obtained from the actual social accounting matrix. The estimated values of κ_i^e and κ_i^d are given in Table2.

Step 4: The Production of the final goods

Denote the final consumption goods by Q_i ($i = 1, 2, \cdots, 107$). The final consumption goods are assumed to be produced by using the final domestic goods, D_i, and the imported goods, M_i. This step corresponds to the optimal decision making behavior of each firm in terms of the amount of imported goods which are used in its production process. The production technology at this final step is given by the following Cobb-Douglas function:

$$Q_i = M_i^{\gamma_i^m} D_i^{\gamma_i^d}, \ i = 1, 2, \cdots, 107, \tag{9}$$

where $\gamma_i^m + \gamma_i^d = 1$ ($i = 1, 2, \cdots, 107$) is assumed. Each firm is assumed to maximize its profit with respect to M_i and D_i subject to (9). Its profit is given by:

$$\pi_i = p_i^Q Q_i - \left(1+\tau_i^m\right)p_i^m M_i - p_i^d D_i, \ i = 1, 2, \cdots, 107,$$

where p_i^Q and τ_i^m denote the price of its final consumption goods, Q_i, and the import tariff rate, respectively. The import tariff rate is calculated by using the actual social accounting matrix, and it is given in Table 2-2. Then, the first order conditions yield

$$M_i = M_i\left(p_i^m, p_i^d, p_i^Q; \tau_i^m, \gamma_i^m, \gamma_i^d\right) = \frac{\gamma_i^m p_i^Q Q_i}{(1+\tau_i^m)\, p_i^m{}_i}, \tag{10a}$$

$$D_i = D_i\left(p_i^m, p_i^d, p_i^Q; \tau_i^m, \gamma_i^m, \gamma_i^d\right) = \frac{\gamma_i^d p_i^Q Q_i}{p_i^d}, \ \ i = 1, 2, \cdots, 107. \tag{10b}$$

Note that γ_i^m and γ_i^d can be calculated by using (10a), (10b), and the actual social accounting matrix so that:

$$\gamma_i^m = \frac{(1+\tau_i^m)\, p_i^m M_i}{p_i^Q Q_i},$$
$$\gamma_i^d = \frac{p_i^d D_i}{p_i^Q Q_i}, \ \ i = 1, 2, \cdots, 107,$$

where $p_i^m M_i$, $p_i^d D_i$, $p_i^Q Q_i$ and $\tau_i^m p_i^m M_i$ can be obtained from the actual social accounting matrix. The estimated values of γ_i^m and γ_i^d are given in Table 1.

<The Government>

The government is assumed to impose several taxes to satisfy its budget constraint. Its budget constraint is given by:

$$\sum_{i=1}^{107} p_i^Q X_i^g + S^g + Sub = T^I + T^p + T^m,$$

where the left hand side is the total government expenditure, and the right hand side is the total government revenue. X_i^g and S^g denote government consumption of final consumption good i, and government savings, respectively. Sub denotes the total amount of subsidies such that:

$$Sub = \sum_{i=1}^{107} \tau_i^s \left(p_i^Z Z_i\right).$$

The total tax revenue is given by:

$$T^I = \tau^I I = \tau^I \left(\sum_{i=1}^{107} r_i \overline{K_i} + \sum_{i=1}^{107} w_i \overline{L}_i \right),$$
$$T^p = \sum_{i=1}^{107} \tau_i^p \left(p_i^Z Z_i\right),$$
$$T^m = \sum_{i=1}^{107} \tau_i^m \left(p_i^m M_i\right),$$

where T^I, T^p, and T^m denote the total income tax revenue, the total production tax revenue, and the total import tariff revenue, respectively. The government is assumed to save the constant amount relative to the total amount of tax revenue, and the government savings are assumed to be given by

$$S^g = s^g \left(T^I + T^p + T^m\right),$$

where the constant ratio, s^g, is given exogenously, and .its value has been calculated by using the actual SAM.

<**Equilibrium Conditions**>

There are two factor inputs, labour and capital. Since the model is static and thus the short-run effect is explored, it is assumed that each factor cannot move among different sectors (industries) in the short-run. This implies the equilibrium conditions of factor markets such that

$$\overline{K}_i = K_i, \tag{11a}$$

$$\overline{L}_i = L_{i,}\ i = 1, 2, \cdots, 107, \tag{11b}$$

where the total amount of endowments is given by:

$$\overline{K} = \sum_{i=1}^{107} \overline{K}_i,$$
$$\overline{L} = \sum_{i=1}^{107} \overline{L}_i.$$

Note that r_i and w_i ($i = 1, 2, \cdots, 107$) are determined in order to satisfy (11a) and (11b), respectively.

In terms of the market clearing condition of good i ($i = 1, 2, \cdots, 107$) , a private investment sector is introduced in order to close the economy in this paper[7]. Denoting the amount of good i consumed by the private investment sector by X_i^s, the market clearing condition of good i is given by:

$$Q_i = X_i + X_i^g + X_i^s + \sum_j^{107} X_{i,j},\ i = 1, 2, \cdots, 107, \tag{12}$$

where the left hand side is the total supply, and the right hand side is the total demand for good i. p_i^Q ($i = 1, 2, \cdots, 107$) is determined in order to satisfy (12). Note that the budget constraint of the private investment sector is given by:

$$\sum_{i=1}^{107} p_i^Q X_i^s = S^g + S^I + S^f,$$

where the left hand side is the total amount of its consumption, and the right hand side is

[7] This is also the conventional assumption in the literature.

the total amount of its income. S^f denotes the total amount of savings by the foreign sector, or the deficits in the current account, and it is given by subtracting exports from imports[8]. Since both the amount of exports and the amount of imports can be obtained from the actual social accounting matrix, S^f can be calculated from the actual social accounting matrix, and thus it is exogenously given in the model. Furthermore, the foreign trade balance is given by

$$\sum_{i=1}^{107} p_i^{w,e} E_i + S^f = \sum_{i=1}^{107} p_i^{w,m} M_i,$$

where $p_i^{w,e}$ and $p_i^{w,m}$ denote the world price of export goods, and import goods of good i, respectively, and both of them are assumed to be given exogenously. Since p_i^e and p_i^m are both measured in the domestic currency, they are also expressed such that:

$$p_i^e = \varepsilon p_i^{w,e},$$
$$p_i^m = \varepsilon p_i^{w,m}, \; i = 1, 2, \cdots, 107,$$

where ε denotes the exchange rate. Note that the exogeneity assumption on the world prices implies that the exchange rate is endogenously determined within the model.

3 Simulation Analysis

3.1 Benchmark and Calibration

The benchmark case should reflect the real Japanese economy in order to make the subsequent simulation scenarios realistic. Thus, the benchmark model should carefully be calibrated until the calculated values of all endogenous variables within the model become close to the actual values. Table 4-1 to 4-4 show the calculated model values as well as the cor-

[8]The FDI is assumed to be negiligible in this paper.

responding actual values in year 2005. Note that the tax rates and the subsidy rates shown in Table 2-1 to 2-3 have been calculated by using the actual amount of taxes collected and subsidies, so that they can be interpreted as the average proportional rates. Note that the following production sectors are particularly relevant to this paper; Medicaments ($i = 26$), Medical Service and Health ($i = 94$), Social Security ($i = 95$), and Nursing Care ($i = 96$). Note that the pharmaceutical industry is included in Medicaments ($i = 26$), private hospitals and the private medical analyzing industry are in Medical Service and Health ($i = 94$), private nurseries and nursing homes are categorized in Social Security ($i = 95$), and the long term care for the elderly is in Nursing Care ($i = 96$).

As shown in Table 4-1 to 4-4, the benchmark case has successfully been able to reproduce the real economy within the model. The actual and calculated values of the above 4 sectors are again shown below:

Economic Values in the Benchmark Model

(Unit: one million Japanese yen)

Final Consumption Goods

($P_i^Q Q_i$; $i = 26, 94, 95,$ and 96)

i	26	94	95	96
model	7,287,054	37,209,390	6,616,330	6,387,536
actual	7,287,054	37,209,390	6,616,330	6,387,536

Medicaments ($i = 26$), Medical Service and Health ($i = 94$), Social Security ($i = 95$), and Nursing Care ($i = 96$)

Capital Income

($r_i K_i$; $i = 26, 94, 95,$ and 96)

i	26	94	95	96
model	1,438,660	4,579,116	283,558	807,134
actual	1,438,660	4,579,116	283,558	807,134

Medicaments $(i = 26)$, Medical Service and Health $(i = 94)$, Social Security $(i = 95)$, and Nursing Care $(i = 96)$

Labour Income

$(w_i L_i;\ i = 26, 94, 95, \text{ and } 96)$

i	26	94	95	96
model	1,046,236	16,267,535	4,407,172	3,816,420
actual	1,046,236	16,267,535	4,407,172	3,816,420

Medicaments $(i = 26)$, Medical Service and Health $(i = 94)$, Social Security $(i = 95)$, and Nursing Care $(i = 96)$

Calculated values of the production tax rate and the subsidy rate of the relevant 4 sectors by using the actual SAM are also presented again as follows:

Production Tax Rate

$(\tau_i^p;\ i = 26, 94, 95, \text{ and } 96)$

i	26	94	95	96
calculated	2.718%	1.776%	0.656%	1.918%

Medicaments $(i = 26)$, Medical Service and Health $(i = 94)$, Social Security $(i = 95)$, and Nursing Care $(i = 96)$

Subsidy Rate

$(\tau_i^s;\ i = 26, 94, 95, \text{ and } 96)$

i	26	94	95	96
calculated	0.004%	2.119%	0.012%	0.700%

Medicaments $(i = 26)$, Medical Service and Health $(i = 94)$, Social Security $(i = 95)$, and Nursing Care $(i = 96)$

Note that the production tax rate for the sector ($i = 26$) which includes the pharmaceutical industry is the highest (2.718%), and also that the subsidy rate for the sector ($i = 94$) which includes the private hospitals and the private medical sample analyzing industry is the highest (2.11%). Since the benchmark case successfully re-produces the actual Japanese economy, it is now used to compare the current Japanese economy with possible situations caused by several different tax, transfer, and subsidy polices in the next section.

3.2 Simulations

Two policy instruments, namely a production tax, and a subsidy, are considered in this paper. In particular, these instruments related to the following sectors are explored; Medicaments ($i = 26$), Medical Service and Health ($i = 94$), Social Security ($i = 95$), and Nursing Care ($i = 96$). The economic activities of the pharmaceutical industry is shown in Medicaments ($i = 26$), and the private medical service sectors such as private hospitals and the private medical analyzing industry are categorized in Medical Service and Health ($i = 94$). Nursing Care ($i = 96$) shows the economic activities of the industry of the long-term care for the elderly. Social Security ($i = 95$) includes activities of private nurseries and nursing homes.

Any policy changes must be followed by changes in revenue as well as expenditure. This paper explicitly takes into account the budget constraint of the government. Simulation results depend upon the assumption regarding how the government fulfill its budget constraint after the policy change. This paper simulates several policies followed by the two financing methods; a debt financing policy or an income tax financing policy.

When the shortage in the government revenue caused by the policy change is financed by issuing government bonds in a scenario, then the scenario only considers the direct effect of the policy change, since all other policy instruments remain unchanged[9]. Since the framework of this paper is static, the long-run effect of government bonds in the capital market is beyond our concern. Obviously, this assumption might be inconsistent to the general equilibrium

[9] The government expenditure is assumed to be unchanged as well.

framework. However, it can investigate the pure and thus the direct effect of the policy change. Note also that the budget constraint of the government is satisfied by debt financing, and thus in this sense it is consistent to a static general equilibrium model.

On the other hand, if the shortage is financed completely within a general equilibrium framework in a static model, then it must be financed through the change in a tax, transfer, and/or subsidy policies, if the government expenditure does not change. In this case, the effect of another policy change to fiance the shortage is also involved, and the result generated by such a mixed policy is more difficult to interpret, while it is consistent to a static framework. This paper assumes that an income tax on the individual is only used to finance the gap between revenue and expenditure after the policy change. This implies that the income tax rate is endogenously determined in order to satisfy the budget constraint of the government. Note that the income tax is not distortionary in this paper, and the substitution effect is not involved.

The following 4 scenarios are explored based on two policy instruments and the financing methods:

Simulation Scenarios

	Method 1 (debt financing)	Method 2 (income tax financing)
Production Tax	**P-1**	**P-2**
Subsidies	**S-1**	**S-2**

The above two policy instruments are changed only for the four sectors; Medicaments ($i = 26$), Medical Service and Health ($i = 94$), Social Security ($i = 95$), and Nursing Care ($i = 96$). Note that the debt financing method (Method 1) only considers the pure effect of policy changes, since it does not take into account the budget constraint of the government explicitly. In this paper, the following scenarios are investigated.

<P-1: a decrease in the production tax rate followed by issuing government bonds>

Scenario P-1 explores the effect of the change in the production tax rate. In this scenario, the production tax is a policy instrument, and all other policy instruments, including the government expenditure, remain unchanged. The effect of a decrease in the production tax rate is studied. In order to satisfy the budget constraint, the government is assumed to issue government bonds. The calculated production tax rates of 4 sectors (Medicaments ($i = 26$), Medical Service and Health ($i = 94$), Social Security ($i = 95$), and Nursing Care ($i = 96$)) obtained by using the actual SAM are simulated to decrease by 5, and 10% from the benchmark rates. Note that the benchmark rates have been calculated by using the actual SAM, and also that they are actual average rates, which are shown in the previous section as well as in Table 2-1.

<P-2: a decrease in the production tax rate followed by an increase in the income tax rate>

The difference between P-1 and P-2 is found in the financing method. In scenario P-2, an income tax is used to finance the gap between revenue and expenditure rather than issuing government bonds. The income tax rate is endogenously calculated in order to satisfy the budget constraint of the government, when the effect of a decrease in the production tax rate is simulated.

<S-1: an increase in the subsidy rate followed by issuing government bonds>

Scenario S-1 uses the amount of subsidies as a policy instrument. In this scenario, the government increases the amount of subsidies, and it also issues government bonds to finance the gap between revenue and expenditure. The actual subsidy rates obtained by using the actual SAM are shown in the previous section as well as in Table 2-3. In this scenario, The calculated subsidy rates of 4 sectors (Medicaments ($i = 26$), Medical Service and Health ($i = 94$), Social Security ($i = 95$), and Nursing Care ($i = 96$)) are simulated to increase by 5, and 10% from the benchmark rates.

<S-2: an increase in the subsidy rate followed by an increase in the income

tax rate>

The difference between S-1 and S-2 is found in the financing method. In scenario S-2, an income tax is used to finance the gap between revenue and expenditure rather than issuing government bonds. The income tax rate is endogenously calculated in order to satisfy the budget constraint of the government, when the effect of an increase in the subsidy rate is simulated.

Method 1 (**P1** and **S1**) is the simplest case where the gap between revenue and expenditure caused by a policy change is financed by the issuance of government bonds, which is given from the outside of the model. Thus, the income tax rate for the household, the productions tax rates and the subsidy rates for all other production sectors remain unchanged. On the other hand, Method 2 (**P2** and **S2**) considers other policy instruments to satisfy the budget constraint. In this paper the income tax is used to finance the gap between revenue and expenditure, and the income tax rate is endogenously determined in order to satisfy the budget constraint.

3.3 Evaluation of the Simulation Results

In order to evaluate each simulation, a common indicator should be introduced apart from the effects on relevant economic variables. In this paper the equivalent variation is used in order to evaluate the effect on welfare. The effect on the whole economy should be explored by the change in utility. Before moving on to the evaluation of the effect of policy changes on the whole economy, this paper summarizes the effect on the medical service sector and the pharmaceutical industry as follows.

3.3.1 The Effect on the Pharmaceutical Industry ($i = 26$)

The Effect on its revenue $\left(P_{26}^{Q} Q_{26}\right)$:

The pharmaceutical industry ($i = 26$) obtains larger benefits by a decrease in the production tax rate of the 'Medical Service and Health' sector ($i = 94$) rather than a decrease in its own production tax rate, although the production tax rate of the pharmaceutical industry is higher than that of the 'Medical Service and Health' sector. This result does not depend on the financing method, while the magnitude of the effect is different between debt financing and income tax financing. Table 4-1 and 4-2 show the effects of **P1** (debt financing) and **P2** (income tax financing) on its revenue $\left(P_{26}^{Q}Q_{26}\right)$, respectively. The second table in Table 4-1 (**P1**) shows that a 10% decrease in its own production tax rate only results in a 0.01388% increase in its revenue, while the same decrease in the production tax rate of the 'Medical Service and Health' sector ($i = 94$) results in a 0.172255% increase in its revenue. The second table in Table 4-2 (**P2**) also shows that the effect of the 10% decrease in the production tax rate of the 'Medical Service and Health' sector ($i = 94$) becomes smaller, but it still results in a 0.152621% increase in its revenue, which is larger than the case when its own production tax rate increases (a 0.009210% increase). This is because the pharmaceutical industry ($i = 26$) heavily relies on the 'Medical Service and Health' sector ($i = 94$), and also because the economic size of the 'Medical Service and Health' sector ($i = 94$) is much larger than that of the pharmaceutical industry. Note that 'Medical Service and Health' sector ($i = 94$) includes the private hospitals and the private medical analyzing industry. Thus, the effect of the same decrease in the production tax rate eventuates in a different increase in the revenue of the pharmaceutical industry, and the high dependency of the pharmaceutical industry on the 'Medical Service and Health' sector ($i = 94$) results in the reduction of the production tax rate of the 'Medical Service and Health' sector ($i = 94$) being more beneficial to the pharmaceutical industry, rather than the reduction of its own production tax rate.

As shown in Table 4-3 and 4-4, the same result can be obtained when the subsidy rate increases (**S1** and **S2**)[10]. Furthermore, the pharmaceutical industry obtains the largest benefits by a 10% increase in the subsidy rate of the 'Medical Service and Health' sector ($i = 94$) rather than the same increase in its own subsidy rate, when an increase in the subsidy rate is financed by the issuance of government bonds. Table 4-3 shows that the revenue of the

[10]Table 7 shows the endogenous income tax rates for all simulation cases (P2 and S2).

pharmaceutical industry would increase by 0.205% when the subsidy rate for 'Medical Service and Health' sector ($i = 94$) increases by 10% with debt financing. Note that an increase in revenue by sales of its final product does necessarily not imply an increase in income or factor payments of the pharmaceutical industry, since a policy change also induces changes in prices of imported goods, and intermediate goods which the pharmaceutical industry uses for its production. Then the effect of tax and subsidy policies on factor payments is more important for the pharmaceutical industry, since factor payments are net fruits (benefits) the industry obtains from policy changes.

The Effect on its Income, Factor Payments $(r_{26}K_{26} + w_{26}L_{26})$:

Table 5-1 and 5-2 show the effect of a decrease in the production tax rate and an increase in the subsidy rate on factor payments, respectively. First of all, the effect of an increase in its own subsidy rate is very little as shown in Table 5-2. Secondly, similar to the effect on the revenue, the pharmaceutical industry obtains larger benefits by an increase in the subsidy rate of the 'Medical Service and Health' sector ($i = 94$) rather than an increase in its own subsidy rate. For instance, a 10% increase in the subsidy rate of the 'Medical Service and Health' sector ($i = 94$) results in a 0.2056% increase in the factor payments of the pharmaceutical industry, while the same increase in its own subsidy rate only results in a 0.0004% increase when debt financing is used. Thirdly, however, when a production tax rate is reduced, the effect is different from that on the revenue: As Table 5-1 shows, a decrease in its own production tax rate induces a larger increase in factor payments irrespective of its financing method. For instance, a 10% decrease in its own production tax rate results in a 0.2793% increase in its factor payments, while the same decrease in the production tax rate of the 'Medical Service and Health' sector ($i = 94$) induces a 0.1723% increase with debt financing. While high dependency of the pharmaceutical industry on the 'Medical Service and Health' sector ($i = 94$) is found in terms of the effect on its revenue, the effect on the net fruits (benefits) is different. This is because the production tax rate of the pharmaceutical industry is the higher than that of the 'Medical Service and Health' sector ($i = 94$), and a decrease in its own production tax rate eventuates in the largest increase in the net fruits (benefits) for the pharmaceutical industry.

Note that P1 or S1 always induces a larger increase in revenue and factor payments than P2 or S2, since the current society does not bear any cost caused by a decrease in the production tax rate or an increase in the subsidy rate with debt financing (P1 and S1). The above results also imply that the pharmaceutical industry obtains the largest net fruits (benefits) or factor payments when its own production tax rate decreases, while its revenue increases most when the subsidy rate of the 'Medical Service and Health' sector $(i = 94)$ increases due to its high dependency on the 'Medical Service and Health' sector $(i = 94)$. The pharmaceutical industry is most better off when the government decreases its own production tax rate. However, as Table 5-1 shows, all other 3 sectors are worse off when a decrease in the production tax rate of the pharmaceutical industry is followed by an increase in the income tax rate. Thus, when the budget constraint of the government is explicitly taken into account, there is always a trade off in terms of the effect on factor payments between 4 related medical sectors.

3.3.2 The Effect on Private Hospitals and Medical Analyzing Industry $(i = 94)$

The economic activities of the 'Medical Service and Health' sector $(i = 94)$ which includes private hospitals and private medical analyzing industry is the largest compared to other three sectors, and the effects of policy changes are analyzed as follows.

The Effect on its revenue $\left(P^Q_{94}Q_{94}\right)$:

Table 4-1 (**P1**) and 4-3 (**S1**) show the effects of a decrease in the production tax rate and an increase in the subsidy rate, respectively, when policy changes are financed by the issuance of government bonds. As both tables show, a decrease in its own production tax rate and/or an increase in its own subsidy rate results in the largest increase in its revenue, while the magnitude of the effect is very small. For instance, even when its own production tax rate decreases by 10%, its revenue only increases by 0.012% (**P1**). When its subsidy rate increases by 10%, the magnitude of an increase in its revenue is only 0.015% (**S1**). Thus, as long as the effect on its revenue is concerned, both policies of a decrease in the production tax rate and an increase in the subsidy rate have very little effect. As discussed in the previous section, the effect of both policies is much larger on the pharmaceutical industry than on its own sector.

Table 4-2 (**P2**) and 4-4 (**S2**) show the effects of both policy changes when policy changes are followed by an increase in the income tax rate. In these cases, the current society bears the cost caused by policy changes through an increase in the income tax rate. In both cases, the revenue eventually decreases although its production tax rate decreases or its subsidy rate increases. This is because an increase in the income tax rate to finance the shortage of the government revenue decreases the disposal income of individuals, and thus it eventuates in a decrease in demand for Q_{94}. Thus, as long as the shortage of the government revenue is financed by an increase in the income tax rate, policy changes always reduce the revenue of private hospitals and the private medical analyzing industry.

The Effect on its Income, Factor Payments $(r_{94}K_{94} + w_{94}L_{94})$:

Table 5-1 and 5-2 show the effect on the factor payments. As both tables show, factor payments always increase irrespective of the financing method, while policy changes always reduce the revenue when the shortage of the government revenue is financed by an increase in the income tax rate. The comparison between Table 5-1 and 5-2 also shows that factor payments increases more when its own subsidy rate increases. For instance, when its own subsidy rate increases by 10% followed by debt financing, then its factor payments increases by 0.2282%. This implies that private hospitals and the private medical analyzing industry are most better off when the government increases their own subsidy rate. However, when an increase in its own subsidy rate is followed by an income tax financing, the factor payments of sectors $i = 95$ and 96 decrease as shown in Table 5-2, and only private hospitals, the medical analyzing industry, and the pharmaceutical industry ($i = 26, 94$) are better off when the subsidy rate of the sector $i = 94$ increases.

3.3.3 The Effect on Private Nurseries and Nursing Homes ($i = 95$)

The production tax rate of the 'Social Security' sector ($i = 95$) is the lowest (0.656%), and the subsidy rate is also very low (0.012%). Simulation results are as follows.

The Effect on its revenue $\left(P_{95}^{Q} Q_{95}\right)$:

Since both of its own production tax rate and its own subsidy rate are quite low, policy changes of its own rates have very little effect. Private nurseries and nursing homes are more affected by changes in the rates of the 'Medical Service and Health' sector ($i = 94$) rather than the changes of its own rates. Table 4-1 and 4-3 show that the revenue increases most when the production tax rate or the subsidy rate of the 'Medical Service and Health' sector ($i = 94$) changes by 10% when debt financing method is used. For instance, the revenue increases by 0.026% (0.031%) when the production tax rate decreases (the subsidy rate increases) of the 'Medical Service and Health' sector ($i = 94$) by 10%. However, when an income tax financing method is used, the revenue decreases most if the same policy changes are conducted. The revenue decreases by 0.015%(0.018%) when the production tax rate decreases (the subsidy rate increases) of the 'Medical Service and Health' sector ($i = 94$) by 10%.

The Effect on its Income, Factor Payments $(r_{95}K_{95} + w_{95}L_{95})$:

Although the effect of policy changes in its own rates on factor payments is quite small, a decrease in its own production tax rate is the most effective instrument in order to increase the factor payments of this sector. As Table 5-1 shows, the factor payments increase by 0.06% when its own production tax rate decreases by 10%. This result does not depend on the financing method. Even when its own subsidy rate increases by 10%, its factor payments only increase by 0.0012%. While a decrease in its own production tax rate is the most effective to make this sector better off, the decrease slightly reduces the factor payments of the sectors of $i = 94$ and 96 when the income tax financing method is used.

3.3.4 The Effect on the Long-Term Nursing Care Industry $(i = 96)$

The 'Nursing Care' sector ($i = 96$) mainly includes the private long-term nursing care industry. Since the long-term nursing care system was launched in year 2000, the private sector of the long-term care has drastically expanded.

The Effect on its revenue $\left(P_{96}^{Q} Q_{96}\right)$:

Table 4-1 and 4-3 show that the effects of both a decrease in its own production tax rate and an increase in its own subsidy rate are very little. Table 4-1 also shows that the private long-term care industry depends on the sectors of $i = 26$ and 94. When debt financing method is used, a 10 % decrease in the production tax rate of the 'Medical Service and Health' sector ($i = 94$) most increases the revenue of the private long-term care industry (a 0.004% increase), while the same decrease in its own production tax rate only increases the revenue by 0.0007%. As long as debt financing method is used, the effect of an increase in the subsidy rate is the same, and an increase in the subsidy rate of the 'Medical Service and Health' sector ($i = 94$) is more effective to increase the revenue rather than the same increase in its own subsidy rate. When policy changes are followed by income tax financing, a decrease in its own production tax rate (an increase in its own subsidy rate) reduces not only the revenue of the long-term care industry but also other two sectors ($i = 94, 95$), while the reduction in revenue is very little. Only the pharmaceutical industry is better off when policy changes in the rates of the long-term nursing care industry are followed by income tax financing.

The Effect on its Income, Factor Payments $(r_{96} K_{96} + w_{96} L_{96})$:

Table 5-1 shows that a decrease in its own production tax rate is most effective to increase its factor payments. A 10% decrease in its own production tax rate induces roughly a 0.19% increase in its factor payments irrespective of the financing method, while a 10% increase in its own subsidy rate results in only a 0.069% increase in it. Both a 10% decrease in its own production tax rate and a 10% increase in its own subsidy rate slightly decrease the factor payments of the sectors of $i = 94$ and 95 when an income tax financing method is used.

As the above results show, there is always a trade-off between the relevant four sectors in terms of the effect on their factor payments. When the cost of a decrease in the production tax rate or an increase in the subsidy rate is explicitly considered through changes in the endogenous income tax rate in order to fulfill the budget constraint of the government, then a policy change which makes a medical service industry better off always eventuates in other medical service industries being worse off. The pharmaceutical industry is most better off when its own production tax rate decreases, while all other sectors are worse off. Private hospitals and the medical analyzing industry are most better off by an increase in their own subsidy rate, while this policy change makes other two sectors ($i = 95$ and 96) worse off. Private nurseries and nursing homes are most better off by a decrease in their production tax rate, while other two sectors ($i = 94$ and 96) are slightly worse off. The private long-term nursing care industry is most better off by the reduction of its own production tax rate, while other two sectors ($i = 94$ and 95) are slightly worse off. In addition, the pharmaceutical industry is the only sector which never becomes worse off by the best policy of all other sectors, and the best policy for a sector always reduces the factor payments of other sectors except for the pharmaceutical industry.

Now the effect of tax and subsidy policies for medical sectors on the whole economy is investigated in the next section.

3.3.5 The Effect on the Welfare of the Whole Economy

While different tax and subsidy policies have different effects on the four sectors, policy changes also have the effect on the welfare of the whole economy. The effect on welfare is measured by the equivalent variation in this paper. Table 6-1 and 6-2 show the equivalent variation of each policy change. Note that the equivalent variation provides a financial measure to evaluate the effect of policy changes on the whole economy. Note also that the current society does not bear any cost caused by policy changes with debt financing (**P1** and **S1**), and a decrease in the production tax rate or an increase in the subsidy rate always increases welfare. The comparison between **P1** and **S1** evaluates the effect of the difference in policy instruments; the production tax policy or the subsidy policy. As both tables show, a 10% increase in the subsidy rate of the sector of $i = 94$, which includes private hospitals and the medical analyzing industry, is the most preferable to the Japanese society when the budget constraint of the government is not considered explicitly. The welfare gain by such a policy change is measured to be approximately 97,402 million yen. The 10% increase in the subsidy rate of the sector of $i = 94$ is also most preferable for all other sectors, as shown in Table 5-2. The factor payments of all four sectors increase most by such a policy. On the other hand, if the budget constraint of the government is considered explicitly and thus the society bears the cost generated by the policy change, then such a policy becomes most undesirable as both tables show. When the budget constraint is explicitly considered, the subsidy on the pharmaceutical industry is the best policy instrument in order to minimize the welfare loss caused by the policy change. The policy change in the subsidy rate of the pharmaceutical industry is least distortionary. Note that the equivalent variation of any policy change is always negative as long as the budget constraint of the government is explicitly considered. This surprising result can be explained as follows: The key element to result in a decrease in welfare by policy changes is the fulfilled budget constraint of the government. Note that an income tax is proportional to income, and it is not distortionary when the labor-leisure relationship is not considered, while a production tax and a subsidy are both distortionary. When the government uses a tax to fulfill its budget constraint, an increase in the tax rate of a non-distortionary tax induces a more welfare loss. This is the reverse situation when a non-distortionary tax is used to finance a certain amount of revenue rather than a distortionary tax. A non-distortionary tax achieves higher utility to finance a certain amount of revenue than a distortionary tax. This implies that the smaller amount of a non-distortionary tax collected is needed to maintain the same utility level. If the government uses a non-distortionary tax to finance the same amount of revenue as before, then utility should decrease. Note also that a decrease in the production tax rate improves efficiency, while an increase in the subsidy rate decreases efficiency. Thus, A welfare loss is smaller when the production tax rate decreases than when the subsidy rate increases. If the budget constraint of the government is also considered explicitly, the welfare loss of a 10% increase in the subsidy rate of the sector of $i = 94$ is measured to be 54,256 million yen, while the welfare loss is 45,443 million yen when a 10% decrease in the production tax rate of the sector of $i = 94$ is conducted. Table 7 also indicates that the income tax rate should increase most when the production tax rate or the subsidy rate of the sector of $i = 94$ changes by 10%. In particular, when the subsidy rate of the sector of $i = 94$ increases by 10%, the relative change in the endogenous income tax rate is the largest (a 0.05386% increase), thus resulting in a largest decrease in the disposal income of individuals.

4 Concluding Remarks

This paper has presented a computable general equilibrium (CGE) framework to numerically examine the effect of tax and subsidy policies on the private medical service sector and the pharmaceutical industry.

This paper has used the latest Input-Output table of Japan of year 2005 with 108 different production sectors, and it has evaluated the effect of several tax and subsidy policies on the economic performance of the private medical service sector and the pharmaceutical industry as well as on welfare of the economy.

Several simulations have been conducted with our very realistic parameter values, and the obtained results are as follows. First of all, the subsidy for the medical service sector, which includes private hospitals and private medical sample analyzing firms, is the best policy instrument among all other tax and subsidy policies for the medical sectors in order to enhance the welfare of the whole Japanese economy, as long as the cost of policy changes in the budget constraint of the government is not considered explicitly: A welfare gain is measured to be approximately 97,402 million yen when the subsidy rate of the sector which includes private hospitals and the medical analyzing industry increases by 10%. The 10% increase in the subsidy rate is also most preferable for all individual medical sectors as well. Secondly, however, if the budget constraint of the government is explicitly considered and thus the shortage of the government revenue caused by the 10 increase in the subsidy rate is financed by a non-distortionary income tax on individuals, then such a policy becomes the worst, and the effect becomes reverse: The welfare loss by such a policy is measured to be approximately 54,256 million yen. This result indicates the importance of the explicit consideration of the budget constraint of the government when policy changes are simulated. Thirdly, the effect of tax and subsidy policies on individual medical sectors differs. There is always a trade-off among different medical sectors in terms of the effect on their net benefits, or factor payments except for the pharmaceutical industry. Fourthly, the high dependency of the pharmaceutical industry with other medical sectors is found. In particular the pharmaceutical industry heavily depends on the medical sector of private hospitals and the medical sample analyzing industry. Finally, the pharmaceutical industry is most better off not by a decrease in its own production tax rate but by a decrease in the production tax rate of private hospitals and the medical sample analyzing industry.

While this paper has used the Japanese input-output table, it is applicable to all other countries in order to investigate the effect of several policies related to the medical services sector. Furthermore, the model can easily be generalized by incorporating any other instruments than an income tax on individuals in order to finance the shortage of the government revenue caused by policy changes into the model. If other distortionary taxes are used to finance the shortage, then the effect on welfare would be different. However, by explicitly considering the budget constraint within a computable general equilibrium framework, this paper has thrown light on the importance of the explicit consideration of the government budget constraint when simulations on tax and subsidy policies are conducted.

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Figure 1: Structure

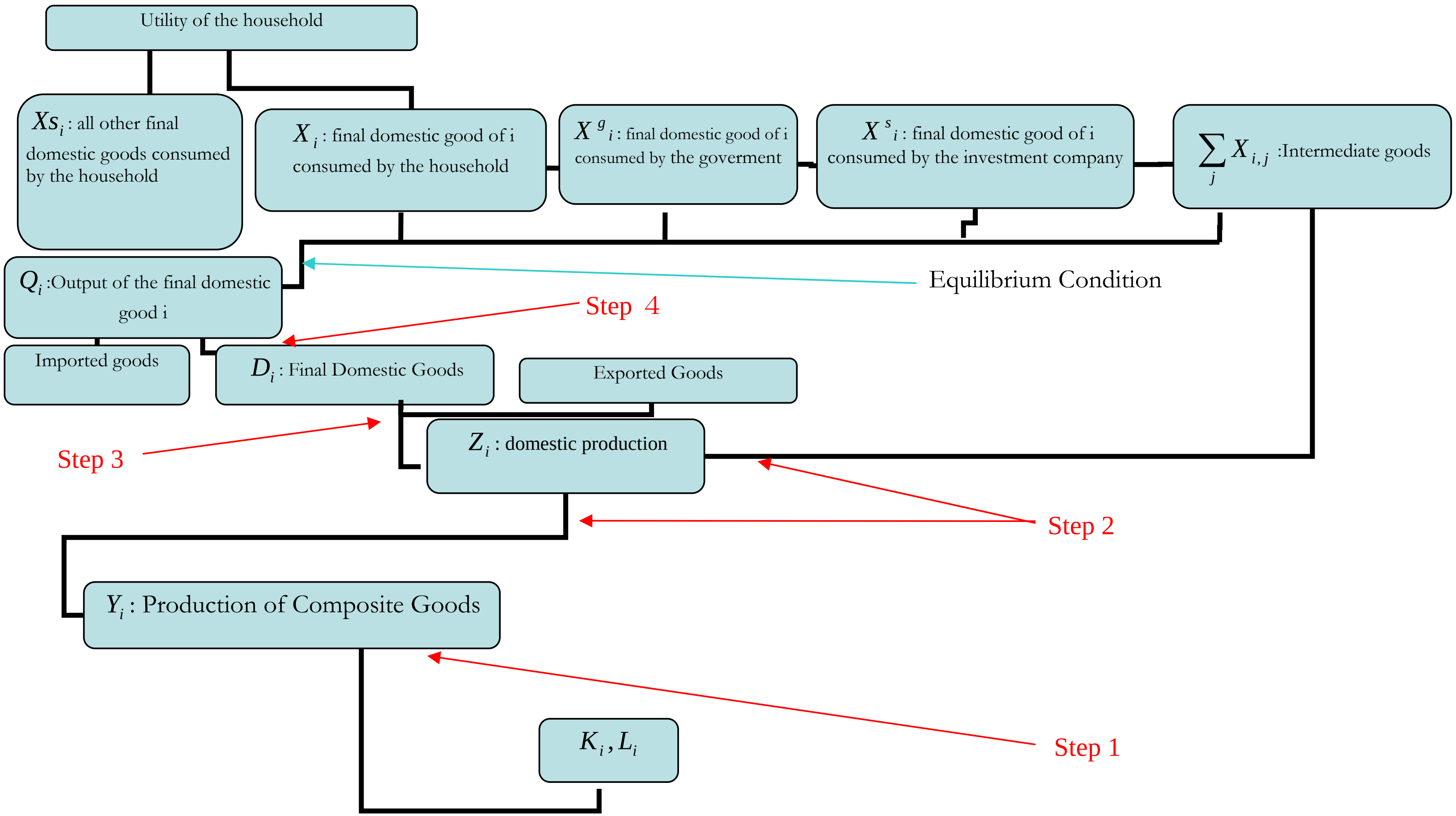

Table 1: Parameter Values

$$ALPHA(i) = \alpha_i ; i = 1,2,\cdots,107$$

ALPHA(1)	ALPHA(2)	ALPHA(3)	ALPHA(4)	ALPHA(5)	ALPHA(6)	ALPHA(7)	ALPHA(8)	ALPHA(9)	ALPHA(10)	ALPHA(11)	ALPHA(12)	ALPHA(13)	ALPHA(14)	ALPHA(15)
0.008454	0.000697	0.000958	0.000563	0.001298	0.000000	-0.000051	0.000000	0.061399	0.020494	0.000777	0.010540	0.000647	0.012440	0.000165

ALPHA(16)	ALPHA(17)	ALPHA(18)	ALPHA(19)	ALPHA(20)	ALPHA(21)	ALPHA(22)	ALPHA(23)	ALPHA(24)	ALPHA(25)	ALPHA(26)	ALPHA(27)	ALPHA(28)	ALPHA(29)	ALPHA(30)
0.000860	-0.000143	0.001110	0.000310	0.000021	0.000047	0.000000	0.000001	0.000000	0.000000	0.002072	0.007346	0.019774	0.000005	0.001354

ALPHA(31)	ALPHA(32)	ALPHA(33)	ALPHA(34)	ALPHA(35)	ALPHA(36)	ALPHA(37)	ALPHA(38)	ALPHA(39)	ALPHA(40)	ALPHA(41)	ALPHA(42)	ALPHA(43)	ALPHA(44)	ALPHA(45)
0.001304	0.003456	0.000226	0.000005	0.000202	0.000427	-0.000110	0.000000	0.000000	0.000000	0.000315	0.000048	0.000131	0.001049	0.000057

ALPHA(46)	ALPHA(47)	ALPHA(48)	ALPHA(49)	ALPHA(50)	ALPHA(51)	ALPHA(52)	ALPHA(53)	ALPHA(54)	ALPHA(55)	ALPHA(56)	ALPHA(57)	ALPHA(58)	ALPHA(59)	ALPHA(60)
0.000099	0.000001	0.000152	0.000082	0.000000	0.002079	0.007615	0.013658	0.003033	0.000005	0.000803	0.015434	0.002895	0.000037	0.000035

ALPHA(61)	ALPHA(62)	ALPHA(63)	ALPHA(64)	ALPHA(65)	ALPHA(66)	ALPHA(67)	ALPHA(68)	ALPHA(69)	ALPHA(70)	ALPHA(71)	ALPHA(72)	ALPHA(73)	ALPHA(74)	ALPHA(75)
0.000304	0.003085	0.005440	0.000086	0.000000	0.000000	0.000000	0.000000	0.015339	0.004461	0.006358	0.000813	0.163165	0.040117	0.001186

ALPHA(76)	ALPHA(77)	ALPHA(78)	ALPHA(79)	ALPHA(80)	ALPHA(81)	ALPHA(82)	ALPHA(83)	ALPHA(84)	ALPHA(85)	ALPHA(86)	ALPHA(87)	ALPHA(88)	ALPHA(89)	ALPHA(90)
0.040023	0.153327	0.013895	0.021978	0.000000	0.000848	0.007116	0.000420	0.000817	0.006671	0.024290	0.003689	0.004204	0.000372	0.005041

ALPHA(91)	ALPHA(92)	ALPHA(93)	ALPHA(94)	ALPHA(95)	ALPHA(96)	ALPHA(97)	ALPHA(98)	ALPHA(99)	ALPHA(100)	ALPHA(101)	ALPHA(102)	ALPHA(103)	ALPHA(104)	ALPHA(105)
0.002643	0.024685	0.000874	0.025467	0.014922	0.002219	0.013087	0.000018	0.002299	0.010085	0.003110	0.031930	0.072608	0.025772	0.017842

ALPHA(106)	ALPHA(107)
0.025222	0.000000

Table 1: Parameter Values (continued)

$$TETA(i) =;\ i = 1,2,\cdots,107$$

TETA(1)	TETA(2)	TETA(3)	TETA(4)	TETA(5)	TETA(6)	TETA(7)	TETA(8)	TETA(9)	TETA(10)	TETA(11)	TETA(12)	TETA(13)	TETA(14)	TETA(15)
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002854	0.000000	0.000000	0.000000	0.000005	0.000000	0.000015

TETA(16)	TETA(17)	TETA(18)	TETA(19)	TETA(20)	TETA(21)	TETA(22)	TETA(23)	TETA(24)	TETA(25)	TETA(26)	TETA(27)	TETA(28)	TETA(29)	TETA(30)
0.000125	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000037

TETA(31)	TETA(32)	TETA(33)	TETA(34)	TETA(35)	TETA(36)	TETA(37)	TETA(38)	TETA(39)	TETA(40)	TETA(41)	TETA(42)	TETA(43)	TETA(44)	TETA(45)
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-0.000231	0.000000	0.000000	0.000000	0.000000	0.000000	0.000007	0.000015	0.000930

TETA(46)	TETA(47)	TETA(48)	TETA(49)	TETA(50)	TETA(51)	TETA(52)	TETA(53)	TETA(54)	TETA(55)	TETA(56)	TETA(57)	TETA(58)	TETA(59)	TETA(60)
0.000659	0.000033	0.000241	0.000536	0.001528	0.000354	0.000025	0.000893	0.001975	0.000000	0.000000	0.000188	0.000312	0.000000	0.000541

TETA(61)	TETA(62)	TETA(63)	TETA(64)	TETA(65)	TETA(66)	TETA(67)	TETA(68)	TETA(69)	TETA(70)	TETA(71)	TETA(72)	TETA(73)	TETA(74)	TETA(75)
0.000320	0.001057	0.000936	0.000000	0.023000	0.000000	0.139914	0.015876	0.000000	0.000000	-0.003126	0.008649	0.003668	0.000000	0.000000

TETA(76)	TETA(77)	TETA(78)	TETA(79)	TETA(80)	TETA(81)	TETA(82)	TETA(83)	TETA(84)	TETA(85)	TETA(86)	TETA(87)	TETA(88)	TETA(89)	TETA(90)
0.000000	0.000323	0.000001	0.000251	0.000000	0.000009	0.000001	0.000009	0.000016	-0.000682	0.000000	0.000000	0.009389	0.000000	0.000312

TETA(91)	TETA(92)	TETA(93)	TETA(94)	TETA(95)	TETA(96)	TETA(97)	TETA(98)	TETA(99)	TETA(100)	TETA(101)	TETA(102)	TETA(103)	TETA(104)	TETA(105)
0.319013	0.133885	0.012411	0.250054	0.018932	0.049862	0.000000	0.000000	0.000000	0.000000	0.004877	0.000000	0.000000	0.000000	0.000000

TETA(106)	TETA(107)
0.000000	0.000000

Table 1: Parameter Values (continued)

$$AY(i) = ay_i;\ i = 1,2,\cdots,107$$

AY(1)	AY(2)	AY(3)	AY(4)	AY(5)	AY(6)	AY(7)	AY(8)	AY(9)	AY(10)	AY(11)	AY(12)	AY(13)	AY(14)	AY(15)
0.569112	0.259441	0.638091	0.714903	0.545627	0.502516	0.372137	0.509977	0.288914	0.399620	0.243640	0.558255	0.302586	0.326348	0.364356

AY(16)	AY(17)	AY(18)	AY(19)	AY(20)	AY(21)	AY(22)	AY(23)	AY(24)	AY(25)	AY(26)	AY(27)	AY(28)	AY(29)	AY(30)
0.335517	0.269011	0.365120	0.545367	0.300808	0.313485	0.079872	0.158423	0.196041	0.282342	0.383997	0.266826	0.038388	0.198565	0.297147

AY(31)	AY(32)	AY(33)	AY(34)	AY(35)	AY(36)	AY(37)	AY(38)	AY(39)	AY(40)	AY(41)	AY(42)	AY(43)	AY(44)	AY(45)
0.374181	0.363061	0.439348	0.394900	0.416436	0.421920	0.198469	0.206669	0.388615	0.217738	0.154559	0.229930	0.340688	0.457585	0.335708

AY(46)	AY(47)	AY(48)	AY(49)	AY(50)	AY(51)	AY(52)	AY(53)	AY(54)	AY(55)	AY(56)	AY(57)	AY(58)	AY(59)	AY(60)
0.342878	0.453480	0.202632	0.315002	0.281943	0.323336	0.263178	0.228452	0.225449	0.292368	0.239345	0.121935	0.128995	0.195727	0.257239

AY(61)	AY(62)	AY(63)	AY(64)	AY(65)	AY(66)	AY(67)	AY(68)	AY(69)	AY(70)	AY(71)	AY(72)	AY(73)	AY(74)	AY(75)
0.319016	0.375707	0.335744	0.387335	0.445074	0.427856	0.444292	0.467505	0.419332	0.296537	0.516646	0.707740	0.673664	0.630237	0.718393

AY(76)	AY(77)	AY(78)	AY(79)	AY(80)	AY(81)	AY(82)	AY(83)	AY(84)	AY(85)	AY(86)	AY(87)	AY(88)	AY(89)	AY(90)
0.784767	0.885020	0.605151	0.671504	0.000000	0.303933	0.243508	0.669003	0.600236	0.636452	0.648946	0.449275	0.602636	0.407587	0.440701

AY(91)	AY(92)	AY(93)	AY(94)	AY(95)	AY(96)	AY(97)	AY(98)	AY(99)	AY(100)	AY(101)	AY(102)	AY(103)	AY(104)	AY(105)
0.735921	0.851534	0.558195	0.558358	0.713532	0.732654	0.637750	0.294748	0.655198	0.361597	0.735262	0.631194	0.439779	0.470239	0.717599

AY(106)	AY(107)
0.399887	0.000000

Table 1: Parameter Values (continued)

$GSAI(i) =_i ;\ i = 1,2,\cdots,107$

GSAI(1)	GSAI(2)	GSAI(3)	GSAI(4)	GSAI(5)	GSAI(6)	GSAI(7)	GSAI(8)	GSAI(9)	GSAI(10)	GSAI(11)	GSAI(12)	GSAI(13)	GSAI(14)	GSAI(15)
0.000418	0.001846	0.000000	0.007704	0.000023	0.000009	0.000378	-0.001540	0.001904	0.001241	0.000105	-0.000541	0.000953	0.001007	0.001002

GSAI(16)	GSAI(17)	GSAI(18)	GSAI(19)	GSAI(20)	GSAI(21)	GSAI(22)	GSAI(23)	GSAI(24)	GSAI(25)	GSAI(26)	GSAI(27)	GSAI(28)	GSAI(29)	GSAI(30)
0.003683	0.000401	-0.000053	0.000015	0.000003	0.000119	-0.000029	0.000609	0.000388	-0.000063	-0.000118	0.000100	-0.001943	0.000210	0.000776

GSAI(31)	GSAI(32)	GSAI(33)	GSAI(34)	GSAI(35)	GSAI(36)	GSAI(37)	GSAI(38)	GSAI(39)	GSAI(40)	GSAI(41)	GSAI(42)	GSAI(43)	GSAI(44)	GSAI(45)
0.000078	-0.000038	0.000057	0.000003	0.000154	0.000419	-0.001777	0.002139	0.000111	0.000180	-0.001248	0.002241	0.000520	0.003091	0.041242

GSAI(46)	GSAI(47)	GSAI(48)	GSAI(49)	GSAI(50)	GSAI(51)	GSAI(52)	GSAI(53)	GSAI(54)	GSAI(55)	GSAI(56)	GSAI(57)	GSAI(58)	GSAI(59)	GSAI(60)
0.071786	0.018354	0.029925	0.024607	0.015242	0.002979	0.002122	0.019012	0.032610	0.000412	-0.000317	0.035209	0.019425	0.001465	0.002726

GSAI(61)	GSAI(62)	GSAI(63)	GSAI(64)	GSAI(65)	GSAI(66)	GSAI(67)	GSAI(68)	GSAI(69)	GSAI(70)	GSAI(71)	GSAI(72)	GSAI(73)	GSAI(74)	GSAI(75)
0.014186	0.018706	0.011439	0.000000	0.304971	0.000000	0.001472	0.058366	0.000000	0.000000	0.000000	0.000000	0.136365	0.000000	0.000000

GSAI(76)	GSAI(77)	GSAI(78)	GSAI(79)	GSAI(80)	GSAI(81)	GSAI(82)	GSAI(83)	GSAI(84)	GSAI(85)	GSAI(86)	GSAI(87)	GSAI(88)	GSAI(89)	GSAI(90)
0.000000	0.000000	0.000015	0.007806	0.000000	0.000501	0.000020	0.000294	0.000577	0.000000	0.000000	0.000000	0.078944	0.000000	0.000560

GSAI(91)	GSAI(92)	GSAI(93)	GSAI(94)	GSAI(95)	GSAI(96)	GSAI(97)	GSAI(98)	GSAI(99)	GSAI(100)	GSAI(101)	GSAI(102)	GSAI(103)	GSAI(104)	GSAI(105)
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.024440	0.000000	0.000000	0.000000	0.000000

GSAI(106)	GSAI(107)
0.000000	0.000000

Table 1: Parameter Values (continued)

$$GAMMAM(i) = \gamma_i^M ;\ i = 1,2,\cdots,107$$

GAMMAM(1)	GAMMAM(2)	GAMMAM(3)	GAMMAM(4)	GAMMAM(5)	GAMMAM(6)	GAMMAM(7)	GAMMAM(8)	GAMMAM(9)	GAMMAM(10)	GAMMAM(11)	GAMMAM(12)	GAMMAM(13)	GAMMAM(14)	GAMMAM(15)
0.204213	0.015883	0.000000	0.159696	0.169359	0.989016	0.161561	0.991011	0.151897	0.057352	0.092149	0.244285	0.205769	0.588887	0.296517

GAMMAM(16)	GAMMAM(17)	GAMMAM(18)	GAMMAM(19)	GAMMAM(20)	GAMMAM(21)	GAMMAM(22)	GAMMAM(23)	GAMMAM(24)	GAMMAM(25)	GAMMAM(26)	GAMMAM(27)	GAMMAM(28)	GAMMAM(29)	GAMMAM(30)
0.178307	0.078185	0.031427	0.007000	0.228893	0.166364	0.015279	0.262157	0.150654	0.139844	0.130729	0.132632	0.151774	0.065853	0.059744

GAMMAM(31)	GAMMAM(32)	GAMMAM(33)	GAMMAM(34)	GAMMAM(35)	GAMMAM(36)	GAMMAM(37)	GAMMAM(38)	GAMMAM(39)	GAMMAM(40)	GAMMAM(41)	GAMMAM(42)	GAMMAM(43)	GAMMAM(44)	GAMMAM(45)
0.174788	0.634839	0.133737	0.005358	0.134695	0.126247	0.046285	0.038267	0.010569	0.057458	0.518190	0.143344	0.030947	0.067039	0.090442

GAMMAM(46)	GAMMAM(47)	GAMMAM(48)	GAMMAM(49)	GAMMAM(50)	GAMMAM(51)	GAMMAM(52)	GAMMAM(53)	GAMMAM(54)	GAMMAM(55)	GAMMAM(56)	GAMMAM(57)	GAMMAM(58)	GAMMAM(59)	GAMMAM(60)
0.159450	0.094953	0.057172	0.167955	0.392915	0.159768	0.164382	0.199346	0.671938	0.587932	0.147661	0.120402	0.027670	0.026757	0.039290

GAMMAM(61)	GAMMAM(62)	GAMMAM(63)	GAMMAM(64)	GAMMAM(65)	GAMMAM(66)	GAMMAM(67)	GAMMAM(68)	GAMMAM(69)	GAMMAM(70)	GAMMAM(71)	GAMMAM(72)	GAMMAM(73)	GAMMAM(74)	GAMMAM(75)
0.299314	0.389652	0.289767	0.000000	0.000000	0.000000	0.000000	0.000000	0.000068	0.000063	0.000318	0.000072	0.007164	0.012048	0.000000

GAMMAM(76)	GAMMAM(77)	GAMMAM(78)	GAMMAM(79)	GAMMAM(80)	GAMMAM(81)	GAMMAM(82)	GAMMAM(83)	GAMMAM(84)	GAMMAM(85)	GAMMAM(86)	GAMMAM(87)	GAMMAM(88)	GAMMAM(89)	GAMMAM(90)
0.000123	0.000000	0.030748	0.011163	0.000000	0.453834	0.394777	0.000000	0.000000	0.043256	0.005262	0.000000	0.022020	0.002268	0.031897

GAMMAM(91)	GAMMAM(92)	GAMMAM(93)	GAMMAM(94)	GAMMAM(95)	GAMMAM(96)	GAMMAM(97)	GAMMAM(98)	GAMMAM(99)	GAMMAM(100)	GAMMAM(101)	GAMMAM(102)	GAMMAM(103)	GAMMAM(104)	GAMMAM(105)
0.000000	0.002954	0.042848	0.000056	0.000000	0.000000	0.006711	0.022928	0.002069	0.000019	0.026586	0.018407	0.041963	0.220840	0.000424

GAMMAM(106)	GAMMAM(107)
0.058544	0.000000

Table 1: Parameter Values (continued)

$$GAMMAD(i) = \gamma_i^D ;\ i = 1,2,\cdots,107$$

GAMMAD(1)	GAMMAD(2)	GAMMAD(3)	GAMMAD(4)	GAMMAD(5)	GAMMAD(6)	GAMMAD(7)	GAMMAD(8)	GAMMAD(9)	GAMMAD(10)	GAMMAD(11)	GAMMAD(12)	GAMMAD(13)	GAMMAD(14)	GAMMAD(15)
0.795787	0.984117	1.000000	0.840304	0.830641	0.010984	0.838439	0.008989	0.848103	0.942648	0.907851	0.755715	0.794231	0.411113	0.703483

GAMMAD(16)	GAMMAD(17)	GAMMAD(18)	GAMMAD(19)	GAMMAD(20)	GAMMAD(21)	GAMMAD(22)	GAMMAD(23)	GAMMAD(24)	GAMMAD(25)	GAMMAD(26)	GAMMAD(27)	GAMMAD(28)	GAMMAD(29)	GAMMAD(30)
0.821693	0.921815	0.968573	0.993000	0.771107	0.833636	0.984721	0.737843	0.849346	0.860156	0.869271	0.867368	0.848226	0.934147	0.940256

GAMMAD(31)	GAMMAD(32)	GAMMAD(33)	GAMMAD(34)	GAMMAD(35)	GAMMAD(36)	GAMMAD(37)	GAMMAD(38)	GAMMAD(39)	GAMMAD(40)	GAMMAD(41)	GAMMAD(42)	GAMMAD(43)	GAMMAD(44)	GAMMAD(45)
0.825212	0.365161	0.866263	0.994642	0.865305	0.873753	0.953715	0.961733	0.989431	0.942542	0.481810	0.856656	0.969053	0.932961	0.909558

GAMMAD(46)	GAMMAD(47)	GAMMAD(48)	GAMMAD(49)	GAMMAD(50)	GAMMAD(51)	GAMMAD(52)	GAMMAD(53)	GAMMAD(54)	GAMMAD(55)	GAMMAD(56)	GAMMAD(57)	GAMMAD(58)	GAMMAD(59)	GAMMAD(60)
0.840550	0.905047	0.942828	0.832045	0.607085	0.840232	0.835618	0.800654	0.328062	0.412068	0.852339	0.879598	0.972330	0.973243	0.960710

GAMMAD(61)	GAMMAD(62)	GAMMAD(63)	GAMMAD(64)	GAMMAD(65)	GAMMAD(66)	GAMMAD(67)	GAMMAD(68)	GAMMAD(69)	GAMMAD(70)	GAMMAD(71)	GAMMAD(72)	GAMMAD(73)	GAMMAD(74)	GAMMAD(75)
0.700686	0.610348	0.710233	1.000000	1.000000	1.000000	1.000000	1.000000	0.999932	0.999937	0.999682	0.999928	0.992836	0.987952	1.000000

GAMMAD(76)	GAMMAD(77)	GAMMAD(78)	GAMMAD(79)	GAMMAD(80)	GAMMAD(81)	GAMMAD(82)	GAMMAD(83)	GAMMAD(84)	GAMMAD(85)	GAMMAD(86)	GAMMAD(87)	GAMMAD(88)	GAMMAD(89)	GAMMAD(90)
0.999877	1.000000	0.969252	0.988837	1.000000	0.546166	0.605223	1.000000	1.000000	0.956744	0.994738	1.000000	0.977980	0.997732	0.968103

GAMMAD(91)	GAMMAD(92)	GAMMAD(93)	GAMMAD(94)	GAMMAD(95)	GAMMAD(96)	GAMMAD(97)	GAMMAD(98)	GAMMAD(99)	GAMMAD(100)	GAMMAD(101)	GAMMAD(102)	GAMMAD(103)	GAMMAD(104)	GAMMAD(105)
1.000000	0.997046	0.957152	0.999944	1.000000	1.000000	0.993289	0.977072	0.997931	0.999981	0.973414	0.981593	0.958037	0.779160	0.999576

GAMMAD(106)	GAMMAD(107)
0.941456	1.000000

Table 1: Parameter Values (continued)

$$KAPPAE(i) = \kappa_i^E;\ i = 1,2,\cdots,107$$

KAPPAE(1)	KAPPAE(2)	KAPPAE(3)	KAPPAE(4)	KAPPAE(5)	KAPPAE(6)	KAPPAE(7)	KAPPAE(8)	KAPPAE(9)	KAPPAE(10)	KAPPAE(11)	KAPPAE(12)	KAPPAE(13)	KAPPAE(14)	KAPPAE(15)
0.003039	0.000270	0.000000	0.001252	0.025258	0.182150	0.031150	0.001016	0.008845	0.002643	0.003551	0.010760	0.236228	0.021328	0.004348

KAPPAE(16)	KAPPAE(17)	KAPPAE(18)	KAPPAE(19)	KAPPAE(20)	KAPPAE(21)	KAPPAE(22)	KAPPAE(23)	KAPPAE(24)	KAPPAE(25)	KAPPAE(26)	KAPPAE(27)	KAPPAE(28)	KAPPAE(29)	KAPPAE(30)
0.027498	0.049164	0.015724	0.007009	0.032443	0.137034	0.109029	0.301676	0.290771	0.275001	0.046991	0.193032	0.053784	0.033542	0.103752

KAPPAE(31)	KAPPAE(32)	KAPPAE(33)	KAPPAE(34)	KAPPAE(35)	KAPPAE(36)	KAPPAE(37)	KAPPAE(38)	KAPPAE(39)	KAPPAE(40)	KAPPAE(41)	KAPPAE(42)	KAPPAE(43)	KAPPAE(44)	KAPPAE(45)
0.236375	0.041396	0.210679	0.008462	0.154667	0.145432	0.016499	0.189440	0.010059	0.004244	0.188856	0.158541	0.006420	0.078360	0.261322

KAPPAE(46)	KAPPAE(47)	KAPPAE(48)	KAPPAE(49)	KAPPAE(50)	KAPPAE(51)	KAPPAE(52)	KAPPAE(53)	KAPPAE(54)	KAPPAE(55)	KAPPAE(56)	KAPPAE(57)	KAPPAE(58)	KAPPAE(59)	KAPPAE(60)
0.374836	0.219185	0.064306	0.322125	0.559810	0.440164	0.079687	0.259846	0.607049	0.679630	0.256909	0.527340	0.354772	0.139857	0.604501

KAPPAE(61)	KAPPAE(62)	KAPPAE(63)	KAPPAE(64)	KAPPAE(65)	KAPPAE(66)	KAPPAE(67)	KAPPAE(68)	KAPPAE(69)	KAPPAE(70)	KAPPAE(71)	KAPPAE(72)	KAPPAE(73)	KAPPAE(74)	KAPPAE(75)
0.222479	0.375409	0.139016	0.255331	0.000000	0.000000	0.000000	0.000000	0.001922	0.000244	0.002235	0.000838	0.081116	0.015740	0.000207

KAPPAE(76)	KAPPAE(77)	KAPPAE(78)	KAPPAE(79)	KAPPAE(80)	KAPPAE(81)	KAPPAE(82)	KAPPAE(83)	KAPPAE(84)	KAPPAE(85)	KAPPAE(86)	KAPPAE(87)	KAPPAE(88)	KAPPAE(89)	KAPPAE(90)
0.001465	0.000000	0.015210	0.054490	0.000000	0.619934	0.258458	0.070603	0.049171	0.088519	0.004668	0.000010	0.010135	0.003421	0.010506

KAPPAE(91)	KAPPAE(92)	KAPPAE(93)	KAPPAE(94)	KAPPAE(95)	KAPPAE(96)	KAPPAE(97)	KAPPAE(98)	KAPPAE(99)	KAPPAE(100)	KAPPAE(101)	KAPPAE(102)	KAPPAE(103)	KAPPAE(104)	KAPPAE(105)
0.000000	0.001252	0.027012	0.000006	0.000000	0.000000	0.003981	0.013002	0.012756	0.000177	0.013158	0.008165	0.011575	0.088229	0.000147

KAPPAE(106)	KAPPAE(107)
0.008925	0.000000

Table 1: Parameter Values (continued)

$$KAPPAD(i) = \kappa_i^D;\ i = 1,2,\cdots,107$$

KAPPAD(1)	KAPPAD(2)	KAPPAD(3)	KAPPAD(4)	KAPPAD(5)	KAPPAD(6)	KAPPAD(7)	KAPPAD(8)	KAPPAD(9)	KAPPAD(10)	KAPPAD(11)	KAPPAD(12)	KAPPAD(13)	KAPPAD(14)	KAPPAD(15)
0.996961	0.999730	1.000000	0.998748	0.974742	0.817850	0.968850	0.998984	0.991155	0.997357	0.996449	0.989240	0.763772	0.978672	0.995652

KAPPAD(16)	KAPPAD(17)	KAPPAD(18)	KAPPAD(19)	KAPPAD(20)	KAPPAD(21)	KAPPAD(22)	KAPPAD(23)	KAPPAD(24)	KAPPAD(25)	KAPPAD(26)	KAPPAD(27)	KAPPAD(28)	KAPPAD(29)	KAPPAD(30)
0.972502	0.950836	0.984276	0.992991	0.967557	0.862966	0.890971	0.698324	0.709229	0.724999	0.953009	0.806968	0.946216	0.966458	0.896248

KAPPAD(31)	KAPPAD(32)	KAPPAD(33)	KAPPAD(34)	KAPPAD(35)	KAPPAD(36)	KAPPAD(37)	KAPPAD(38)	KAPPAD(39)	KAPPAD(40)	KAPPAD(41)	KAPPAD(42)	KAPPAD(43)	KAPPAD(44)	KAPPAD(45)
0.763625	0.958604	0.789321	0.991538	0.845333	0.854568	0.983501	0.810560	0.989941	0.995756	0.811144	0.841459	0.993580	0.921640	0.738678

KAPPAD(46)	KAPPAD(47)	KAPPAD(48)	KAPPAD(49)	KAPPAD(50)	KAPPAD(51)	KAPPAD(52)	KAPPAD(53)	KAPPAD(54)	KAPPAD(55)	KAPPAD(56)	KAPPAD(57)	KAPPAD(58)	KAPPAD(59)	KAPPAD(60)
0.625164	0.780815	0.935694	0.677875	0.440190	0.559836	0.920313	0.740154	0.392951	0.320370	0.743091	0.472660	0.645228	0.860143	0.395499

KAPPAD(61)	KAPPAD(62)	KAPPAD(63)	KAPPAD(64)	KAPPAD(65)	KAPPAD(66)	KAPPAD(67)	KAPPAD(68)	KAPPAD(69)	KAPPAD(70)	KAPPAD(71)	KAPPAD(72)	KAPPAD(73)	KAPPAD(74)	KAPPAD(75)
0.777521	0.624591	0.860984	0.744669	1.000000	1.000000	1.000000	1.000000	0.998078	0.999756	0.997765	0.999162	0.918884	0.984260	0.999793

KAPPAD(76)	KAPPAD(77)	KAPPAD(78)	KAPPAD(79)	KAPPAD(80)	KAPPAD(81)	KAPPAD(82)	KAPPAD(83)	KAPPAD(84)	KAPPAD(85)	KAPPAD(86)	KAPPAD(87)	KAPPAD(88)	KAPPAD(89)	KAPPAD(90)
0.998535	1.000000	0.984790	0.945510	1.000000	0.380066	0.741542	0.929397	0.950829	0.911481	0.995332	0.999990	0.989865	0.996579	0.989494

KAPPAD(91)	KAPPAD(92)	KAPPAD(93)	KAPPAD(94)	KAPPAD(95)	KAPPAD(96)	KAPPAD(97)	KAPPAD(98)	KAPPAD(99)	KAPPAD(100)	KAPPAD(101)	KAPPAD(102)	KAPPAD(103)	KAPPAD(104)	KAPPAD(105)
1.000000	0.998748	0.972988	0.999994	1.000000	1.000000	0.996019	0.986998	0.987244	0.999823	0.986842	0.991835	0.988425	0.911771	0.999853

KAPPAD(106)	KAPPAD(107)
0.991075	1.000000

Table 1: Parameter Values (continued)

$$BETA(i, j) = \beta_j^i, i = 1(capital), 2(labor), \; j = 1,2,\cdots,107$$

BETA(1 1)	BETA(2 1)	BETA(1 2)	BETA(2 2)	BETA(1 3)	BETA(2 3)	BETA(1 4)	BETA(2 4)	BETA(1 5)	BETA(2 5)	BETA(1 6)	BETA(2 6)	BETA(1 7)	BETA(2 7)
0.873705	0.126295	0.795029	0.204971	0.377652	0.622348	0.789692	0.210308	0.619845	0.380155	0.425395	0.574605	0.348301	0.651699
BETA(1 8)	BETA(2 8)	BETA(1 9)	BETA(2 9)	BETA(1 10)	BETA(2 10)	BETA(1 11)	BETA(2 11)	BETA(1 12)	BETA(2 12)	BETA(1 13)	BETA(2 13)	BETA(1 14)	BETA(2 14)
0.385843	0.614157	0.430065	0.569935	0.626244	0.373756	0.708251	0.291749	0.800717	0.199283	0.153092	0.846908	0.171611	0.828389
BETA(1 15)	BETA(2 15)	BETA(1 16)	BETA(2 16)	BETA(1 17)	BETA(2 17)	BETA(1 18)	BETA(2 18)	BETA(1 19)	BETA(2 19)	BETA(1 20)	BETA(2 20)	BETA(1 21)	BETA(2 21)
0.398741	0.601259	0.186805	0.813195	0.583062	0.416938	0.275022	0.724978	0.332154	0.667846	0.485737	0.514263	0.580994	0.419006
BETA(1 22)	BETA(2 22)	BETA(1 23)	BETA(2 23)	BETA(1 24)	BETA(2 24)	BETA(1 25)	BETA(2 25)	BETA(1 26)	BETA(2 26)	BETA(1 27)	BETA(2 27)	BETA(1 28)	BETA(2 28)
0.747311	0.252689	0.474172	0.525828	0.462937	0.537063	0.334964	0.665036	0.578962	0.421038	0.413419	0.586581	0.508695	0.491305
BETA(1 29)	BETA(2 29)	BETA(1 30)	BETA(2 30)	BETA(1 31)	BETA(2 31)	BETA(1 32)	BETA(2 32)	BETA(1 33)	BETA(2 33)	BETA(1 34)	BETA(2 34)	BETA(1 35)	BETA(2 35)
0.627415	0.372585	0.207273	0.792727	0.338813	0.661187	0.353164	0.646836	0.480519	0.519481	0.378114	0.621886	0.317792	0.682208
BETA(1 36)	BETA(2 36)	BETA(1 37)	BETA(2 37)	BETA(1 38)	BETA(2 38)	BETA(1 39)	BETA(2 39)	BETA(1 40)	BETA(2 40)	BETA(1 41)	BETA(2 41)	BETA(1 42)	BETA(2 42)
0.394347	0.605653	0.544357	0.455643	0.622426	0.377574	0.414574	0.585426	0.227985	0.772015	0.450008	0.549992	0.324905	0.675095
BETA(1 43)	BETA(2 43)	BETA(1 44)	BETA(2 44)	BETA(1 45)	BETA(2 45)	BETA(1 46)	BETA(2 46)	BETA(1 47)	BETA(2 47)	BETA(1 48)	BETA(2 48)	BETA(1 49)	BETA(2 49)
0.238573	0.761427	0.205336	0.794664	0.297464	0.702536	0.316831	0.683169	0.217319	0.782681	0.405635	0.594365	0.166071	0.833929
BETA(1 50)	BETA(2 50)	BETA(1 51)	BETA(2 51)	BETA(1 52)	BETA(2 52)	BETA(1 53)	BETA(2 53)	BETA(1 54)	BETA(2 54)	BETA(1 55)	BETA(2 55)	BETA(1 56)	BETA(2 56)
0.230711	0.769289	0.433889	0.566111	0.445027	0.554973	0.259323	0.740677	0.368190	0.631810	0.284373	0.715627	0.203093	0.796907
BETA(1 57)	BETA(2 57)	BETA(1 58)	BETA(2 58)	BETA(1 59)	BETA(2 59)	BETA(1 60)	BETA(2 60)	BETA(1 61)	BETA(2 61)	BETA(1 62)	BETA(2 62)	BETA(1 63)	BETA(2 63)
0.341356	0.658644	0.331808	0.668192	0.219457	0.780543	0.338121	0.661879	0.329092	0.670908	0.276800	0.723200	0.307300	0.692700
BETA(1 64)	BETA(2 64)	BETA(1 65)	BETA(2 65)	BETA(1 66)	BETA(2 66)	BETA(1 67)	BETA(2 67)	BETA(1 68)	BETA(2 68)	BETA(1 69)	BETA(2 69)	BETA(1 70)	BETA(2 70)
0.136513	0.863487	0.126572	0.873428	0.117856	0.882144	0.192903	0.807097	0.170729	0.829271	0.688454	0.311546	0.471007	0.528993
BETA(1 71)	BETA(2 71)	BETA(1 72)	BETA(2 72)	BETA(1 73)	BETA(2 73)	BETA(1 74)	BETA(2 74)	BETA(1 75)	BETA(2 75)	BETA(1 76)	BETA(2 76)	BETA(1 77)	BETA(2 77)
0.659005	0.340995	0.200339	0.799661	0.356460	0.643540	0.507732	0.492268	0.693330	0.306670	0.933852	0.066148	1.000000	0.000000
BETA(1 78)	BETA(2 78)	BETA(1 79)	BETA(2 79)	BETA(1 80)	BETA(2 80)	BETA(1 81)	BETA(2 81)	BETA(1 82)	BETA(2 82)	BETA(1 83)	BETA(2 83)	BETA(1 84)	BETA(2 84)

0.566626	0.433374	0.112466	0.887534	0.000000	0.000000	0.396298	0.603702	0.371840	0.628160	0.158816	0.841184	0.299568	0.700432

BETA(1 85)	BETA(2 85)	BETA(1 86)	BETA(2 86)	BETA(1 87)	BETA(2 87)	BETA(1 88)	BETA(2 88)	BETA(1 89)	BETA(2 89)	BETA(1 90)	BETA(2 90)	BETA(1 91)	BETA(2 91)
0.511584	0.488416	0.514368	0.485632	0.523790	0.476210	0.356325	0.643675	0.474659	0.525341	0.309968	0.690032	0.408598	0.591402

BETA(1 92)	BETA(2 92)	BETA(1 93)	BETA(2 93)	BETA(1 94)	BETA(2 94)	BETA(1 95)	BETA(2 95)	BETA(1 96)	BETA(2 96)	BETA(1 97)	BETA(2 97)	BETA(1 98)	BETA(2 98)
0.162627	0.837373	0.170565	0.829435	0.219657	0.780343	0.060451	0.939549	0.174570	0.825430	0.114685	0.885315	0.435003	0.564997

BETA(1 99)	BETA(2 99)	BETA(1100)	BETA(2100)	BETA(1101)	BETA(2101)	BETA(1102)	BETA(2102)	BETA(1103)	BETA(2103)	BETA(1104)	BETA(2104)	BETA(1105)	BETA(2105)
0.810139	0.189861	0.169821	0.830179	0.276521	0.723479	0.565949	0.434051	0.278234	0.721766	0.365413	0.634587	0.456596	0.543404

BETA(1106)	BETA(2106)	BETA(1107)	BETA(2107)
0.347163	0.652837	0.000000	0.000000

Table 2-1: Parameter Values (Production tax Rate)

$$TAUP(i) = \tau_i^p ;\ i = 1,2,\cdots,107 \ \text{(Production Tax Rate)}$$

TAUP(1)	TAUP(2)	TAUP(3)	TAUP(4)	TAUP(5)	TAUP(6)	TAUP(7)	TAUP(8)	TAUP(9)	TAUP(10)	TAUP(11)	TAUP(12)	TAUP(13)	TAUP(14)	TAUP(15)
5.9867%	2.5114%	6.1820%	1.2527%	4.3722%	3.8090%	6.3187%	12.9820%	1.8945%	27.6149%	1.1470%	162.3026%	3.8493%	3.4444%	2.8209%

TAUP(16)	TAUP(17)	TAUP(18)	TAUP(19)	TAUP(20)	TAUP(21)	TAUP(22)	TAUP(23)	TAUP(24)	TAUP(25)	TAUP(26)	TAUP(27)	TAUP(28)	TAUP(29)	TAUP(30)
3.1706%	3.6937%	3.3152%	3.6528%	2.9897%	1.8001%	1.7417%	2.1078%	1.3484%	6.8352%	2.7184%	2.7862%	38.7680%	1.8750%	2.2056%

TAUP(31)	TAUP(32)	TAUP(33)	TAUP(34)	TAUP(35)	TAUP(36)	TAUP(37)	TAUP(38)	TAUP(39)	TAUP(40)	TAUP(41)	TAUP(42)	TAUP(43)	TAUP(44)	TAUP(45)
3.5739%	2.2774%	3.3468%	5.0663%	5.5992%	4.0437%	5.2686%	1.1492%	4.0811%	2.1405%	4.2144%	2.4866%	3.2158%	3.4331%	2.2434%

TAUP(46)	TAUP(47)	TAUP(48)	TAUP(49)	TAUP(50)	TAUP(51)	TAUP(52)	TAUP(53)	TAUP(54)	TAUP(55)	TAUP(56)	TAUP(57)	TAUP(58)	TAUP(59)	TAUP(60)
1.7931%	1.8188%	2.0160%	1.6598%	1.3144%	1.7305%	1.4357%	1.5851%	1.4624%	1.6600%	1.3251%	1.2068%	1.3410%	1.6146%	2.4806%

TAUP(61)	TAUP(62)	TAUP(63)	TAUP(64)	TAUP(65)	TAUP(66)	TAUP(67)	TAUP(68)	TAUP(69)	TAUP(70)	TAUP(71)	TAUP(72)	TAUP(73)	TAUP(74)	TAUP(75)
1.4796%	2.6985%	2.7755%	7.2375%	3.3239%	3.7016%	3.8125%	3.9683%	7.6883%	3.0249%	4.5282%	5.5395%	3.7119%	4.6608%	9.9487%

TAUP(76)	TAUP(77)	TAUP(78)	TAUP(79)	TAUP(80)	TAUP(81)	TAUP(82)	TAUP(83)	TAUP(84)	TAUP(85)	TAUP(86)	TAUP(87)	TAUP(88)	TAUP(89)	TAUP(90)
5.9533%	5.1196%	5.8426%	6.2693%	0.0000%	2.0770%	5.2643%	2.8005%	6.7776%	6.6531%	3.2352%	3.5600%	4.4300%	2.4485%	2.7756%

TAUP(91)	TAUP(92)	TAUP(93)	TAUP(94)	TAUP(95)	TAUP(96)	TAUP(97)	TAUP(98)	TAUP(99)	TAUP(100)	TAUP(101)	TAUP(102)	TAUP(103)	TAUP(104)	TAUP(105)
0.2775%	0.4211%	1.5446%	1.7759%	0.6563%	1.9178%	3.0825%	3.2853%	2.0742%	1.7716%	3.8589%	10.2152%	2.4778%	3.8533%	5.0795%

TAUP(106)	TAUP(107)
8.6114%	0.0000%

Table 2-2: Parameter Values (Import Tariff Rate)

$$TAUM\left(i\right)=\tau_i^m;\ i=1,2,\cdots,107\ \text{(Import Tariff Rate)}$$

TAUM(1)	TAUM(2)	TAUM(3)	TAUM(4)	TAUM(5)	TAUM(6)	TAUM(7)	TAUM(8)	TAUM(9)	TAUM(10)	TAUM(11)	TAUM(12)	TAUM(13)	TAUM(14)	TAUM(15)
6.8081%	15.5478%	0.0000%	5.6808%	8.7406%	5.0000%	5.0004%	9.8945%	14.4770%	25.5089%	5.3134%	109.5661%	9.3138%	12.6582%	7.9865%

TAUM(16)	TAUM(17)	TAUM(18)	TAUM(19)	TAUM(20)	TAUM(21)	TAUM(22)	TAUM(23)	TAUM(24)	TAUM(25)	TAUM(26)	TAUM(27)	TAUM(28)	TAUM(29)	TAUM(30)
5.1066%	4.9944%	5.5484%	4.9737%	5.0410%	6.1612%	5.0006%	6.0696%	7.6112%	10.8256%	5.0446%	5.8942%	5.7067%	5.2018%	6.7533%

TAUM(31)	TAUM(32)	TAUM(33)	TAUM(34)	TAUM(35)	TAUM(36)	TAUM(37)	TAUM(38)	TAUM(39)	TAUM(40)	TAUM(41)	TAUM(42)	TAUM(43)	TAUM(44)	TAUM(45)
9.9136%	14.9538%	5.7152%	5.8357%	5.5806%	5.4506%	7.2644%	5.0002%	5.0047%	4.9999%	5.1549%	5.9397%	5.2741%	5.6103%	5.0002%

TAUM(46)	TAUM(47)	TAUM(48)	TAUM(49)	TAUM(50)	TAUM(51)	TAUM(52)	TAUM(53)	TAUM(54)	TAUM(55)	TAUM(56)	TAUM(57)	TAUM(58)	TAUM(59)	TAUM(60)
5.1301%	4.9999%	4.9994%	4.9999%	5.0000%	8.9702%	4.9828%	4.9800%	5.2524%	5.0000%	4.9998%	4.9557%	4.9848%	5.0001%	2.7342%

TAUM(61)	TAUM(62)	TAUM(63)	TAUM(64)	TAUM(65)	TAUM(66)	TAUM(67)	TAUM(68)	TAUM(69)	TAUM(70)	TAUM(71)	TAUM(72)	TAUM(73)	TAUM(74)	TAUM(75)
4.8217%	4.9596%	5.1917%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%

TAUM(76)	TAUM(77)	TAUM(78)	TAUM(79)	TAUM(80)	TAUM(81)	TAUM(82)	TAUM(83)	TAUM(84)	TAUM(85)	TAUM(86)	TAUM(87)	TAUM(88)	TAUM(89)	TAUM(90)
0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.4634%	0.0000%	1.8618%

TAUM(91)	TAUM(92)	TAUM(93)	TAUM(94)	TAUM(95)	TAUM(96)	TAUM(97)	TAUM(98)	TAUM(99)	TAUM(100)	TAUM(101)	TAUM(102)	TAUM(103)	TAUM(104)	TAUM(105)
0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.1495%	0.0000%	0.0000%	0.0000%	0.0000%

TAUM(106)	TAUM(107)
0.1669%	0.0000%

Table 2-3: Parameter Values (Subsidy Rate)

$$SUBR(i) = \tau_i^s;\ i = 1,2,\cdots,107 \text{ (Subsidy Rate)}$$

SUBR(1)	SUBR(2)	SUBR(3)	SUBR(4)	SUBR(5)	SUBR(6)	SUBR(7)	SUBR(8)	SUBR(9)	SUBR(10)	SUBR(11)	SUBR(12)	SUBR(13)	SUBR(14)	SUBR(15)
0.7094%	1.7234%	0.0459%	3.0764%	0.2472%	0.0369%	0.0096%	1.6950%	0.8771%	0.0045%	0.5283%	0.0053%	0.0165%	0.0110%	0.0153%

SUBR(16)	SUBR(17)	SUBR(18)	SUBR(19)	SUBR(20)	SUBR(21)	SUBR(22)	SUBR(23)	SUBR(24)	SUBR(25)	SUBR(26)	SUBR(27)	SUBR(28)	SUBR(29)	SUBR(30)
0.0079%	0.0035%	0.0061%	0.0085%	0.0037%	0.0038%	0.0009%	0.0027%	0.0030%	0.0056%	0.0044%	0.0044%	0.4716%	0.0016%	0.0054%

SUBR(31)	SUBR(32)	SUBR(33)	SUBR(34)	SUBR(35)	SUBR(36)	SUBR(37)	SUBR(38)	SUBR(39)	SUBR(40)	SUBR(41)	SUBR(42)	SUBR(43)	SUBR(44)	SUBR(45)
0.0089%	0.0694%	0.0069%	0.0073%	0.0102%	0.0079%	0.0028%	0.0042%	0.0079%	0.0036%	0.0042%	0.0051%	0.0078%	0.0102%	0.0068%

SUBR(46)	SUBR(47)	SUBR(48)	SUBR(49)	SUBR(50)	SUBR(51)	SUBR(52)	SUBR(53)	SUBR(54)	SUBR(55)	SUBR(56)	SUBR(57)	SUBR(58)	SUBR(59)	SUBR(60)
0.0068%	0.0091%	0.0047%	0.0066%	0.0053%	0.0058%	0.0049%	0.0050%	0.0034%	0.0064%	0.0062%	0.0022%	0.0025%	0.0049%	0.0130%

SUBR(61)	SUBR(62)	SUBR(63)	SUBR(64)	SUBR(65)	SUBR(66)	SUBR(67)	SUBR(68)	SUBR(69)	SUBR(70)	SUBR(71)	SUBR(72)	SUBR(73)	SUBR(74)	SUBR(75)
0.0682%	0.0087%	0.0113%	0.0085%	0.0163%	0.0165%	0.2631%	3.5499%	0.0130%	2.9362%	3.7943%	0.0077%	0.0716%	2.7243%	0.0071%

SUBR(76)	SUBR(77)	SUBR(78)	SUBR(79)	SUBR(80)	SUBR(81)	SUBR(82)	SUBR(83)	SUBR(84)	SUBR(85)	SUBR(86)	SUBR(87)	SUBR(88)	SUBR(89)	SUBR(90)
0.6671%	0.0000%	0.9291%	0.4615%	0.0000%	0.4080%	0.0063%	0.0244%	0.0202%	0.3951%	0.0080%	0.0074%	0.0289%	0.0026%	0.0189%

SUBR(91)	SUBR(92)	SUBR(93)	SUBR(94)	SUBR(95)	SUBR(96)	SUBR(97)	SUBR(98)	SUBR(99)	SUBR(100)	SUBR(101)	SUBR(102)	SUBR(103)	SUBR(104)	SUBR(105)
0.0000%	0.0007%	0.4221%	2.1191%	0.0118%	0.7001%	2.5735%	0.0073%	0.0040%	0.0076%	0.1523%	0.0072%	0.0033%	0.0118%	0.0137%

SUBR(106)	SUBR(107)
0.0140%	0.0000%

Table 3-1: Economic Values of the Benchmark Model

Final Consumption Goods, $P_i^Q Q_i;\ i = 1,2,\cdots,107$

Unit: One million Japanese yen

i	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
model	7992445	3076453	867591	1507966	1889503	1673551	997155	13666806	28226829	8448175	1528645	3087907	2024194	5403523	3545906	2864489	4718832	3383067	6295844	388535
actual	7992445	3076453	867591	1507966	1889503	1673551	997155	13666806	28226829	8448175	1528645	3087907	2024194	5403523	3545906	2864489	4718832	3383067	6295844	388535

i	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
model	2014268	2646909	5170128	2438742	417929	7287054	6308055	17484729	1289256	10137398	2776993	1249173	1559315	2988851	716762	1675103	7818878	11656182	1901806	2113988
actual	2014268	2646909	5170128	2438742	417929	7287054	6308055	17484729	1289256	10137398	2776993	1249173	1559315	2988851	716762	1675103	7818878	11656182	1901806	2113988

i	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
model	3624169	5085451	4791626	7716325	7736765	9649963	3346489	3968133	5585456	1924973	2445823	2919353	6776294	4409610	4075496	9563708	7856948	2718049	25319384	1004116
actual	3624169	5085451	4791626	7716325	7736765	9649963	3346489	3968133	5585456	1924973	2445823	2919353	6776294	4409610	4075496	9563708	7856948	2718049	25319384	1004116

i	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
model	3563331	3809563	5232559	648298	30715358	9119713	16205999	7196254	15754107	2893277	4549749	3745112	98358600	41431380	8595547	11913778	45678819	6638078	16293277	9960768
actual	3563331	3809563	5232559	648298	30715358	9119713	16205999	7196254	15754107	2893277	4549749	3745112	98358600	41431380	8595547	11913778	45678819	6638078	16293277	9960768

i	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
model	3554235	3512957	489752	1786627	6506596	16367961	3678393	17614538	1214895	7440836	38537877	23178561	13371738	37209390	6616330	6387536	5044458	9175582	11969164	12657970
actual	3554235	3512957	489752	1786627	6506596	16367961	3678393	17614538	1214895	7440836	38537877	23178561	13371738	37209390	6616330	6387536	5044458	9175582	11969164	12657970

i	101	102	103	104	105	106	107
model	30319697	10129655	21613601	7671606	6337175	12761623	1517809
actual	30319697	10129655	21613601	7671606	6337175	12761623	1517809

Table 3-2: Economic Values of the Benchmark Model (Continued)

Capital Income, $rK_i\,;\ i = 1,2,\cdots,107$

Unit: One million Japanese yen

i	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
model	3013193	619764	196982	729575	522992	4630	105212	21743	2970822	1565909	238849	402011	93908	122904	354057	147044	692022	323586	1100374	43932
actual	3013193	619764	196982	729575	522992	4630	105212	21743	2970822	1565909	238849	402011	93908	122904	354057	147044	692022	323586	1100374	43932

i	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
model	348142	171629	401898	261535	43896	1438660	727686	221319	152394	640925	367357	59695	349608	426126	91958	273911	778178	1758911	294256	97254
actual	348142	171629	401898	261535	43896	1438660	727686	221319	152394	640925	367357	59695	349608	426126	91958	273911	778178	1758911	294256	97254

i	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
model	143678	377406	368039	709631	930517	1384756	375474	322166	352810	170457	506256	306073	427506	301195	428739	526290	601345	172999	1211068	207040
actual	143678	377406	368039	709631	930517	1384756	375474	322166	352810	170457	506256	306073	427506	301195	428739	526290	601345	172999	1211068	207040

i	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
model	332438	377004	433360	42930	1674911	443521	1341333	571988	4231709	403822	1540735	503561	2.5E+07	1.3E+07	3894961	8303863	3.8E+07	2135328	1216237	0
actual	332438	377004	433360	42930	1674911	443521	1341333	571988	4231709	403822	1540735	503561	2.5E+07	1.3E+07	3894961	8303863	3.8E+07	2135328	1216237	0

i	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
model	605096	246642	54476	316483	2092779	5289614	835932	3579498	229693	967790	1.2E+07	3190946	1238479	4579116	283558	807134	366078	1127663	6291773	763930
actual	605096	246642	54476	316483	2092779	5289614	835932	3579498	229693	967790	1.2E+07	3190946	1238479	4579116	283558	807134	366078	1127663	6291773	763930

i	101	102	103	104	105	106	107
model	5863257	3249479	2501464	1084820	1975728	1549710	0
actual	5863257	3249479	2501464	1084820	1975728	1549710	0

Table 3-3: Economic Values of the Benchmark Model (Continued)

Labour Income, $wL_i; i = 1,2,\cdots,107$

Unit: One million Japanese yen

i	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
model	435559	159785	324614	194298	320754	6254	196860	34609	3937017	934570	98389	100053	519501	593274	533880	640107	494854	852997	2212473	46512
actual	435559	159785	324614	194298	320754	6254	196860	34609	3937017	934570	98389	100053	519501	593274	533880	640107	494854	852997	2212473	46512

i	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
model	251076	58033	445681	303412	87151	1046236	1032481	213753	90498	2451248	716890	109334	377955	700852	197407	420682	651357	1066983	415523	329327
actual	251076	58033	445681	303412	87151	1046236	1032481	213753	90498	2451248	716890	109334	377955	700852	197407	420682	651357	1066983	415523	329327

i	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
model	175601	784184	1174627	2746319	2197655	2985889	1352278	472061	1771645	568377	660530	381689	1221040	516848	1078927	2065088	1160290	348384	4307408	405285
actual	175601	784184	1174627	2746319	2197655	2985889	1352278	472061	1771645	568377	660530	381689	1221040	516848	1078927	2065088	1160290	348384	4307408	405285

i	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
model	677728	985003	976858	271545	1.2E+07	3319718	5612059	2778276	1914977	453536	797235	2009988	4.4E+07	1.3E+07	1722796	588194	0	1633166	9598060	0
actual	677728	985003	976858	271545	1.2E+07	3319718	5612059	2778276	1914977	453536	797235	2009988	4.4E+07	1.3E+07	1722796	588194	0	1633166	9598060	0

i	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
model	921774	416659	288537	739983	1998002	4994099	759999	6466088	254219	2154436	1.7E+07	1.6E+07	6022563	1.6E+07	4407172	3816420	2825959	1464649	1474520	3734524
actual	921774	416659	288537	739983	1998002	4994099	759999	6466088	254219	2154436	1.7E+07	1.6E+07	6022563	1.6E+07	4407172	3816420	2825959	1464649	1474520	3734524

i	101	102	103	104	105	106	107
model	1.5E+07	2492172	6489054	1883934	2351357	2914220	0
actual	1.5E+07	2492172	6489054	1883934	2351357	2914220	0

Table 3-4: Economic Values of the Benchmark Model (Continued)

Unit: One million Japanese yen

savings					
private sector		government sector		foreign sector	
model	actual	model	actual	model	actual
27265700	27265700	70847256	70847256	-6059608	-6059608

tax and subsidy							
income tax		production tax		import tax		subsidy	
model	actual	model	actual	model	actual	model	actual
146907949	146907949	34024445	34024445	4774091	4774091	3506668	3506668

The above figures indicate the total amount.

Table 4-1: Effects of a Decrease in the Production Tax Rate on the Final Consumption Goods, $P_i^Q Q_i$
Debt Financing Case (P1)

In Value

Unit: One million Japanese yen

decrease in production tax rate with government issue of bonds (P1)

		tax rate of i=26 only changes by		tax rate of i=94 only changes by		tax rate of i=95 only changes by		tax rate of i=96 only changes by	
		5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease
final output of	i=26	7287557.796	7288065.451	7293322.873	7299606.309	7287102.404	7287153.218	7287179.567	7287307.838
	i=94	37209777.17	37210170.71	37211739.53	37214098.93	37209486.62	37209588.62	37209676.7	37209969.27
	i=95	6616550.299	6616774.619	6617211.84	6618098.825	6616384.191	6616441.867	6616487.535	6616648.805
	i=96	6387567.959	6387601.311	6387666.295	6387798.168	6387543.221	6387551.832	6387558.567	6387582.554

Relative Change

decrease in production tax rate with goverment issue of bonds (P1)

		tax rate of i=26 only changes by		tax rate of i=94 only changes by		tax rate of i=95 only changes by		tax rate of i=96 only changes by	
		5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease
final output of	i=26	0.006914%	0.013880%	0.086028%	0.172255%	0.000664%	0.001362%	0.001723%	0.003483%
	i=94	0.001041%	0.002098%	0.006314%	0.012655%	0.000260%	0.000534%	0.000771%	0.001557%
	i=95	0.003330%	0.006720%	0.013328%	0.026734%	0.000819%	0.001691%	0.002381%	0.004818%
	i=96	0.000500%	0.001022%	0.002040%	0.004104%	0.000113%	0.000248%	0.000353%	0.000729%

i=26: Medicaments Sector (incl. the pharmaceutical industry)
i=94: Medical Service and Health Sector (incl. private hospitals)
i=95: Social Security Sector (incl. private nurseries and nursing homes)
i=96: Nursing Care Sector (incl. private long term care for the elderly)

Table 4-2: Effects of a Decrease in the Production Tax Rate on the Final Consumption Goods, $P_i^Q Q_i$
Income Tax Financing Case (P2)

In Value

Unit: One million Japanese yen

decrease in production tax rate with an endogenous income tax (P2)

		tax rate of i=26 only changes by		tax rate of i=94 only changes by		tax rate of i=95 only changes by		tax rate of i=96 only changes by	
		5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease
final output of	i=26	7287391.173	7287725.162	7292612.449	7298175.584	7287062.048	7287066.262	7287056.168	7287054.144
	i=94	37209155.22	37208905.55	37209019.36	37208627.96	37209325.88	37209249.54	37209199.69	37208994.88
	i=95	6616202.138	6616069.544	6615816.483	6615297.331	6616301.072	6616267.417	6616240.573	6616146.077
	i=96	6387515.548	6387491.998	6387402.455	6387264.474	6387529.649	6387520.761	6387514.46	6387489.972

Relative Change

decrease in production tax rate with an endogenous income tax (P2)

		tax rate of i=26 only changes by		tax rate of i=94 only changes by		tax rate of i=95 only changes by		tax rate of i=96 only changes by	
		5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease
final output of	i=26	0.004627%	0.009210%	0.076278%	0.152621%	0.000110%	0.000168%	0.000030%	0.000002%
	i=94	-0.000631%	-0.001302%	-0.000996%	-0.002048%	-0.000172%	-0.000377%	-0.000511%	-0.001062%
	i=95	-0.001933%	-0.003937%	-0.007761%	-0.015608%	-0.000437%	-0.000946%	-0.001352%	-0.002780%
	i=96	-0.000320%	-0.000689%	-0.002091%	-0.004251%	-0.000099%	-0.000239%	-0.000337%	-0.000721%

i=26: Medicaments Sector (incl. the pharmaceutical industry)
i=94: Medical Service and Health Sector (incl. private hospitals)
i=95: Social Security Sector (incl. private nurseries and nursing homes)
i=96: Nursing Care Sector (incl. private long term care for the elderly)

Table 4-3: Effects of an Increase in the Subsidy Rate on the Final Consumption Goods, $P_i^Q Q_i$
Debt Financing Case (S1)

In Value

Unit: One million Japanese yen

increase in subsidy rate with government issue of bonds (S1)

		subsidy rate of i=26 only changes by		subsidy rate of i=94 only changes by		subsidy rate of i=95 only changes by		subsidy rate of i=96 only changes by	
		5% increase	10% increase	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase
final output of	i=26	7287054	7287054.343	7294536.212	7302037.93	7287054	7287054.101	7287098.322	7287145.01
	i=94	37209390	37209390	37212195.09	37215012	37209390	37209390.61	37209491.26	37209597.79
	i=95	6616330	6616330	6617383.089	6618442.075	6616330	6616330	6616385.319	6616444.1
	i=96	6387536	6387536	6387691.826	6387849.291	6387536	6387536	6387543.437	6387552.104

Relative Change

increase in subsidy rate with government issue of bonds (S1)

		subsidy rate of i=26 only changes by		subsidy rate of i=94 only changes by		subsidy rate of i=95 only changes by		subsidy rate of i=96 only changes by	
		5% increase	10% increase	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase
final output of	i=26	0.000000%	0.000005%	0.102678%	0.205624%	0.000000%	0.000001%	0.000608%	0.001249%
	i=94	0.000000%	0.000000%	0.007539%	0.015109%	0.000000%	0.000002%	0.000272%	0.000558%
	i=95	0.000000%	0.000000%	0.015917%	0.031922%	0.000000%	0.000000%	0.000836%	0.001725%
	i=96	0.000000%	0.000000%	0.002440%	0.004905%	0.000000%	0.000000%	0.000116%	0.000252%

i=26: Medicaments Sector (incl. the pharmaceutical industry)
i=94: Medical Service and Health Sector (incl. private hospitals)
i=95: Social Security Sector (incl. private nurseries and nursing homes)
i=96: Nursing Care Sector (incl. private long term care for the elderly)

Table 4-4: Effects of an Increase in the Subsidy Rate on the Final Consumption Good, $P_i^Q Q_i$
Income Tax Financing Case (S2)

In Value

Unit: One million Japanese yen

increase in subsidy rate with an endogenous income tax (S2)

		subsidy rate of i=26 only changes by		subsidy rate of i=94 only changes by		subsidy rate of i=95 only changes by		subsidy rate of i=96 only changes by	
		5% increase	10% increase	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase
final output of	i=26	7287054	7287054.208	7293686.805	7300327.984	7287054	7287054	7287057.248	7287056.674
	i=94	37209390	37209390	37208944.36	37208474.53	37209390	37209389.82	37209328.41	37209254.65
	i=95	6616330	6616330	6615716.216	6615096.497	6616330	6616330	6616300.376	6616266.048
	i=96	6387536	6387536	6387375.936	6387210.651	6387536	6387536	6387529.769	6387521.006

Relative Change

increase in subsidy rate with an endogenous income tax (S2)

		subsidy rate of i=26 only changes by		subsidy rate of i=94 only changes by		subsidy rate of i=95 only changes by		subsidy rate of i=96 only changes by	
		5% increase	10% increase	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase
final output of	i=26	0.000000%	0.000003%	0.091022%	0.182158%	0.000000%	0.000000%	0.000045%	0.000037%
	i=94	0.000000%	0.000000%	-0.001198%	-0.002460%	0.000000%	0.000000%	-0.000166%	-0.000364%
	i=95	0.000000%	0.000000%	-0.009277%	-0.018643%	0.000000%	0.000000%	-0.000448%	-0.000967%
	i=96	0.000000%	0.000000%	-0.002506%	-0.005094%	0.000000%	0.000000%	-0.000098%	-0.000235%

i=26: Medicaments Sector (incl. the pharmaceutical industry)
i=94: Medical Service and Health Sector (incl. private hospitals)
i=95: Social Security Sector (incl. private nurseries and nursing homes)
i=96: Nursing Care Sector (incl. private long term care for the elderly)

Table 5-1: Effects of a Decrease in the Production Tax Rate on the Total Income, $r_i K_i + w_i L_i$

Debt Financing Case (P1): Relative Change

decrease in production tax rate with government issue of bonds (P1)

		tax rate of i=26 only changes by		tax rate of i=94 only changes by		tax rate of i=95 only changes by		tax rate of i=96 only changes by	
		5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease
total income of	i=26	0.1394%	0.2793%	0.0860%	0.1723%	0.0007%	0.0014%	0.0017%	0.0035%
	i=94	0.0010%	0.0021%	0.0955%	0.1912%	0.0003%	0.0005%	0.0008%	0.0016%
	i=95	0.0033%	0.0067%	0.0133%	0.0267%	0.0334%	0.0669%	0.0024%	0.0048%
	i=96	0.0005%	0.0010%	0.0020%	0.0041%	0.0001%	0.0002%	0.0952%	0.1906%

Income Tax Financing Case (P2): Relative Change

decrease in production tax rate with an endogenous income tax (P2)

		tax rate of i=26 only changes by		tax rate of i=94 only changes by		tax rate of i=95 only changes by		tax rate of i=96 only changes by	
		5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease
total income of	i=26	0.1371%	0.2746%	0.0763%	0.1526%	0.0001%	0.0002%	0.0000%	0.0000%
	i=94	-0.0006%	-0.0013%	0.0882%	0.1765%	-0.0002%	-0.0004%	-0.0005%	-0.0011%
	i=95	-0.0019%	-0.0039%	-0.0078%	-0.0156%	0.0322%	0.0643%	-0.0014%	-0.0028%
	i=96	-0.0003%	-0.0007%	-0.0021%	-0.0043%	-0.0001%	-0.0002%	0.0945%	0.1891%

i=26: Medicaments Sector (incl. the pharmaceutical industry)
i=94: Medical Service and Health Sector (incl. private hospitals)
i=95: Social Security Sector (incl. private nurseries and nursing homes)
i=96: Nursing Care Sector (incl. private long term care for the elderly)

Table 5-2: Effects of an Increase in the Subsidy Rate on the Total Income, $r_i K_i + w_i L_i$

Debt Financing Case (S1): Relative Change

increase in subsidy rate with government issue of bonds (S1)

		subsidy rate of i=26 only changes by		subsidy rate of i=94 only changes by		subsidy rate of i=95 only changes by		subsidy rate of i=96 only changes by	
		5% increase	10% increase	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase
total income of	i=26	0.0002%	0.0004%	0.1027%	0.2056%	0.0000%	0.0000%	0.0006%	0.0012%
	i=94	0.0000%	0.0000%	0.1140%	0.2282%	0.0000%	0.0000%	0.0003%	0.0006%
	i=95	0.0000%	0.0000%	0.0159%	0.0319%	0.0006%	0.0012%	0.0008%	0.0017%
	i=96	0.0000%	0.0000%	0.0024%	0.0049%	0.0000%	0.0000%	0.0347%	0.0695%

Income Tax Financing Case (S2): Relative Change

increase in subsidy rate with an endogenous income tax (S2)

		subsidy rate of i=26 only changes by		subsidy rate of i=94 only changes by		subsidy rate of i=95 only changes by		subsidy rate of i=96 only changes by	
		5% increase	10% increase	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase
total income of	i=26	0.0002%	0.0004%	0.0910%	0.1822%	0.0000%	0.0000%	0.0000%	0.0000%
	i=94	0.0000%	0.0000%	0.1052%	0.2106%	0.0000%	0.0000%	-0.0002%	-0.0004%
	i=95	0.0000%	0.0000%	-0.0093%	-0.0186%	0.0006%	0.0012%	-0.0004%	-0.0010%
	i=96	0.0000%	0.0000%	-0.0025%	-0.0051%	0.0000%	0.0000%	0.0345%	0.0690%

i=26: Medicaments Sector (incl. the pharmaceutical industry)
i=94: Medical Service and Health Sector (incl. private hospitals)
i=95: Social Security Sector (incl. private nurseries and nursing homes)
i=96: Nursing Care Sector (incl. private long term care for the elderly)

Table 6-1: Effects of a Decrease in the Production Tax Rate on Welfare
Debt Financing Case (P1)

Unit: One million Japanese yen

decrease in production tax rate with government issue of bonds (P1)

	i=26		i=94		i=95		i=96	
	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease
EV	10197.42991	20537.84426	40692.3836	81578.60069	2541.74362	5200.223331	7305.60259	14739.07338

Income Tax Financing Case (P2)

Unit: One million Japanese yen

decrease in production tax rate with an endogenous income tax (P2)

	i=26		i=94		i=95		i=96	
	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease
EV	-5897.387733	-11938.23957	-22640.152	-45443.02512	-1325.7486	-2805.026399	-3999.5223	-8161.741635

Table 6-2: Effects of an Increase in the Subsidy Rate on Welfare
Debt Financing Case (S1)

Unit: One million Japanese yen

increase in subsidy rate with government issue of bonds (S1)

	i=26		i=94		i=95		i=96	
	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase
EV	3.070344707	7.361056059	48587.3117	97401.79243	16.5240698	41.65657257	2593.04005	5301.606324

Income Tax Financing Case (S2)

Unit: One million Japanese yen

increase in subsidy rate with an endogenous income tax (S2)

	i=26		i=94		i=95		i=96	
	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase
EV	-7.267895079	-15.06987014	-27046.625	-54256.03545	-15.066833	-32.11384213	-1361.9427	-2876.396844

EV: Equivalent Variation

Table 7: Endogenous Income Tax Rate

decrease in production tax rate with an endogenous income tax (P2)

	tax rate of i=26 only changes by		tax rate of i=94 only changes by		tax rate of i=95 only changes by		tax rate of i=96 only changes by	
	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease
income tax rate	31.1363%	31.1382%	31.1415%	31.1485%	31.1349%	31.1354%	31.1358%	31.1371%

increase in subsidy rate with an endogenous income tax (S2)

	subsidy rate of i=26 only changes by		subsidy rate of i=94 only changes by		subsidy rate of i=95 only changes by		subsidy rate of i=96 only changes by	
	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase
income tax rate	31.1345%	31.1345%	31.1429%	31.1513%	31.1345%	31.1345%	31.1350%	31.1354%

Relative Changes from the Benchmark Rate (31.1345%)

decrease in production tax rate with an endogenous income tax (P2)

	tax rate of i=26 only changes by		tax rate of i=94 only changes by		tax rate of i=95 only changes by		tax rate of i=96 only changes by	
	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease	5% decrease	10% decrease
income tax rate	0.005987%	0.011974%	0.022567%	0.045134%	0.001469%	0.002937%	0.004119%	0.008238%

increase in subsidy rate with an endogenous income tax (S2)

	subsidy rate of i=26 only changes by		subsidy rate of i=94 only changes by		subsidy rate of i=95 only changes by		subsidy rate of i=96 only changes by	
	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase	5% increase	10% increase
income tax rate	0.000010%	0.000020%	0.026928%	0.053856%	0.000026%	0.000053%	0.001504%	0.003008%

i=26: Medicaments Sector (incl. the pharmaceutical industry)
i=94: Medical Service and Health Sector (incl. private hospitals)
i=95: Social Security Sector (incl. private nurseries and nursing homes)
i=96: Nursing Care Sector (incl. private long term care for the elderly)

Appendix: Social Accounting Matrix of Year 2005

	year 2005	001 Crop cu	002 Livesto	003 Agricult	004 Forestry	005 Fisherie	006 Metallic	007 Non-m	008 Coal mi	009 Foods	010 Beverag	011 Feeds a	012 Tobacc	013 Textile	014 Wearing	015 Timber	016 Furnitu	017 Pulp, pa	018 Paper p	019 Publishi	020 Chemic	021 Basic in	022 Basic or	023 Organic	024 Synthet	025 Synthet	026 Medicar	027 Final ch	028 Petrole	029 Coal pr	030 Plastic	031 Rubber	032 Leather	033 Glass ar	034 Cement	035 Pottery,	036 Other c	037 Pig iron	038 Steel pr	039 Cast and	040 Other i	041 Non-fe	042 Non-fe
001	Crop cultivation	180939	303756	5980	2511	0	0	0	0	3E+06	335201	291486	130594	29657	19	18	0	1270	36	0	0	0	0	4670	0	635	15986	2181	0	609	0	134524	0	0	0	0	854	0	0	0	0	0	274
002	Livestock	49944	330036	3271	275	0	0	0	0	2E+06	0	9534	0	5133	1035	0	0	0	0	0	196	0	0	0	0	0	97	0	0	0	0	0	2544	0	0	1	0	0	0	0	0	0	0
003	Agricultural services	429233	129181	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
004	Forestry	977	0	0	131194	185	83	89	332	20326	0	1433	0	30	0	408090	33	4035	11	0	0	1400	0	0	0	0	0	5246	0	0	0	0	1213	0	0	1	0	0	0	2	0	0	0
005	Fisheries	0	0	0	0	75535	0	0	0	1E+06	0	1578	0	7	0	0	0	0	0	0	38	0	0	0	0	0	724	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
006	Metallic ores	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	81	38510	0	0	211	0	0	0	0	0	0	0	0	26	60	262	4395	720174	0	0	0	909008	0
007	Non-metallic ores	0	0	0	626	0	0	2893	0	0	0	0	0	0	0	2	0	11813	36	0	3735	22345	-71	3003	0	0	676	1932	-21043	18797	0	1068	20	84222	221581	23470	88640	-3360	0	968	0	2111	236
008	Coal mining, Crude petroleum, and natural gas	0	0	0	0	0	0	0	126	0	0	0	63	0	0	0	0	38701	181	0	18739	1888	941	35096	4417	4020	156	781	1E+07	567526	17	279	0	4342	38195	4259	7983	180047	35961	1245	21	2084	559
009	Foods	0	29136	0	10548	70772	0	0	0	4E+06	390983	299819	188	0	12501	359	0	21266	98	0	36	511	0	26757	462	0	60931	31018	64	0	872	4	22479	138	0	479	2857	0	0	22	0	0	0
010	Beverage	0	788	0	0	19600	0	0	0	31003	319080	0	0	0	0	0	0	0	0	0	0	0	0	43	0	0	962	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
011	Feeds and organic fertilizer, n.e.c.	123337	943249	22540	109	24579	0	0	0	-1494	0	131315	0	0	0	0	0	0	0	0	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
012	Tobacco	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
013	Textile products	490	71	1604	4004	15619	0	10	0	45	883	0	357	0	627401	641	17503	14444	33134	2920	544	0	0	0	0	5470	2	174	1	0	6897	43325	14606	3331	29	0	3057	0	0	47	0	0	4602
014	Wearing apparel and other textile products	19863	1973	728	541	12534	12	4186	363	31954	8473	363	578	0	36681	4642	4906	6133	6144	2126	1069	973	120	2051	1242	195	6680	5069	183	3509	3348	2738	1370	5955	3244	2357	4297	835	6294	3290	1277	601	5590
015	Timber and wooden products	201	14927	330	11129	2489	1	546	122	10244	3119	8717	3	0	998	439312	291599	231878	11394	325	26	2	0	263	32	0	0	1322	0	0	4098	125	1898	12023	542	14450	5834	0	636	4635	2	0	18305
016	Furniture and fixtures	0	0	93	219	492	52	1303	416	9820	3572	140	2200	0	2809	831	84931	2551	2211	2300	125	1780	1317	2727	1724	147	8633	5416	111	175	12485	2109	27	1829	2942	2667	1857	1140	3246	2659	15	217	3187
017	Pulp, paper, paperboard, building paper	607	0	1428	0	134	0	0	0	5100	6563	2	8488	0	1384	17367	35083	1E+06	956091	714382	0	4483	0	4	3741	4914	9352	27086	0	0	42249	7662	395	15414	0	8303	14979	0	1286	0	618	0	7782
018	Paper products	124075	4846	16136	4855	1182	0	0	0	311691	186532	4257	9889	0	11760	1201	22881	8233	27552	7338	1948	3599	0	5824	10773	2233	114414	183745	0	36	32043	3730	4978	22651	9813	28898	7711	0	0	11	2557	0	1147
019	Publishing, printing	0	0	425	82	616	18	399	155	244102	29480	73	3487	0	13145	1968	11959	1496	60907	345170	387	2780	1266	2192	1851	1570	18747	69808	457	242	4692	2720	833	12775	1537	1323	2024	1352	2891	4502	125	639	6391
020	Chemical fertilizer	238021	364	50	258	0	0	0	0	143	175	7	0	0	23	12	0	14	21	15	54215	9230	0	41667	10601	168	4637	15259	38	-3788	0	107	7	87	0	0	318	-11771	4167	0	0	180	14
021	Basic inorganic chemical products	2545	638	831	57	905	9	75	0	89935	21548	1308	171	0	6828	44	752	56279	3878	89	24830	269154	15280	196252	38983	4744	133712	334700	500	471	52267	113696	413	51170	1170	10120	3367	53854	27790	2234	428	7897	12166
022	Basic organic chemical products	0	0	0	0	0	0	0	0	0	0	0	105	0	0	0	0	218	11	950	4668	14150	409378	2E+06	602263	1136	2290	87632	2237	0	161	793	0	1177	0	0	309	0	0	33	0	0	0
023	Organic chemical products	0	20	285	100	0	189	54	0	70627	48035	2071	1613	0	123	2591	3172	39739	13029	2902	1575	64732	75701	1E+06	1E+06	140360	309864	845305	3270	1165	313441	440676	214	18375	375	450	36490	386	0	20	0	788	17626
024	Synthetic resins	0	0	0	0	0	0	0	0	0	0	0	0	0	16	194	6522	15923	11280	3094	0	0	0	0	8782	29233	0	188717	0	1	2E+06	899	2973	6422	0	0	6069	0	156	0	0	0	32219
025	Synthetic fibers	0	0	0	0	0	0	0	0	0	0	0	14798	0	90378	112	1781	6189	54	0	0	0	0	0	0	0	0	0	0	363	3890	305	1082	965	0	0	11211	0	0	0	0	0	0
026	Medicaments	0	26001	28381	0	6086	0	0	0	4558	0	3742	75	0	232	0	0	0	0	0	0	0	0	0	0	0	287875	9703	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
027	Final chemical products, n.e.c.	250400	9794	3163	1060	4093	267	7479	194	42159	21312	0	4273	0	13393	80380	56944	52010	56313	199696	1503	7697	24954	51278	18372	5399	70836	675382	12954	13183	76853	21200	1176	4491	11712	438	27472	1811	11707	8729	377	73	13270
028	Petroleum refinery products	103770	5034	6889	13185	131288	234	14942	394	124545	24828	7428	3106	0	4161	7954	6638	36696	10243	12461	13905	41168	2E+06	63557	6247	5812	10130	34282	516670	83853	13697	9021	1353	40735	25895	30425	35591	20469	46288	17411	3703	17089	15762
029	Coal products	0	0	0	0	2	0	99	0	0	0	0	0	0	0	11	0	160	0	0	1430	1381	329	43230	0	0	0	385	0	61175	78	0	0	8	91	0	8352	435482	81052	18765	96	2643	666
030	Plastic products	55732	1648	5799	15888	19661	46	249	141	353487	296131	120	2999	0	24826	11304	66188	24368	118595	264892	2958	11984	0	5076	5958	1904	189456	174674	2622	0	3E+06	119922	20947	22985	732	1396	4418	0	66	186	29	853	61065
031	Rubber products	5153	988	8297	799	1483	3	3022	498	4627	656	72	15	0	12536	663	3401	1553	4530	4614	344	641	1509	4940	2156	0	7864	3207	0	462	6879	133064	14506	253	5479	1	3530	5359	11341	3490	241	56	909
032	Leather, fur skins and miscellaneous leather produ	159	12	16	136	486	0	2015	0	969	100	7	0	0	5844	747	1782	210	289	348	34	32	250	53	40	30	41	1191	7	312	571	95	78966	22	264	421	231	157	44	543	28	32	214
033	Glass and glass products	0	0	0	719	0	0	0	0	26297	101478	0	5	0	1700	173	62072	1	0	57	5	2767	6	921	47	0	61727	43830	0	0	52047	1958	1	77854	469	0	3500	0	0	0	0	0	17069
034	Cement and cement products	0	0	0	116	0	10	29	63	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	155	17	105	0	0	0	0	304002	0	1853	0	0	178	0	0	0
035	Pottery, china and earthenware	0	0	0	0	0	0	0	0	1212	182	0	1	0	0	14	5253	0	0	0	0	454	0	15	0	0	0	445	0	0	679	0	0	3	423	8187	1	0	0	19	0	0	0
036	Other ceramic, stone and clay products	14224	2342	48	60	68	0	0	94	4461	52	3638	10	0	0	381	2431	8941	64	105	193	29607	43	3226	1429	56	6282	2845	224	6916	4010	642	27	22178	53752	18372	84215	107302	6977	32644	0	27727	11592
037	Pig iron and crude steel	0	0	0	0	0	0	-2	0	0	0	0	0	0	0	0	-3	0	0	0	-2	373	0	0	0	0	0	11	0	-8	-3	0	0	0	-10	-4	-32	3E+06	5E+06	212405	803	0	24
038	Steel products	599	7	1	3	225	0	639	1040	0	0	0	0	0	107	1155	48548	0	0	0	0	0	0	0	0	0	0	0	0	0	17772	12142	3	0	46738	0	4722	0	4E+06	164960	1E+06	568	6892
039	Cast and forged steel products	0	0	0	0	203	95	30	10	0	0	0	0	0	0	3	1304	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	0	140	1783	690	0	0	9255	0	0	1499
040	Other iron or steel products	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	75340	0	0	0	0	613	0	6	0	0	0	200	0	0	442	0	0	43	7032	490	3324	203	0	5842	0	0	2418
041	Non-ferrous metals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	1147	268	0	-2310	0	58405	0	3202	0	0	0	35124	0	0	2321	-42	0	6653	0	8971	17390	44699	138618	3413	-390	283381	2E+06
042	Non-ferrous metal products	0	0	0	0	0	47	62	150	36745	13636	0	2246	0	0	1817	23800	9	1581	14844	0	1890	0	5	0	0	6970	14442	105	1	18566	4459	498	1252	308	668	4941	0	11999	195	0	3482	325935
043	Metal products for construction and architecture	0	0	0	51	291	0	0	92	0	0	0	0	0	0	158	3186	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	748	0	0	0	0	76	0	0	148
044	Other metal products	8041	2917	207	600	2640	119	17271	3722	130808	488887	8906	837	0	8076	37250	119460	6811	4092	3372	7	24123	489	28313	7825	77	83677	97647	6381	4478	21438	89181	5273	16093	28536	13099	18139	230	325	19358	90	2524	15425
045	General industrial machinery	0	0	0	234	0	29	2044	140	0	0	0	0	0	0	66	1086	0	0	0	0	0	0	0	0	0	0	0	17	73	52391	0	0	7758	956	1698	2843	4	17	4066	1012	253	1389
046	Special industrial machinery	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	93	0	0	0	0	0	0	0	0	3
047	Other general machines	0	0	0	0	0	19	2073	94	0	0	0	2	0	0	150	16425	0	0	0	0	0	0	0	0	0	0	769	0	1	3796	0	0	898	752	4545	2690	0	0	3531	0	0	2030
048	Machinery for office and service industry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
049	industrial electrical equipment	0	142	0	0	866	42	103	0	0	0	0	0	0	0	55	295	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	0	29	0	0	0	0	0	0	0	117
050	Applied electronic equipment and electric measur	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
051	other electrical equipment	90	382	1	0	1740	37	128	1	0	0	0	110	0	0	2	1379	0	0	14	0	30	0	0	0	0	42	371	0	0	118	0	0	0	0	0	4	0	0	0	0	0	200
052	Household electronic and electric appliances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	0	0	0	0	0	0	0	0	0	0	0	0
053	Communication equipment and all related	4	0	26	37	19	1	19	0	57	126	2	0	0	48	12	49	48	49	122	3	21	9	25	22	14	1689	114	35	6	35	90	14	50	69	20	42	14	67	34	10	31	112
054	Electronic computing equipment and accessory e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
055	Semiconductor devices and integrated circuits	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
056	other electronic components	0	0	0	0	5	0	0	0	39	28	0	21	0	7	0	4	10	127	7952	0	7	19	40	11	0	92	42	15	0	35	7	0	0	8	0	0	10	20	6	6	0	1849
057	Passenger motor cars	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
058	Other cars	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
059	car parts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
060	Ships and repair of ships	0	0	0	0	67599	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
061	Other transportation equipment and repair of tra	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
062	Precision instruments	20	0	2695	53	18	0	17	16	31	16	2	64	0	33	28	33	518	109	19	7	79	31	54	17	10	323	79	4	2	1012	46	11	10	43	277	56	36	15	16	3	8	45
063	Miscellaneous manufacturing products	950	10	205	458	11266	103	2466	248	8444	8301	1	10	0	52264	4718	24182	726	393	169	0	0	0	266	3	19	23	268	0	45	1440	335	9176	5702	8	8037	5863	6	20	6350	8	3	7779
064	Reuse and recycling	1153	6	2	1	10	0	0	0	0	24457	4231	0	0	0	0	0	43225	0	0	5237	3009	5849	1320	0	1068	6	53	2813	4634	89375	188	0	6130	7846	5400	2204	154186	26080	33654	4060	49294	58283
065	Building construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
066	Repair ofconstruction	44517	14870	1919	1994	2397	114	5671	733	37093	19111	1116	282	0	11026	7897	11803	43920	20635	14475	1938	20306	14403	41031	31906	8104	16582	43747	7998	8222	60531	7652	721	12722	49489	1569	36441	33273	92486	18106	9977	14803	24246
067	Public construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
068	Other civil engineering and construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
069	Electricity	32749	28462	22532	7902	8093	2647	23431	8397	280776	68386	11175	4227	0	24073	37159	21444	293058	26573	69925	8567	246559	40474	155308	37901	26802	28502	74278	93873	14552	212104	52412	4227	37548	81044	16046	47131	288102	224151	145590	19634	71313	90164
070	Gas and heat supply	72	0	233	0	9	0	57	45	53618	17150	1475	396	0	531	248	741	5853	2782	330	2595	3407	755	6903	3120	583	10051	8780	93	836	13008	3158	82	14936	886	7812	2491	14303	55788	14106	338	981	9133
071	Water supply	1362	6922	1373	353	565	143	2316	440	74223	34443	1507	1041	0	1362	1936	1645	29243	3903	4116	1853	8319	8388	37618	22108	3621	21909	23083	7208	989	15446	3984	546	4390	8707	2229	4447	7757	25634	3893	2256	4372	6312
072	Waste management service	0	882	1272	0	0	97	1184	210	4931	1837	1876	101	0	424	1445	476	8878	1419	2970	1349	11537	3758	10098	10474	1767	15850	16208	0	325	510	1048	184	1902	8325	168	7800	3248	5434	1834	1	0	2633
073	Commerce	322759	82362	27383	22820	88042	432	23442	2079	2E+06	453148	122335	18291	0	214526	187244	221128	401233	280710	400030	12432	81493	37517	234475	103986	22083	257885	427358	117175	77083	739020	192782	56024	74011	123698	42996	89122	192937	533582	107289	189206	73123	281449
074	Financial andinsurance	92469	65437	11164	22724	34487	234	62629	7145	198954	95299	16148	20363	0	102840	48142	57873	79840	57342	109211	6382	34892	30645	74152	49306	6316	77563	135699	86685	7840	52842	42153	6175	39835	92458	23964	36173	69151	116961	26084	25693	56196	70020
075	Real estate agencies and rental services	669	0	1446	1700	705	261	4710	2858	38375	12867	128	8	0	8652	3897	11147	11337	10556	27315	564	5354	6509	12632	7519	1064	34403	11934	4382	2006	31695	8203	868	3843	12270	2770	4747	7774	22455	8437	2906	3183	8857
076	House rent	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
077	House rent (imputed house rent)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
078	Railway transport	1424	254	705	1333	2157	355	3900	905	20689	4358	631	938	0	4589	2135	3453	6999	5937	23261	213	2669	2408	5952	4102	772	26170	14450	4426	1362	31468	6430	329	3066	4325	1465	14508	4472	8891	2180	720	2182	7554
079	Road transport (except transport by private cars)	67821	116526	7108	18839	14883	171	10290	894	525861	111780	34905	7250	0	28635	60122	55850	106976	93652	95406	3862	22310	26237	78787	40208	7410	63176	112847	41047	23149	116349	35575	6657	22957	125681	13202	44097	81577	95688	41875	45931	24851	83846
080	Self-transport by private cars	195318	33171	22932	29879	31076	2237	250008	3289	155267	56978	8116	9779	0	10327	53309	12180	15862	10411	39017	1070	7686	6604	19540	12373	1544	15412	24880	5177	1055	13753	3822	3770	8010	111235	2371	9467	21164	43722	7489	7748	7414	20836
081	Water transport	19171	17307	750	601	3543	31	575	101	34707	6813	6001	825	0	829	11427	3861	14237	6482	5680	804	11047	7634	16907	8222	1611	5575	12515	117456	33561	6262	2906	436	3294	26872	1390	9160	48620	25133	10462	13906	51783	4924
082	Air transport	30	0	7969	1114	723	70	1889	396	4991	2208	386	138	0	5037	937	3802	1410	1304	17161	145	1118	930	2463	1385	331	27781	7164	3028	597	8431	1695	176	937	2218	741	3752	1298	5901	1196	490	869	2456
083	Freight forwarding	3298	4524	302	208	878	1	160	15	26322	4654	1368	281	0	1055	2135	2015	5544	4219	5139	194	1069	2118	4179	2133	399	2259	4889	7594	971	4308	1246	241	1024	5973	538	2073	4256	3466	1682	1781	1056	2932
084	Storage facility service	9497	12801	865	760	3081	4	362	42	123269	15924	21815	2299	0	4496	5704	4692	14814	12002	13320	1305	4957	3704	9226	5067	1056	6377	12830	221395	2622	25215	4566	1414	4641	13142	2162	7780	11226	12404	4909	5395	11214	28367
085	Services relating to transport	169	0	166	0	2000	0	322	0	12987	7717	2344	0	0	801	1832	2742	15127	804	8670	1293	4855	138	5755	6328	664	6907	14509	399	602	19852	3398	264	15194	69	3155	1980	0	54463	661	767	1757	10055
086	Communication	4545	598	2371	1424	4654	252	3533	2296	20841	7497	730	856	0	8528	3019	7429	6472	7513	21650	464	3452	2132	5206	4875	1062	150907	15791	9305	1230	19042	13620	846	4359	6282	1810	4434	2806	11126	4811	1060	4419	17153
087	Broadcasting	265	38	37	34	6	2	46	10	336	182	6	63	0	61	49	65	122	89	167	8	52	75	142	77	13	26	180	389	26	283	80	12	45	80	20	46	198	368	50	53	71	138
088	information services	9463	3409	4034	531	2453	107	1603	384	49780	33766	3418	2798	0	4940	5326	14212	16041	9820	19594	1784	4929	4306	15498	10208	1637	91300	23164	2792	1281	34568	11883	1229	8440	9643	5788	11180	16117	22424	6677	7386	6276	20084
089	internet related services	151	23	61	37	114	8	141	59	3108	1338	124	86	0	1093	512	1101	535	638	3371	39	407	251	522	387	84	15460	1394	808	97	3598	885	63	544	739	202	411	369	921	717	101	508	2149
090	visuals, and media	90	92	1587	255	934	82	2324	420	11838	2492	248	231	0	8829	1365	4625	3711	6604	5328	3302	2989	951	3327	2462	564	24849	10083	939	595	9769	9982	1702	3585	7550	3305	5322	6311	6590	1936	1009	1664	2580
091	Public administration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
092	Education	0	0	417	0	0	160	12	3	4374	1018	200	0	0	1	359	5	1657	3	3	26	911	1208	2225	2306	0	1325	3956	249	3	192	1767	0	398	1279	1228	568	3	6	1182	0	0	965
093	Research	3630	842	0	3924	2078	381	1603	2386	137465	61727	3209	16381	0	10506	2368	21010	39577	14988	4544	13907	99904	37365	195712	126969	18513	1E+06	381418	34061	3706	249136	100056	1675	98218	58197	31948	63766	54797	114219	23178	328	37248	114413
094	Medical service and health	0	0	859	0	0	0	0	0	0	0	0	0	0	0	0	0	16	5	30	0	0	0	6	0	0	360	0	0	0	7	2	0	0	0	0	0	0	48	0	0	0	0
095	Social security	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
096	Nursing care	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
097	Other public services	0	0	0	216	3036	19	1700	508	17924	7721	872	1241	0	3689	1279	1436	4510	2149	4187	353	2077	2559	5351	2600	645	21524	9396	5883	691	7063	4209	184	1958	3816	787	1258	9240	7640	2839	1936	670	1856
098	Advertising, survey and information services	1642	0	5418	39	1200	93	3912	564	249905	246279	3205	61135	0	12460	5123	28926	40152	54914	10661	2024	11064	1265	10518	8502	3009	337139	418864	4818	700	59706	25047	4034	6488	9129	7883	7915	9337	24539	5798	2458	4370	11406
099	Goods rental and leasing services	18789	4517	6027	7069	497	213	8759	2647	105503	34199	3377	756	0	12214	10798	17563	18346	15234	38720	503	21692	7149	20078	5986	2073	14823	24434	10065	9781	72998	29873	1762	15162	50513	9230	29945	25985	40026	17226	9136	4046	34950
100	Repair of motor vehicles and machine	63909	20715	18348	13766	4373	364	12197	3215	109933	43614	7720	5080	0	11175	39469	5439	28107	9693	25977	3129	41900	20696	77443	20269	4374	34945	29244	31888	14474	88475	43230	1055	33881	42012	7710	30713	79963	42966	45104	3692	26158	48174
101	Other business services	1826	1397	8096	17	6443	260	13295	3179	194144	36579	4856	19346	0	42419	4845	33875	19864	43857	170810	1933	28399	9989	36770	19078	3128	103603	59183	7630	3519	128523	40769	4315	38239	63035	3395	25420	22011	40506	23543	5681	15276	33067
102	Amusement and recreational services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	Eating and drinking places	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	hotel services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	laundry, barber, hair salon, and bathing	6	0	701	9	76	1	39	5	1083	389	52	64	0	164	170	116	304	177	340	15	118	115	279	186	35	478	350	200	39	539	139	25	94	207	70	94	354	674	113	93	148	347
106	Other personal services	104044	1050	28535	29645	9724	582	6270	2421	107091	30705	7009	36681	0	12033	23196	3490	30758	16436	26224	101	5694	569	5567	3647	4265	18060	8581	2312	3922	37298	12008	9681	12609	30218	6318	13001	36304	38658	21298	16351	8263	20183
107	Office supplies	915	710	1795	1331	1715	38	990	90	20464	2647	321	37	0	2703	1070	2724	2841	2570	6087	130	1269	216	1946	1139	352	3552	4692	240	164	5745	1762	780	2002	2250	1960	2142	1175	2615	1593	1533	706	2755
	capital income	3E+06	619764	196982	729575	522992	4630	105212	21743	3E+06	2E+06	238849	402011	93908	122904	354057	147044	692022	323586	1E+06	43932	348142	171629	401898	261535	43896	1E+06	727686	221319	152394	640925	367357	59695	349608	426126	91958	273911	778178	2E+06	294256	97254	143678	377406
	labor income	435559	159785	324614	194298	320754	6254	196860	34609	4E+06	934570	98389	100053	519501	593274	533880	640107	494854	852997	2E+06	46512	251076	58033	445681	303412	87151	1E+06	1E+06	213753	90498	2E+06	716890	109334	377955	700852	197407	420682	651357	1E+06	415523	329327	175601	784184
vernm	indirect tax	362784	75462	50534	16189	67611	825	51290	14345	452963	2E+06	15877	1E+06	78034	75589	68746	74384	162967	106832	221888	8989	34409	50079	112767	38859	31725	175912	183800	4E+06	22936	229516	103560	10603	55423	144585	38907	66570	379484	157142	74539	41935	87058	125621
	import tariff	104036	6575	0	12945	25722	78817	7672	1E+06	542212	98476	7107	394381	35488	357535	77761	24815	17550	5589	2088	4268	19448	1926	77559	25986	5709	45748	46569	143264	4198	38314	43779	103161	11274	883	5103	10931	24509	21241	958	5784	92063	40871
	subsidy	-42991	-51782	-375	-39756	-3822	-8	-78	-1873	####	-281	-7312	-48	-335	-242	-374	-185	-156	-198	-517	-11	-72	-25	-143	-87	-26	-287	-289	-53445	-19	-558	-258	-323	-115	-207	-71	-130	-203	-570	-144	-70	-87	-259
consum	private consumption																																										
	government consumption																																										
	private investment																																										
	imports	2E+06	42289	0	227871	294283	2E+06	153429	1E+07	4E+06	386045	133756	359948	381028	3E+06	973660	485944	351391	100732	41981	84665	315653	38515	1E+06	341420	52736	906878	790080	3E+06	80703	567337	441607	689863	197264	15131	91441	200546	337386	424802	19142	115682	2E+06	688099
	total	8E+06	3E+06	867591	2E+06	2E+06	2E+06	1E+06	1E+07	3E+07	8E+06	2E+06	3E+06	3E+06	5E+06	4E+06	3E+06	5E+06	3E+06	6E+06	398581	2E+06	3E+06	7E+06	3E+06	554286	8E+06	8E+06	2E+07	1E+06	1E+07	3E+06	1E+06	2E+06	3E+06	830241	2E+06	8E+06	1E+07	2E+06	2E+06	4E+06	6E+06

	043 Metal p	044 Other n	045 General	046 Special	047 Other g	048 Machin	049 industri	050 Applied	051 other el	052 Househ	053 Commu	054 Electro	055 Semico	056 other el	057 Passeng	058 Other c	059 car part	060 Ships a	061 Other t	062 Precisio	063 Miscella	064 Reuse a	065 Building	066 Repair	067 Public	068 Other c	069 Electric	070 Gas and	071 Water s	072 Waste r	073 Comme	074 Financi	075 Real est	076 House r	077 House r	078 Railway	079 Road tr	080 Self-tra	081 Water t	082 Air tran	083 Freight	084 Storage
001 Crop cultivation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24725	0	22178	78	46884	12603	0	0	0	0	9311	0	37	7	37	0	0	0	0	0	0	0
002 Livestock	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	388	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
003 Agricultural services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
004 Forestry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57	0	0	1608	0	1209	478	3568	907	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
005 Fisheries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39868	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
006 Metallic ores	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
007 Non-metallic ores	298	319	0	3	1049	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	9587	0	60530	2133	310463	129529	-214	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
008 Coal mining, Crude petroleum, and natural gas	127	136	181	205	68	0	225	0	44	0	0	63	0	313	320	0	3288	0	0	0	0	19	0	9	0	0	2E+06	975105	4	241	0	0	0	0	0	57	0	0	0	0	0	0
009 Foods	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1080	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
010 Beverage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13532	0	0	0	0	0	0	0	0	0	0	0
011 Feeds and organic fertilizer, n.e.c.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2988	0	0	0	0	0	0	0	0	0	0	0
012 Tobacco	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
013 Textile products	739	2311	1591	8659	74	0	0	0	7141	12556	3091	0	12908	10314	46608	4232	19136	6104	2353	1212	16077	10	57711	23116	651	212	0	0	647	143	30533	393	14	23	0	2291	905	52	10966	219	255	627
014 Wearing apparel and other textile products	4538	8843	10496	8715	7687	3509	18967	3037	3218	4826	11063	4238	18456	17317	5241	591	11062	2396	1965	4295	20657	651	50685	20301	19792	9722	2443	1119	2583	8720	344610	66146	1395	150	0	11883	21374	2742	11930	6280	237	1665
015 Timber and wooden products	7978	10529	1974	3073	731	7223	2333	516	2356	837	2101	546	75	150	543	233	5446	9000	3887	2016	90925	0	2E+06	104483	28584	24180	16349	23	2	15	81811	3237	1	28	141	25	3	0	723	17	1	1270
016 Furniture and fixtures	1215	2588	4023	5497	1769	1491	4192	2059	3144	3021	27779	13046	5246	11265	5211	1324	11093	16664	3343	2174	25131	99	551640	237596	1206	1037	16250	1915	8680	13453	140401	115258	4218	14001	8901	2812	7623	0	4434	2629	377	5928
017 Pulp, paper, paperboard, building paper	576	1879	2573	164	5645	0	32766	678	10854	4677	10633	1436	5172	41235	4	30	7854	10	1	1691	39693	50	152724	27917	36	6	0	0	3	659	-27967	15448	0	0	7311	0	3424	0	252	316	1842	8864
018 Paper products	144	31387	6034	2187	6054	6161	14490	3138	16287	15316	15223	2931	3578	33768	1072	58	9967	77	779	17501	30802	485	575	24865	0	0	0	0	1075	2411	611873	55886	356	0	0	1490	12191	0	3071	1448	111	14634
019 Publishing, printing	3651	36959	16623	23577	7781	35375	9906	4986	4168	22939	67865	14309	32655	45902	25508	5028	11189	4323	10433	9488	36629	1398	23525	9795	11227	3234	54704	14536	14178	15777	642681	768151	3344	374	0	12708	31326	0	5187	2353	2412	2734
020 Chemical fertilizer	0	0	0	140	0	0	0	0	654	0	0	0	0	0	0	0	0	0	0	0	63	0	0	0	4267	667	1748	350	0	0	0	0	28	0	0	0	0	0	0	0	0	14
021 Basic inorganic chemical products	16958	6479	8394	5588	6536	2209	6610	3844	33196	10308	16014	4931	30520	45844	1233	26	3202	1984	4821	1127	12845	157	3488	1952	8420	5184	95	25	51789	21967	0	0	0	0	0	77	0	0	0	0	0	1053
022 Basic organic chemical products	0	2	322	4	0	0	0	0	0	0	0	0	34	753	0	0	0	22	0	0	757	0	0	0	0	0	0	774	0	0	0	0	0	0	0	0	0	0	0	0	0	0
023 Organic chemical products	357	1637	5299	532	1787	7153	8194	507	10104	9064	2805	580	20398	39224	433	764	6400	299	66	1324	5015	0	1307	1572	2	0	0	8	372	0	0	0	0	0	0	0	0	0	0	0	0	72
024 Synthetic resins	120	1175	0	2	2134	3299	30263	0	10094	14246	20004	4645	15807	61387	0	0	74805	1601	244	13120	17395	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
025 Synthetic fibers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1965	33507	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
026 Medicaments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	204	27575	0	0	0	0	0	0	11	0	61	5	0	0
027 Final chemical products, n.e.c.	30847	47040	22105	41365	11614	53233	27069	6465	21255	6311	22391	10037	11138	49261	59308	21058	300945	35082	17718	7024	119166	143	162308	62482	10066	14180	5822	7267	3391	11947	883	1184	128	213	744	294	5522	1172	736	672	62	472
028 Petroleum refinery products	9136	22857	13782	16600	7644	2127	5265	887	6972	1744	3505	677	10568	18633	11828	3273	54561	11480	22989	3476	3852	6044	70645	30335	199608	48147	708030	123290	75365	41858	225351	18480	15544	16918	10	29902	1E+06	3E+06	404303	340381	9433	3729
029 Coal products	462	119	41	160	65	6	79	1	11	0	22	0	62	87	193	73	1102	5	2821	25	82	74	13509	403	288836	52933	234904	0	4	878	-374	0	0	0	0	525	0	0	0	0	0	0
030 Plastic products	9256	29043	32232	104115	27358	102631	141664	17949	259344	95223	292443	68055	117520	201939	381979	53393	728462	14705	44066	120278	249400	1377	313228	158897	158189	89225	0	0	164696	7125	332151	92217	3990	11029	10578	0	5622	139	466	1608	784	6940
031 Rubber products	14037	7335	73731	197444	16974	63197	60281	8804	9662	15676	42366	1625	30599	8216	172151	98188	405855	22594	37414	18072	26121	1209	7047	1862	55303	28182	0	0	4013	36397	7239	489	0	0	0	602	16242	32126	10224	0	120	1324
032 Leather, fur skins and miscellaneous leather produ	1102	270	555	2003	413	14	350	491	72	22	993	66	598	1530	1432	223	2132	70	629	13092	5844	22	125	101	265	401	915	8711	246	537	5749	2391	6	2	0	693	312	0	37	11	3	36
033 Glass and glass products	2987	5895	5889	2340	8	14009	801	3759	54122	5415	4853	585	5634	194911	233961	42602	1254	1593	30414	81078	16275	16	100809	24760	1111	782	0	0	143	479	7156	359	0	0	0	49	447	0	176	119	1	0
034 Cement and cement products	16	453	46	0	0	0	0	0	37	0	0	0	0	0	0	0	0	0	7	0	1528	0	801638	297294	1E+06	322629	0	28	0	770	0	0	2	584	1947	0	0	0	0	0	0	0
035 Pottery, china and earthenware	4	1359	235	554	4	96	13057	230	625	117	3868	0	25374	200914	0	0	6967	20	353	2072	2049	32	218212	10572	3361	5576	0	0	0	1038	23710	311	0	0	0	0	552	0	559	1	8	5
036 Other ceramic, stone and clay products	11984	21353	98014	22589	20762	1308	26211	2522	16959	2864	9178	3057	32587	14822	27148	3514	46643	2649	5432	6759	7936	0	276715	132901	93126	86862	927	229	19050	0	5375	100	0	0	0	0	0	0	16	0	0	0
037 Pig iron and crude steel	-2596	-15234	-6018	-12911	-942	-786	-2466	-7	-1613	-1448	-754	-29	0	-51	-2385	-569	-14338	-8782	-2118	-1059	-441	0	0	-5849	-1445	-798	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
038 Steel products	647484	996537	424671	484930	304919	41278	238949	8736	65959	54158	53744	7202	16780	30135	124143	29600	851993	279433	67107	31448	24399	0	686725	109324	344438	201311	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0
039 Cast and forged steel products	73825	48730	267844	310882	172091	29575	89170	4140	4689	2152	4211	3279	0	2484	0	0	589666	77911	48375	5617	16446	0	9560	3889	30335	62815	0	0	2904	0	0	0	0	0	0	0	0	0	8	0	0	0
040 Other iron or steel products	398331	531076	181184	208951	23566	21503	60369	110	22288	52337	13883	1213	438	23272	8576	4742	232654	98792	69327	11629	5598	0	7428	4997	4989	514	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
041 Non-ferrous metals	-873	99467	-1498	5352	3147	-1272	32089	790	261082	1162	6465	-85	80736	70680	0	-2577	118615	217	1305	25353	61843	0	1237	0	-34	-57	332	0	75	0	0	0	0	0	0	0	0	0	0	0	0	0
042 Non-ferrous metal products	411026	297930	243906	181868	153577	34699	357737	33165	234587	99462	220050	47244	36471	308379	52238	13782	749243	31846	58250	69686	92240	0	177270	54874	62739	201436	12817	0	1060	18	1420	0	0	0	0	0	0	0	319	0	0	0
043 Metal products for construction and architecture	59789	7887	4623	94	4037	0	0	0	0	0	338	0	0	324	0	0	0	17470	20595	0	33000	0	2E+06	903209	662315	529047	0	0	0	0	0	0	0	1108	319	226	0	0	2738	0	0	0
044 Other metal products	235234	442351	335699	422515	148163	211163	224964	36489	62038	69485	135739	33906	29101	243678	17436	15968	330383	82998	35031	76117	76991	69	721566	721395	159807	50055	10400	3842	4685	580	332702	2552	427	7116	8361	1686	19405	0	7203	263	185	5639
045 General industrial machinery	2573	9573	2E+06	438367	38680	94320	35881	8607	1521	67060	6069	2701	13001	11730	26197	4712	68988	67513	39982	15716	4703	0	245269	879	104937	49901	0	165	811	0	440	0	0	0	0	50	314	0	330	161	19	365
046 Special industrial machinery	35	34	20069	2E+06	46	688	234	198	953	670	3	0	0	11	180	13	2341	14631	871	768	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
047 Other general machines	3675	9328	195735	247251	336459	17329	96670	8495	1888	21343	20038	7651	6837	25247	0	3	265781	23083	17146	17627	2457	0	8546	6578	1578	194	0	0	32116	0	337	0	0	0	0	325	32	0	52	242	8	516
048 Machinery for office and service industry	0	0	0	0	0	683520	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
049 industrial electrical equipment	8545	1463	264602	258389	2386	73258	890438	37314	16165	62829	62874	64492	0	18928	286408	44770	659056	34122	14647	28838	643	0	58619	36835	36462	29530	0	0	0	0	12	0	0	0	0	423	0	158	0	0	0	73
050 Applied electronic equipment and electric measur	0	0	7243	94317	1873	9531	22811	104802	0	0	1410	425	0	1192	265	0	67	9516	852	11214	0	0	3427	307	8170	4308	0	0	0	0	0	0	0	0	0	55	0	0	0	0	0	0
051 other electrical equipment	11	2206	7568	22796	2242	18084	35922	8872	208878	20569	106662	9863	224432	124537	170569	50046	69955	4765	15102	23075	6253	0	145925	29549	18156	11972	111	0	674	0	28906	242	470	177	0	1375	247	3433	589	161	11	77
052 Household electronic and electric appliances	0	0	0	0	0	0	0	0	9	222119	0	0	0	0	0	0	0	235	4062	0	22	0	110408	0	0	0	0	0	0	0	0	0	0	0	0	0	604	0	0	0	0	0
053 Communication equipment and all related	256	132	5776	1009	95	63	174	1333	95	58	118428	239	146	2824	296293	78504	205	15209	10937	117	1279	26	46651	2198	36984	20142	143	48	119	246	14634	2864	1048	471	0	495	2144	0	182	91	72	215
054 Electronic computing equipment and accessory eq	0	0	0	10277	0	4	0	0	0	0	371	236910	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
055 Semiconductor devices and integrated circuits	0	5079	5629	39777	4956	255625	164902	298531	25977	154290	732875	518710	359750	903872	0	0	197351	0	7729	196246	64119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
056 other electronic components	37	37458	89968	103776	3573	363578	205997	566970	19952	170166	2E+06	900536	976738	3E+06	69	13	181174	2951	4885	430159	36771	0	13510	0	12	4	249	16	75	0	4140	2831	0	0	0	23	0	0	9	6	0	0
057 Passenger motor cars	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
058 Other cars	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
059 car parts	0	0	0	3875	0	0	0	0	0	0	0	0	0	0	9E+06	2E+06	1E+07	0	144688	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3206	0	0	0	0
060 Ships and repair of ships	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	395295	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69362	0	0	0
061 Other transportation equipment and repair of tra	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	811783	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	418296	0	0	0	241685	0	0
062 Precision instruments	241	128	33704	105897	258	15378	10767	3174	46	230	25193	427	388	6534	6319	1896	17686	6515	1633	77386	3908	17	5343	12	1172	13	0	0	398	274	156441	2810	194	109	0	43	211	0	99	84	79	269
063 Miscellaneous manufacturing products	987	1263	19297	910	42	63	1308	732	1048	368	5766	108	358	1234	7793	3340	7095	1304	115	16514	262062	8	52789	73414	38389	22744	1632	18	1593	3320	131626	4207	81	31	0	161	3516	169	1225	58	4	122
064 Reuse and recycling	0	53	0	0	0	0	0	0	104	0	0	0	576	0	0	0	5413	0	0	0	0	0	0	0	0	0	67695	14012	0	0	0	0	0	0	0	0	38	0	0	0	0	0
065 Building construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
066 Repair ofconstruction	63307	46023	26347	51729	8040	1908	36372	5394	16586	4091	21004	7031	6690	82342	8708	1394	34770	5045	18120	14631	8603	318	38999	24037	58162	22652	844756	201494	208763	22920	651679	164048	120491	795719	2E+06	215010	37971	5728	23759	379	3339	58314
067 Public construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
068 Other civil engineering and construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
069 Electricity	44799	135674	80056	106062	54068	24962	61415	9763	45866	18739	43937	20868	127825	177531	68587	14101	271651	31247	44192	38766	31742	18366	63664	26661	76957	43549	561061	61331	223534	134343	1E+06	108006	170360	8393	0	339356	89915	10167	4404	8639	3598	98563
070 Gas and heat supply	4963	16246	5716	5461	2011	1778	6096	766	10717	795	3219	430	14607	13828	10504	7156	51160	3662	5618	3729	1779	660	24746	7650	8580	4410	12825	43284	4859	10377	273498	25721	13944	1635	0	3732	9005	1293	2229	1491	297	288
071 Water supply	5712	8203	9046	14185	3638	1685	8283	1933	4957	1936	5107	538	9187	28822	9930	2187	17475	2479	2983	7848	8803	1802	29981	12709	9927	4369	12601	10473	445586	40803	215082	52680	20179	3499	0	34065	29482	7629	2606	771	960	7207
072 Waste management service	1345	2863	11047	22144	5649	4541	2406	134	2372	1001	2248	357	1372	3420	8461	1959	3372	1218	9182	711	3799	0	10294	59	53795	27595	104252	4047	6740	0	122350	59566	1535	273	0	76433	26691	0	5565	1575	1258	2161
073 Commerce	273101	394323	586963	797727	204500	344747	450251	173874	232511	228180	558583	222276	231594	451290	314095	82856	2E+06	179788	146371	220555	389162	3314	2E+06	727373	900119	368923	288481	90740	103925	69779	2E+06	252847	13320	35108	23897	23683	320502	1E+06	105962	16558	4022	21609
074 Financial andinsurance	104037	104737	135815	173215	82588	34040	64154	19687	40264	27220	64121	41610	68250	94057	99667	29637	154052	72768	48463	96922	241323	1764	360669	66563	377663	132946	602405	33048	27203	47410	6E+06	4E+06	599157	706080	2E+06	736889	336140	653163	218242	72632	13865	32052
075 Real estate agencies and rental services	22180	23746	25925	35151	15441	6132	18923	6091	15185	7659	17950	5950	8398	16387	13625	1598	15709	5637	6159	10253	6922	207	76800	26512	37300	19766	119762	41963	8172	10065	3E+06	569767	195092	93280	89630	14569	90584	9732	287277	14591	25685	170012
076 House rent	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
077 House rent (imputed house rent)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
078 Railway transport	20760	9594	17546	18649	15183	9753	9086	9234	6315	5907	33781	9042	8434	37761	7233	1943	11467	4104	3638	5877	6633	1224	45842	15108	34060	6706	12128	2175	3431	47568	658441	340361	4818	805	119	3616	32459	3745	9701	1882	3379	3205
079 Road transport (except transport by private cars)	70273	98831	98607	112290	44376	42770	66880	17260	44260	25514	68507	23818	50568	107768	180129	49767	260945	35809	27177	32115	65965	257940	695980	202865	418018	200366	104832	62042	25922	82294	449405	209616	6683	5694	1986	5193	63081	29477	11151	8208	1193	6019
080 Self-transport by private cars	42162	56485	42669	56783	16065	19966	17805	6216	8618	5767	17870	13619	19639	7373	11819	3367	26545	3332	2168	22361	126555	6342	737392	171444	438430	132937	89746	13546	27940	83238	3E+06	211529	45850	43183	33691	16877	47910	0	16766	7083	1713	7193
081 Water transport	13381	18213	12628	14226	7718	2803	7234	986	3976	2325	3738	1537	3233	8127	42819	12339	50489	5574	4122	2397	3526	144909	33199	7395	30012	14286	81062	14166	2506	1727	20150	7152	519	503	552	419	78497	84289	2E+06	3654	102	403
082 Air transport	14868	5681	8997	10534	7221	2732	4998	2836	3044	3410	10610	5206	4586	23997	4538	1893	11505	401	2586	2785	2673	0	6372	3461	10488	2297	7974	574	1844	9200	425756	39669	2730	1127	30	306	5367	37	2331	20858	1654	884
083 Freight forwarding	2217	3390	3133	3764	1427	1536	2377	826	1681	973	2836	1180	1865	3684	8503	2427	11020	1305	1038	1032	2472	691	22098	6425	12852	6738	5983	2785	706	355	7803	2344	140	205	183	1759	5744	4562	1172	821	644	149
084 Storage facility service	8142	11999	10029	10820	5294	3560	8350	1899	8473	3259	8312	3096	5816	12235	16440	4573	28377	3511	3012	3731	7617	32446	36213	10745	27273	14008	61154	40487	1642	684	25103	8960	576	766	787	633	2405	9880	997	1169	118	421
085 Services relating to transport	786	7288	8257	5158	3909	2280	35353	4080	6748	911	5533	6437	2772	6807	0	1779	37432	292	1483	1710	5136	149	0	0	435	0	0	0	0	0	471724	104	0	0	0	132639	1E+06	1E+06	217117	893927	12291	19200
086 Communication	34376	21940	37719	37096	17392	11795	22918	8059	9759	7180	21552	11211	12530	24348	17897	2398	34799	1963	7939	11569	24059	606	93670	205533	207458	64231	53015	14283	32202	22610	2E+06	715155	49574	33932	0	29582	110552	0	46065	13809	3766	34851
087 Broadcasting	125	207	251	344	103	140	183	71	95	77	195	99	139	191	389	109	762	65	85	100	114	24	2741	970	889	420	91	17	65	755	26536	7529	2078	2857	0	595	734	0	397	83	29	87
088 information services	17745	43318	56674	106151	22915	20730	76128	46317	36435	7213	76252	63480	28491	59243	19473	5107	47682	5861	9096	14301	17473	30	53986	9225	50906	27711	210567	46208	171855	10767	1E+06	1E+06	27411	16343	0	4882	64937	0	16325	18796	2116	20515
089 internet related services	3347	2827	3646	4317	1231	1047	3649	1223	1522	937	4481	3319	1719	3774	1765	188	4030	581	940	1122	2991	26	2636	3943	2903	1886	654	167	434	1011	143789	82238	245	101	0	1610	11751	0	2179	1012	338	2149
090 visuals, and media	7990	16665	10343	16532	4559	6372	15537	6133	9190	4294	18482	6131	13418	22223	10768	3069	13663	1539	2986	4908	8997	422	17143	3635	5456	1733	13929	2609	9078	6486	320050	140342	2704	2684	0	5435	23616	0	4313	4875	1497	5081
091 Public administration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
092 Education	4501	3361	6309	9814	2964	1042	9577	1741	3724	6082	11608	1047	3621	18127	2523	645	8830	1637	346	1500	599	11	2039	193	3476	1449	16209	1884	414	762	25402	8618	160	10	0	27235	1887	788	371	200	2	256
093 Research	63829	46556	238026	476554	40438	211494	453204	231185	340471	206260	526842	230797	540035	1E+06	510373	199245	988140	37518	74697	233696	96732	2470	36339	5846	20330	9647	380025	39329	55	0	302461	10855	0	0	0	22146	19846	0	5658	2720	431	9005
094 Medical service and health	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	8	4	0	23	206	0	2129	1134	40	50	0	148	0	0	431	0	0	1168
095 Social security	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
096 Nursing care	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
097 Other public services	5557	9849	15558	16653	12670	8326	5408	1642	2332	1770	11048	3925	2494	8318	3572	1358	7912	1573	2056	2443	3984	775	16110	18534	18251	7771	19499	9148	46668	7149	52324	103130	7818	12677	0	2299	26986	0	6063	282	969	8338
098 Advertising, survey and information services	26875	23778	52741	72012	22067	35764	43229	21968	31882	35766	85476	40194	47054	52054	196282	23472	133003	4693	7876	45138	60982	68	82217	5047	19416	9120	110493	48060	20614	3073	1E+06	1E+06	152542	92306	0	40519	95342	0	20633	43007	2587	1498
099 Goods rental and leasing services	33968	82276	146019	216643	66555	43718	146401	32005	57573	22734	130913	43033	82372	89934	99571	27995	150032	38429	85128	46491	66047	5670	434350	70452	393909	258058	191961	31394	9022	37494	675780	957098	18461	6959	0	6849	163190	1E+06	22899	215806	23020	32809
100 Repair of motor vehicles and machine	71656	62590	95717	68374	23276	45573	44493	19025	19010	17576	57361	16604	118750	97837	45839	13271	136971	4992	13399	15892	8970	1149	52491	89918	123092	57490	757441	15895	110083	74151	56104	125534	1801	2252	0	15371	870397	2E+06	6564	53440	24257	17883
101 Other business services	54187	77257	138850	180487	44927	41651	100123	58256	60807	42844	84679	51895	92741	145814	176857	39677	315974	19469	44836	65593	33768	2988	2E+06	158944	1E+06	233785	319072	39032	255911	86275	4E+06	2E+06	605080	432603	73726	125410	171276	2439	31265	29558	10808	72050
102 Amusement and recreational services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3456	0	0	0	0	0	0	0	0	0	1244	0	0	0	0	0	0	0	0	0	0	0
103 Eating and drinking places	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104 hotel services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105 laundry, barber, hair salon, and bathing	305	395	474	625	195	210	445	88	278	132	439	182	529	924	685	136	1367	117	127	137	229	1	373	212	1858	332	1262	29	210	200	6575	3520	470	294	0	8081	3027	167	551	989	72	75
106 Other personal services	8909	38341	78364	72382	15902	18179	22247	4994	16706	9591	12688	7580	6290	10394	5548	8683	18561	6196	14039	7216	13425	1013	199117	35114	161386	119756	51177	6450	43388	18002	745178	117290	95263	82251	108667	65976	84765	0	28008	20486	6584	9300
107 Office supplies	4903	8554	11206	17648	4584	3450	7647	5662	4455	3223	12339	2351	9376	12743	2249	960	15591	1481	4440	3364	4207	111	7879	255	10918	1734	9971	5712	3371	12041	377580	150126	11818	4841	0	10988	28106	5136	7619	2526	3092	4230
capital income	368039	709631	930517	1E+06	375474	322166	352810	170457	506256	306073	427506	301195	428739	526290	601345	172999	1E+06	207040	332438	377004	433360	42930	2E+06	443521	1E+06	571988	4E+06	403822	2E+06	503561	2E+07	1E+07	4E+06	8E+06	4E+07	2E+06	1E+06	0	605096	246642	54476	316483
labor income	1E+06	3E+06	2E+06	3E+06	1E+06	472061	2E+06	568377	660530	381689	1E+06	516848	1E+06	2E+06	1E+06	348384	4E+06	405285	677728	985003	976858	271545	1E+07	3E+06	6E+06	3E+06	2E+06	453536	797235	2E+06	4E+07	1E+07	2E+06	588194	0	2E+06	1E+07	0	921774	416659	288537	739983
vernm indirect tax	145612	259286	209040	228562	69296	79018	111942	34445	62445	37520	114383	53063	85600	143470	174348	54200	455240	59048	46853	97824	116580	58761	988272	325581	596678	284382	1E+06	87456	204912	196738	4E+06	2E+06	777979	674553	2E+06	363841	1E+06	0	104341	143396	14359	119291
import tariff	7429	27480	33322	75085	15131	10802	44671	36017	32167	22777	64080	147862	114101	67244	44667	3571	32261	1050	49060	70142	74832	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
subsidy	-353	-770	-635	-866	-345	-185	-443	-139	-208	-128	-361	-124	-330	-666	-322	-101	-1390	-309	-2160	-314	-475	-69	-4834	-1452	-41183	####	-1901	-84891	####	-273	-73449	####	-553	-75590	0	-57860	-74321	0	-20498	-172	-125	-355
consum private consumption																																										
government consumption																																										
private investment																																										
imports	140857	489815	666407	1E+06	302628	216065	893435	720333	358598	457111	1E+06	3E+06	2E+06	1E+06	901323	71638	645212	38402	1E+06	1E+06	1E+06	0	0	0	0	0	1079	183	1445	271	704600	499171	0	1463	0	204106	181874	0	2E+06	1E+06	0	0
total	5E+06	8E+06	1E+07	1E+07	4E+06	4E+06	8E+06	3E+06	4E+06	3E+06	9E+06	7E+06	8E+06	1E+07	2E+07	4E+06	3E+07	2E+06	4E+06	5E+06	6E+06	870586	3E+07	9E+06	2E+07	7E+06	2E+07	3E+06	5E+06	4E+06	1E+08	4E+07	9E+06	1E+07	5E+07	7E+06	2E+07	1E+07	7E+06	4E+06	526957	2E+06

	085	086	087	088	089	090	091	092	093	094	095	096	097	098	099	100	101	102	103	104	105	106	107										
	Services	Commu	Broadca	informa	internet	visuals,	Public a	Educati	Researc	Medical	Social s	Nursing	Other p	Adverti	Goods r	Repair c	Other b	Amusen	Eating a	hotel se	laundry.	Other p	Office supplies	capital i	labor in	indirect	import t	subsidy	private c	governm	private i	exports	total
001 Crop cultivation	1563	0	0	0	0	0	1513	2557	0	52628	36332	48367	8564	0	971	0	35	22133	380092	110998	422	43720	0						3E+06	0	38505	19389	8E+06
002 Livestock	201	0	0	0	0	0	94	52	22494	8464	6463	10267	0	0	0	0	0	30	111573	21112	0	1141	0						207514	0	169921	817	3E+06
003 Agricultural services	0	0	0	0	0	0	0	9102	0	0	0	0	0	0	0	0	0	15030	0	0	0	0	0						285045	0	0	0	867591
004 Forestry	0	0	0	0	0	0	182	0	0	591	1554	2345	0	0	0	0	0	0	33139	10232	0	588	0						167627	0	709201	1588	2E+06
005 Fisheries	175	0	0	0	0	0	351	0	0	19042	15070	24311	0	0	0	0	0	227	229293	55679	0	3208	0						386501	0	2118	40670	2E+06
006 Metallic ores	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	0	824	4094	2E+06
007 Non-metallic ores	0	0	0	0	0	0	398	0	0	0	0	0	0	0	0	0	0	229	-1040	-328	0	681	0						-15077	0	34842	26880	1E+06
008 Coal mining, Crude petroleum, and natural gas	0	0	0	0	0	0	31	782	4329	244	86	78	0	0	0	7	268	16	94	203	314	784	0						23	0	####	125	1E+07
009 Foods	3951	0	0	0	0	7	8908	473	0	214979	155933	237704	6492	0	0	0	0	0	3E+06	549067	0	34939	0						2E+07	327785	175287	213632	3E+07
010 Beverage	4668	0	0	0	0	2	556	0	0	32629	25108	38163	0	0	0	0	500	5	2E+06	212887	0	19346	0						6E+06	0	114253	21105	8E+06
011 Feeds and organic fertilizer, n.e.c.	0	0	0	0	0	0	3	3825	26292	1442	295	86	0	0	0	0	0	9149	0	0	0	0	0						231186	0	9668	4946	2E+06
012 Tobacco	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	189	0						3E+06	0	-49804	25382	3E+06
013 Textile products	4338	69	23	6398	2	1855	3728	288	3925	49981	7178	11204	344	0	2515	121	9356	21260	12	4404	1425	23579	26857						192722	574	87712	497242	3E+06
014 Wearing apparel and other textile products	11311	9825	3782	32393	1007	4065	90163	3716	8514	53683	28381	15527	98102	2885	27841	14655	68411	37292	12473	50319	22574	42327	2751						4E+06	0	92718	48411	5E+06
015 Timber and wooden products	74929	531	435	194	27	806	1573	0	527	322	50	48	524	1037	385	1123	6521	5892	14060	1776	2137	10712	0						49120	1735	92222	10893	4E+06
016 Furniture and fixtures	15654	35250	3316	68155	3869	13177	66973	56698	45331	81191	46289	20874	70637	5075	16467	2770	63747	53474	62831	24584	5314	31825	0						255978	14378	339002	66554	3E+06
017 Pulp, paper, paperboard, building paper	55472	2015	5	84445	286	633119	4426	29102	37145	2981	7362	5864	6204	15	0	3081	72183	6140	1	7350	3945	27273	154344						-42624	0	36895	224916	5E+06
018 Paper products	79192	4114	1348	18702	400	4125	5614	15644	19588	30791	32820	46128	6847	3425	110	36	45682	4944	53292	4897	2938	26415	515128						330389	0	-4849	52345	3E+06
019 Publishing, printing	38491	122900	20637	131105	11222	896594	408329	152654	375729	103567	65597	12423	205268	356912	14421	17800	155808	138360	13016	4174	15995	33717	0						92190	0	1421	44128	6E+06
020 Chemical fertilizer	0	0	0	0	0	0	69	0	0	0	0	0	0	0	0	0	0	2911	0	0	0	6834	0						6271	0	275	10046	398581
021 Basic inorganic chemical products	1832	0	0	0	0	1246	3360	110	36800	16230	1353	1859	0	1598	0	3156	0	0	4817	652	11409	7949	0						14086	0	10967	266641	2E+06
022 Basic organic chemical products	0	0	0	0	0	117	0	0	10337	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	0	-2639	318957	3E+06
023 Organic chemical products	4455	5	0	0	0	2588	236	8133	37035	15922	68	533	0	0	10	3733	0	0	0	0	4090	7646	0						179	0	56053	2E+06	7E+06
024 Synthetic resins	0	0	0	0	0	413	0	0	0	5321	0	148	0	0	0	0	0	0	0	0	0	9333	0						0	0	35696	849210	3E+06
025 Synthetic fibers	0	0	0	0	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10289	0						0	0	-5760	136357	554286
026 Medicaments	0	1527	0	0	0	14	12075	1392	7967	6E+06	67195	48931	0	0	0	0	3	361	0	129	0	2415	0						616664	0	-10846	312338	8E+06
027 Final chemical products, n.e.c.	3989	11	7969	16189	0	63212	13689	736	84517	135524	19630	19408	10848	36320	30454	75314	88951	38038	47952	21349	139660	111548	33361						2E+06	0	9197	1E+06	8E+06
028 Petroleum refinery products	13935	20779	5280	12534	473	8121	334110	105056	167279	146043	16653	22266	26167	15503	23686	25298	50670	79304	76792	21810	76867	103775	0						6E+06	0	####	843007	2E+07
029 Coal products	0	0	0	0	0	70	0	0	0	122	122	118	1019	0	106	0	74	0	13909	63	0	440	0						1359	0	19303	41798	1E+06
030 Plastic products	52600	432	2644	107945	87	10360	19695	3064	129251	45439	1020	1980	9505	29601	4015	88015	25515	44354	13142	13531	7995	41944	57113						402953	4283	71389	1E+06	1E+07
031 Rubber products	622	2707	74	0	285	136	44905	1684	3197	41017	7301	7571	15297	73	4526	406917	1396	13183	2245	6953	2818	11493	12708						388079	0	7223	709352	3E+06
032 Leather, fur skins and miscellaneous leather produ	320	26876	711	45	1554	137	6909	952	4241	1065	377	211	3011	53	5155	102	1540	2010	286	2701	1953	12611	0						1E+06	0	-3533	19698	1E+06
033 Glass and glass products	2	0	0	0	0	79	3359	7353	36015	23924	1736	1988	3165	262	0	67625	473	7499	12869	8199	714	11516	0						67277	0	5230	360539	2E+06
034 Cement and cement products	0	0	0	0	0	0	252	0	353	0	0	0	0	0	0	0	0	0	0	0	0	5832	0						1629	0	307	25371	3E+06
035 Pottery, china and earthenware	42	0	0	0	0	0	2638	1481	0	14042	7287	8921	599	0	1	0	428	8	45429	14604	0	8345	0						60048	0	14166	113479	830241
036 Other ceramic, stone and clay products	3	0	0	0	0	387	1456	17829	144	1560	0	43	0	0	0	1889	37	6650	1562	271	238	14104	6365						127247	0	38548	249082	2E+06
037 Pig iron and crude steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	280	0						-32805	-26571	####	125097	8E+06
038 Steel products	13814	0	0	0	0	0	63	0	0	0	0	0	0	0	0	2944	0	0	0	0	0	23899	0						0	0	196947	3E+06	1E+07
039 Cast and forged steel products	0	0	0	0	0	0	51	0	0	283	50	55	24	0	0	0	0	0	591	165	0	14628	37						74	0	10180	19120	2E+06
040 Other iron or steel products	0	0	0	0	0	0	814	0	0	0	0	0	0	0	0	4834	0	0	0	0	0	8023	0						0	0	16525	8493	2E+06
041 Non-ferrous metals	0	0	0	0	0	609	21	0	312	0	0	0	0	0	0	0	0	0	0	0	0	8178	0						93845	0	####	406552	4E+06
042 Non-ferrous metal products	227	0	0	0	0	1385	6418	0	1289	58583	813	2178	812	0	0	19234	580	0	7132	4413	3488	26742	1394						14405	0	206266	820814	6E+06
043 Metal products for construction and architecture	22	0	0	0	0	0	8	0	0	0	0	0	0	0	1181	2254	0	0	0	0	0	5450	0						38941	818	47909	30003	5E+06
044 Other metal products	37721	5782	171	3175	357	3183	174274	2289	1914	10042	3239	2838	8893	60	6826	68179	7375	1273	53475	5181	15913	54887	354						312295	1668	284571	612075	8E+06
045 General industrial machinery	684	71	0	0	2	258	7516	0	0	0	0	0	0	0	93	551600	7153	0	0	0	0	445	0						16946	106771	4E+06	2E+06	1E+07
046 Special industrial machinery	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	625789	127	0	0	0	0	0	0						29343	75735	7E+06	5E+06	1E+07
047 Other general machines	1733	80	3	0	0	0	4507	0	0	0	0	0	0	0	44	233616	0	0	0	0	0	391	0						410	3819	2E+06	850204	4E+06
048 Machinery for office and service industry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48053	291869	0	39576	0	0	0	1031	76364						45321	27676	3E+06	257120	4E+06
049 industrial electrical equipment	0	5	0	0	0	0	53	0	0	0	0	0	0	0	0	238124	6	0	0	0	0	2388	0						24267	61514	2E+06	2E+06	8E+06
050 Applied electronic equipment and electric measur	0	0	0	113	0	0	39141	0	0	0	0	0	0	0	0	23705	1611	0	0	0	0	0	0						5	175500	1E+06	1E+06	3E+06
051 other electrical equipment	3163	0	3053	388	0	2530	11944	11956	2274	2739	26	65	0	0	33	75768	1478	8887	1095	1270	228	6038	0						618936	40630	274191	2E+06	4E+06
052 Houschold electronic and electric appliances	0	0	0	0	0	2667	15468	0	0	0	0	0	0	0	1097	96479	3	1094	0	0	0	0	0						2E+06	2897	195310	211227	3E+06
053 Communication equipment and all related	440	39	813	4446	10	1040	79591	312	1358	771	215	49	450	1141	1230	84121	10291	3684	2230	205	219	128	0						4E+06	102552	2E+06	2E+06	9E+06
054 Electronic computing equipment and accessory e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28674	1882	0	0	0	0	0	0						902723	226888	3E+06	2E+06	7E+06
055 Semiconductor devices and integrated circuits	0	0	0	0	0	0	0	0	371	0	0	0	0	0	0	100242	0	0	0	0	0	0	0						1547	0	37918	4E+06	8E+06
056 other electronic components	134	2814	18824	30896	535	20621	134571	516	52287	48	13	1	0	22	89	601109	73	9	0	6	24	3	40625						239055	0	-29186	3E+06	1E+07
057 Passenger motor cars	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						5E+06	21552	3E+06	8E+06	2E+07
058 Other cars	0	0	0	0	0	0	32417	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						861648	35813	2E+06	1E+06	4E+06
059 car parts	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	2E+06	0	0	0	0	0	0	0						11094	0	134820	4E+06	3E+07
060 Ships and repair of ships	1456	0	0	0	0	0	145130	1308	260	0	0	0	0	0	49	0	14	123	0	0	0	0	0						10334	62170	250976	1E+06	2E+06
061 Other transportation equipment and repair of tra	3670	0	0	0	0	0	586768	0	0	0	0	0	0	0	15	64730	241	21	0	0	0	2947	0						90535	36812	1E+06	714423	4E+06
062 Precision instruments	1013	405	359	9691	15	6631	30745	299	263	403075	18181	23668	122	289	1073	38205	5253	6697	478	456	167	9671	0						918244	121394	2E+06	1E+06	5E+06
063 Miscellaneous manufacturing products	526	12956	11700	62321	1005	50697	502560	69115	132229	9983	22566	16701	19628	16436	79476	9648	226439	57690	39482	12175	23937	65128	182427						2E+06	107482	1E+06	600046	6E+06
064 Reuse and recycling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	993	0	0	0	0						25560	0	0	222288	870586
065 Building construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	3E+06	3E+07	0	3E+07
066 Repair ofconstruction	161323	126066	45453	17350	15988	28562	588219	353949	99609	150600	99968	42957	13406	16660	37320	29025	92203	113719	60669	28644	33328	64836	0						0	0	0	0	9E+06
067 Public construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	2E+07	135531	0	2E+07
068 Other civil engineering and construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	2E+06	5E+06	0	7E+06
069 Electricity	127930	133093	21983	107330	13195	17299	402545	263134	428464	384656	81394	54870	12658	32321	16747	132542	95616	246950	296744	151389	72644	129554	0						5E+06	0	0	30339	2E+07
070 Gas and heat supply	4967	12382	3435	2148	1091	2712	43846	48836	43875	81670	25238	19501	7787	660	704	3500	8629	13669	198339	90446	34605	31730	0						1E+06	0	0	705	3E+06
071 Water supply	40654	60960	8055	2556	1820	4284	135324	213554	86888	195628	47669	51964	15263	1376	3516	26477	28051	58217	254639	83431	124122	76262	0						2E+06	####	0	10186	5E+06
072 Waste management service	25429	56824	20904	2275	2267	5545	683605	65169	24658	202610	19473	19875	122	750	2502	7053	4115	69686	220833	196641	57942	85223	0						242110	993472	0	3140	4E+06
073 Commerce	95755	78641	32579	273652	7417	322233	581473	243197	459011	2E+06	245344	241358	183921	76064	135934	1E+06	319191	228657	2E+06	504197	167050	278656	323705						5E+07	421266	1E+07	9E+06	1E+08
074 Financial andinsurance	157185	304652	44631	189452	9010	88408	126344	34512	279552	499083	76606	84622	88074	133399	1E+06	138225	1E+06	192137	234541	255636	43642	2E+06	0						1E+07	0	0	654576	4E+07
075 Real estate agencies and rental services	136944	248547	22144	534579	29666	62643	36347	30686	254153	282570	13013	12146	94826	4547	107200	37546	173203	126995	263976	93357	159808	104433	0						352910	0	0	1778	9E+06
076 House rent	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						1E+07	0	0	17476	1E+07
077 House rent (imputed house rent)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						5E+07	37145	0	0	5E+07
078 Railway transport	8670	27293	14648	9294	3385	14108	198447	87671	78224	77903	7106	8243	19014	10099	20012	8143	35501	20679	41791	7457	9411	71014	1110						4E+06	78	1425	99374	7E+06
079 Road transport (except transport by private cars)	34912	169639	22957	52846	6141	103188	268883	65165	105463	308226	32040	32504	48515	24413	30419	113034	80299	33538	279956	55973	17477	138197	68497						7E+06	28886	718609	928497	2E+07
080 Self-transport by private cars	28957	87478	23969	210457	7200	64455	434714	162995	80258	207580	44792	51659	46230	79591	101164	47682	212085	230936	37925	102596	59176	266248	0						0	0	0	0	1E+07
081 Water transport	1931	4653	764	3727	169	5343	7870	4519	7408	9886	1448	1750	1439	758	1010	13995	4379	2584	10831	2308	1573	6475	5257						252368	996	46073	3E+06	7E+06
082 Air transport	3233	50358	16716	53812	2654	85233	49095	56414	34822	39870	897	2087	18698	18655	17745	7704	64701	18315	8994	5230	6920	24585	144						2E+06	114	1855	741040	4E+06
083 Freight forwarding	1075	6105	259	2446	66	4881	3710	1461	3304	13220	1365	1494	1024	5286	561	4741	2070	1047	12363	2591	681	1582	3050						124977	1064	27037	37205	526957
084 Storage facility service	3481	4179	4965	10260	392	15804	227674	5158	12103	21066	3652	3761	3243	3240	1168	10104	4752	3217	36200	6930	1266	3281	6218						243215	1860	53108	92393	2E+06
085 Services relating to transport	17138	0	0	0	0	16855	5279	22	279	0	0	0	0	0	25799	11	2	26343	10829	204332	0	6786	0						2E+06	-78368	0	604559	7E+06
086 Communication	56964	1E+06	127888	376886	140387	136922	401997	53341	282189	161485	93336	13810	115661	104203	42641	86691	295665	50475	270693	54841	51432	90879	0						7E+06	0	0	76362	2E+07
087 Broadcasting	2404	602	77672	251	58	6039	3698	1567	239	3805	1004	2424	1409	2E+06	1886	2151	2578	21457	89755	5336	23303	41837	0						1E+06	0	0	36	4E+06
088 information services	96640	375057	29513	293917	68686	108049	639978	74559	249849	245355	54038	7976	105431	57781	90232	11000	338555	152357	35988	53354	0	52134	0						1E+06	1E+06	7E+06	176377	2E+07
089 internet related services	4535	214392	14901	37119	103352	9649	14189	2429	11628	5430	2438	397	2256	283856	2115	3048	25778	2283	3992	2151	2118	4750	0						110691	0	0	4161	1E+06
090 visuals, and media	12435	19641	685597	289964	2703	298780	278799	186093	233138	116487	37029	5994	112886	2E+06	24077	5522	137325	157736	51042	32288	30199	36031	0						2E+06	35886	51570	76487	8E+06
091 Public administration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1E+06	0						786643	4E+07	0	0	4E+07
092 Education	1927	86387	2582	57388	9690	6154	1498	25	2	6024	296	226	0	338	2756	27	34631	1125	6670	2290	7064	6537	0						7E+06	2E+07	0	28973	2E+07
093 Research	6813	172659	9308	124855	25826	9126	4898	0	84997	0	582	467	0	1452	1320	25519	32861	1675	0	0	0	138571	0						260297	1E+06	0	355321	1E+07
094 Medical service and health	865	1254	446	44	38	325	322	104	232	880043	2961	10376	53	210	0	0	229	191	1553	20	29	1537	0						8E+06	3E+07	0	211	4E+07
095 Social security	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						4E+06	2E+06	0	0	7E+06
096 Nursing care	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						660482	6E+06	0	0	6E+06
097 Other public services	13176	12851	7370	14560	115	13472	253	12124	38429	54550	196	3155	0	16394	19207	20690	73496	133336	32206	6940	9020	27554	0						4E+06	0	0	20027	5E+06
098 Advertising, survey and information services	77039	265781	56066	593745	17627	372061	40296	104995	27561	74031	7127	9158	18593	9222	96438	41746	420475	163306	221633	26749	62736	159593	0						5251	0	0	118100	9E+06
099 Goods rental and leasing services	53880	156192	42613	458514	24401	66630	790139	107483	140299	360365	51241	97442	30504	4706	348768	80591	891967	85541	34512	10647	10598	82948	0						684315	0	0	154335	1E+07
100 Repair of motor vehicles and machine	53002	84802	30473	142420	5520	21698	150528	87911	185175	86809	32334	16305	44062	3924	1E+06	55690	95130	100460	75973	9174	50358	43649	0						3E+06	0	0	2236	1E+07
101 Other business services	591195	883397	203457	2E+06	151505	79123	1E+06	443586	766236	1E+06	161841	122761	276368	328479	381472	142993	2E+06	247562	229388	59293	115912	165280	0						925803	560223	2E+06	393527	3E+07
102 Amusement and recreational services	0	1276	205498	0	355	175716	0	2130	0	0	0	0	0	31542	0	0	0	172356	4893	11962	0	14566	0						1E+07	0	0	81859	1E+07
103 Eating and drinking places	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						2E+07	0	0	242487	2E+07
104 hotel services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						8E+06	0	0	578411	8E+06
105 laundry, barber, hair salon, and bathing	326	5977	1770	1210	336	1320	4810	2542	685	495651	80531	79511	290	5573	596	533	1224	826	65771	71080	147936	12642	0						5E+06	0	0	929	6E+06
106 Other personal services	66197	283742	87747	83170	29164	72928	32471	160183	383570	125911	39263	22028	28006	75820	68344	52775	154215	33712	126319	20226	33824	82665	0						8E+06	0	0	108198	1E+07
107 Office supplies	17366	33441	8792	18833	1990	12655	73672	36988	91176	63866	22641	33396	20858	9050	8720	14241	54051	16194	18933	15544	23904	31329	0						0	0	0	0	2E+06
capital income	2E+06	5E+06	835932	4E+06	229693	967790	1E+07	3E+06	1E+06	5E+06	283558	807134	366078	1E+06	6E+06	763930	6E+06	3E+06	3E+06	1E+06	2E+06	2E+06	0										2E+08
labor income	2E+06	5E+06	759999	6E+06	254219	2E+06	2E+07	2E+07	6E+06	2E+07	4E+06	4E+06	3E+06	1E+06	1E+06	4E+06	2E+07	2E+06	6E+06	2E+06	2E+06	3E+06	0										3E+08
vernm indirect tax	427627	512671	126459	738448	29070	196643	106628	97039	200928	663055	43147	121028	154285	288940	245860	220393	1E+06	929227	506542	243272	306294	961290	0										4E+07
import tariff	0	0	0	1789	0	4338	0	0	0	0	0	0	0	0	0	0	1203	0	0	0	0	1245	0										5E+06
subsidy	-25398	-1263	-263	-4813	-31	-1338	0	-150	-54905	####	-773	-44184	####	-640	-469	-945	-43924	-651	-679	-744	-826	-1568	0										####
consum private consumption																								2E+08	3E+08								5E+08
government consumption																										4E+07	5E+06	####	1E+08				2E+08
private investment																													3E+07	7E+07		####	9E+07
imports	281449	86129	0	386075	2755	233003	0	68464	572951	2070	0	0	33851	210376	24762	235	804885	186453	906981	2E+06	2689	745873	0										7E+07
total	7E+06	2E+07	4E+06	2E+07	1E+06	8E+06	4E+07	2E+07	1E+07	4E+07	7E+06	6E+06	5E+06	9E+06	1E+07	1E+07	3E+07	1E+07	2E+07	8E+06	6E+06	1E+07	2E+06	2E+08	3E+08	4E+07	5E+06	####	5E+08	2E+08	9E+07	7E+07	2E+09