

<開院 8周年 紀念 심포지엄>

租稅 및 地方財政構造改革의 方向

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한국조세연구원

심포지엄 개요

- 주 제 : 조세 및 지방재정구조개혁의 방향
- 일 시 : 2000년 9월 15일(금) 14:00 ~ 17:10
- 장 소 : 한국조세연구원 10층 대강당
- 진행순서
 - 13:30 ~ 14:00 등 록
 - 14:00 ~ 14:10 개회사 : 유일호 한국조세연구원 원장
축 사 : 임종철 경제사회연구회 이사장
 - 14:10 ~ 15:30 제1주제 발표 및 토론
<주제> **Fundamental Tax Reform and Lessons for Korea**
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 - 15:30 ~ 15:50 중간휴식
 - 15:50 ~ 17:10 제2주제 발표 및 토론
<주제> **지방재정조정제도의 현황과 정책과제**
사회자 : 오연천(서울대 교수)
발표자 : 김정훈(한국조세연구원 연구위원)
토론자 : 원윤희(서울시립대 교수)
최병호(부산대 교수)
 - 17:30 ~ 리셉션

開院 8周年 記念 심포지엄 / 第1主題

Fundamental Tax Reform and Lessons for Korea

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본 논문에 실린 내용은 Jorgenson 교수와 윤건영 교수(연세대) 공저로 출간 예정인 책자 (*Fundamental Tax Reform and Economic Growth*(잠정), MIT Press, 2001년 1월 출간 예정)중 제7장을 전재한 것이며, 요약문은 한국조세연구원에서 정리한 것임을 밝힙니다.

<국문요약>

Fundamental Tax Reform and Lessons for Korea

조세제도의 잠재적 비효율성을 파악할 수 있는 방법은 실효세율의 차이(조세 격차)를 분석하는 것이나 이는 기존 조세제도의 후생비용(welfare costs)을 나타내기에는 충분하지 못하다. 그 이유는 조세가 한 시점에서의 자원배분에 영향을 미칠 뿐만 아니라, 장기적으로는 자본축적에도 영향을 미치기 때문이다.

이러한 관점에서 본다면 자본축적을 효율적으로 이룩하기 위한 방안은 모든 자본소득에 대하여 세금을 부과하지 않는 것이다. 본 논문은 자본소득에 대해 일관된 세율을 부과하고 있지 못한 미국조세제도의 결점을 보완할 수 있는 여러 가지 개혁안에 대해 시뮬레이션을 실시하고 이를 통하여 조세개혁의 경제적 효과에 대해 논의하고 있다. 이러한 분석의 첫 번째 목적은 미국 세제개혁의 후생효과를 평가할 수 있는 방법을 개발하는 것이다. 두 번째 목적은 향후 조세개혁을 위한 대안들의 후생효과를 평가하고 아울러 조세 불평등의 원인을 파악하여 향후 개혁 방향을 설정하는데 있다. 최근의 조세개혁안이 가져올 수 있는 경제적 영향력에 대한 분석을 보면 대부분이 소득세에서 소비세로의 전환에 관한 것들이다. 그러나 본 논문에서는 과세기반을 동일하게 유지하면서 소득세제의 효율성을 높이는 방안도 고려하고 있다.

더 자세히 살펴보면 이 논문에서 Jorgenson은 미국경제에 관한 그의 동태적인 일반 균형모델(dynaminc general equilibriums)을 통하여 각기 다른 조세정책 대안들과 그에 따른 후생수준을 비교하기 위한 방법론을 제시한다. 또 조세개혁이 후의 새로운 성장균형상태(new balanced growth equilibrium)로 가기 위한 전환 경로를 결정하는 계산 가능한 알고리즘을 개략적으로 제시한다. 그리고 세제개혁 대안책의 경제적 영향을 평가하고 있으며 대안이 될 수 있는 새로운 세제들의 효율비용을 분석하기 위한 방법론을 제시한다. 마지막으로 그의 논문은 미국 조세제도의 구성요소들의 효율비용을 분석하고 있다.

이 논문의 결말을 요약하면 다음과 같다. 기업과 비기업간의 자산의 부문간 조세격차가 각 부문간 조세부담의 재분배를 통하여 제거된다면 자원배분을 악화시킬 수도 있다. 반면, 기업자산에 대한 조세부담의 경감과 함께 정액세의 인상을 통해서 부문간의 조세격차가 줄어들었다면 상당한 후생이득을 얻을 수 있다. 그러나 현실적인 대안인 왜곡적 조세가 부과된다면 후생이득은 그다지 크지 않다. 만일 기업자본의 조세부담이 모든 사유자본에 균등하게 배분된다면 더 많은 후생이득을 획득할 수 있으나 조세부담을 재분배하는데 있어서 정치적·기술적 어려움으로 인해 그러한 개혁은 어려운 것으로 보인다.

현재의 소득세제를 소비에 기초한 개인세제 체제로 대체하는 것은 기업과 개인 자산에 대한 세금부담을 균등히 하는 것 보다 더 현실적인 방법이지만 이는 미국조세정책의 획기적인 변화를 의미한다. 만약 비왜곡적 정액세 부과가 가능하다면 현행의 소득세 체계를 소비세 체계로 대체한 경우 2조 6,915억 달러에서 4조 3,905억 달러에 해당하는 후생이득이 발생할 수 있다. 그러나 비왜곡적 정액세 부과는 현실적으로 불가능하므로 소득세제에서 소비세제로의 전환에서 얻어지는 후생이득은 그다지 크지 않다.

1996년 세법하의 미국경제를 기준으로 삼고 여러 가지 가정하의 미국 세제의 다양한 구성요소들에 대한 효율비용 추정을 통한 Jorgenson의 연구결과는 1996년 세법하의 조세효율비용은 상당한 것이며 한계세율의 인하를 통하여 얻을 수 있는 잠정적 후생이득 또한 큰 것으로 나타나고 있다.

Analyzing differences in effective tax rates, as we did in chapter 4, can identify potential sources of inefficiency. However, the tax wedges that underlie these effective tax rates are incomplete indicators of the welfare costs of a given tax policy. Similarly, the response of the tax wedges to a change in tax policy is an imperfect guide to the economic effects of a policy change. The welfare costs of taxation depend not only on the tax wedges, but also on the elasticities of substitution along the relevant margins.

The taxation of income from capital drives a wedge between the marginal rate of substitution in consumption between goods at two different points of time and the marginal rate of transformation in production. This raises the issue of intertemporal efficiency in the allocation of resources. One way to achieve intertemporal efficiency is to require zero marginal effective tax rates on all forms of income from capital. An obvious way of imposing a zero tax rate on capital is to eliminate capital income taxes.

Since the U.S. tax system fails to impose a uniform effective tax rate on all forms of income from capital, it can be argued that this system is flawed. However, this argument holds only in a partial equilibrium context or under the restrictive assumption that the allocation of capital among alternative uses is separable from the allocation of other resources. Equality of effective tax rates is not required for allocative efficiency in a more general setting.

The taxation of labor income also has important implications for welfare through its impact on the choice between leisure and labor. This has received much less attention than the taxation of capital income as a source of allocative inefficiency. However, labor income accounts for roughly sixty percent of private national income and much of the government's revenue is collected from taxes on labor. Furthermore, even though the price elasticity of labor supply is very low,¹ there is substitution effect of a change in the after-tax wage rate,

almost equal in magnitude to the income effect, but opposite in sign.

As an illustration, suppose that household preferences are linear logarithmic in consumption and leisure and that labor is the only source of income. Then labor supply is completely inelastic with respect to a change in the after tax wage. However, underlying the zero price elasticity of supply are substitution and income effects that are equal in magnitude but opposite in sign. Only the substitution effect, not the total price effect, is relevant to measuring the distortion of resource allocation by labor income taxes.

The first objective of this chapter is to develop a methodology for evaluating the welfare effects of tax reform. For this purpose we design a computational algorithm for determining the time path of the economy following the reform. This algorithm is composed of two parts. First, we solve for the unique steady state of the economy corresponding to any tax policy. We then determine the unique transition path that is consistent with both the steady state and the initial conditions. We describe the dynamics of our dynamic general equilibrium model of the U.S. economy in terms of the saddle point configuration of this transition path.

Our next objective is to evaluate the welfare effects of alternative tax reform proposals. In addition, we attempt to identify the sources of tax distortions more precisely in order to determine possible directions for future reforms. With these objectives in mind we find it useful to analyze the likely economic impact of recent tax reform proposals. Many of these proposals involve shifting the tax base from income to consumption. However, we also consider reforms of the income tax that would leave the tax base unchanged.

The efficiency cost of taxation is a central concept in public finance. This concept has its most straightforward application in the cost-benefit analysis of public expenditure, where the benefits of a public program must be balanced against the social costs of financing it. The concept also plays an important role in optimal taxation, where the government maximizes the social welfare resulting from tax policy, subject to the government budget constraint. The efficiency cost of a tax program is a measure of the social cost incurred in raising a dollar of tax revenue. Our final objective is to assess the efficiency cost of the existing U.S. tax system.

The plan of this chapter is as follows. In section 7.1 we describe the dynamics of our model of the U.S. economy. In section 7.2 we present a methodology for comparing welfare levels associated with alternative tax policies. In section 7.3 we outline our computational algorithm

for determining the transition path to a new balanced growth equilibrium following tax reform. In section 7.4 we evaluate the economic impact of alternative tax reform proposals. In section 7.5 we present a methodology for analyzing the efficiency cost of alternative taxes. In section 7.6 we analyze the efficiency cost of different components of the U.S. tax system. In section 7.7 we compare our results with those obtained by alternative approaches. Finally, in section 7.8 we present our conclusions.

7.1 Perfect Foresight Dynamics

In a world of perfect foresight the transition path of the economy from an initial state to the steady state is unique. It is also self-validating in the sense that expectations on the future course of the economy are actually realized. Suppose that the economy is initially at a steady state, indicated by point A in figure 7.1.

Figure 7.1. Transition path under perfect foresight.

At the steady state, the real private rate of return on capital \tilde{r} is constant at the value determined by (5.12)

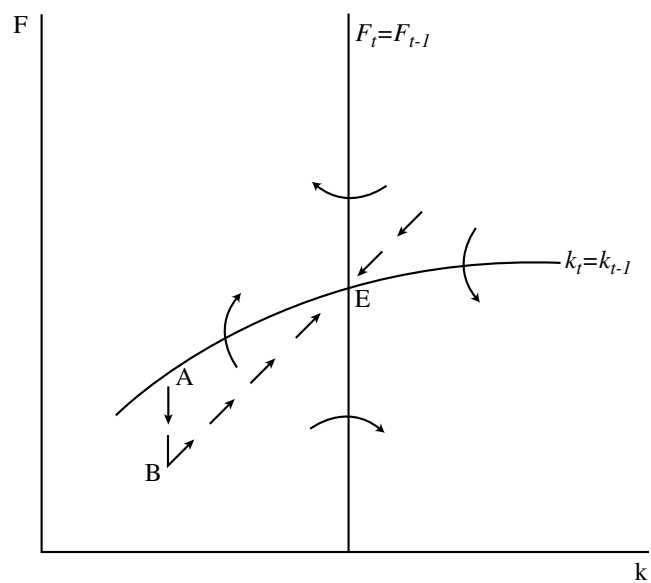
$$\tilde{r} = (1 + \gamma)(1 - \alpha_T)^\sigma - 1, \quad (7.1)$$

where γ is the rate of time preference, $-\alpha_T$ is the rate of labor-augmenting productivity growth, and σ is the inverse of intertemporal elasticity of substitution. The steady-state value of the rate of return is independent of tax policy.

For expository purposes we first assume that the supply of labor is fixed and that full consumption includes only a single homogeneous good, measured in the same units as capital. We also assume that government rebates all the tax revenues to the household sector and that net exports are zero. We suppose that a new tax policy is introduced in order to improve the efficiency of capital allocation. The short-run impact of this policy is that the nominal rate of return ρ rises above the steady-state level $\tilde{\rho}$.

The transition path for full consumption is described by equation (5.9), so that:

Figure 7.1 Transition Path Under Perfect Foresight



$$F_t = F_{t-1} \left[\frac{PF_{t-1}}{PF_t} \cdot \frac{1 + \rho_t}{(1 + \gamma)(1 - \alpha_T)^\sigma} \right]^{\frac{1}{\sigma}}, \quad (7.2)$$

where F is full consumption per capita with population expressed in efficiency units and PF is the price of full consumption. Immediately after the introduction of the new policy the level of full consumption rises over time. The intuition is that with a higher rate of return future consumption is cheaper relative to current consumption, so that the consumer can attain a higher level of welfare by saving more now in order to consume more in the future.

When the rate of return exceeds its long-run equilibrium level, capital intensity in the new steady state is higher than in the initial state. As the economy moves along the transition path, capital intensity rises and the rate of return is brought down, gradually, to the steady-state level. In the new steady state, represented by point E in figure 7.1, both the level of full consumption and capital intensity are higher than at the starting point of the transition path, given by point B .

In order to understand the dynamics of the transition to a new steady state, it is useful to examine changes in the level of full consumption and capital intensity. At the beginning of period t the capital stock is the sum of capital stock at the beginning of period $t-1$ and investment during period $t-1$. In period t , this capital stock must be allocated among the total labor force. As a consequence, *capital intensity*, defined as the ratio of capital stock to labor in efficiency units, grows according to the equation:

$$k_t = \frac{[k_{t-1} + h(k_{t-1}) - F_t]}{(1 - \alpha_T)(1 + n)}, \quad (7.3)$$

where k_{t-1} is the capital intensity at the end of period $t-1$, h is the production function in intensive form, representing output per capita as a function of capital intensity, and n is the rate of population growth.

The locus of points at which capital intensity remains constant is characterized by $k_t = k_{t-1}$. By substituting this condition into (7.3), we obtain

$$F_t = h(k_{t-1}) - ((1 - \alpha_T)(1 + n) - 1) k_{t-1}. \quad (7.4)$$

Similarly, the locus of the points at which full consumption per capita remains constant is obtained by substituting $F_t = F_{t-1}$ into (7.2):

$$\bar{\rho}_t = \rho_t. \quad (7.5)$$

Making use of equations (7.2)–(7.5), we can illustrate the dynamics

of our model of the U.S. economy. In figure 7.1 the arrows indicate directions of movement. If the new policy improves efficiency of the economy, the locus of $k_t = k_{t-1}$ shifts upward and the initial steady state at point A lies below the curve along which capital intensity is constant under the new policy. At the beginning of the transition the economy has to jump to point B by adjusting the level of full consumption downward. Once this level of full consumption is known, we can describe the entire transition path of the economy with equations (7.2) and (7.3). The only path that leads to the new steady state is \overline{BE} . Along this transition path the markets for goods and for labor and capital services clear in each period.

7.2 Comparison of Welfare Levels

In order to evaluate alternative tax policies, we compare the levels of social welfare associated with each of these policies. We can translate welfare comparisons into monetary terms by introducing the intertemporal counterpart of Hicks's equivalent variation. For this purpose we express the full wealth required to achieve a given level of welfare in terms of the time path of all future prices of full consumption and rates of return. Since full wealth is the present value of full consumption over the whole future of the U.S. economy, we refer to this expression as the *intertemporal expenditure function*. Using the expenditure function, we can express differences in welfare in terms of differences in wealth.

To derive the intertemporal expenditure function we first express the time path of full consumption in terms of the initial level and future real private rates of return:

$$\frac{F_t}{F_0} = \prod_{s=0}^t \left[\frac{1+r_s}{(1+\gamma)(1-\alpha_T)^\sigma} \right]^{\frac{1}{\sigma}}, \quad (t = 1, 2, \dots). \quad (7.6)$$

Using this expression, we can write the intertemporal welfare function as:

$$V = \frac{F_0^{1-\sigma}}{1-\sigma} D, \quad (7.7)$$

where

$$D = \sum_{t=0}^{\infty} \left[\frac{1+n}{(1+\gamma)^\frac{1}{\sigma}} \right]^t \prod_{s=0}^t (1+r_s)^{\frac{1-\sigma}{\sigma}}.$$

The function D summarizes the effect of all future prices and rates of return on the initial level of full consumption F_0 associated with a given level of welfare V .

Since the optimal time path for full consumption must satisfy the intertemporal budget constraint, we can express the initial level of full consumption in terms of full wealth and all future real private rates of return

$$F_0 = \frac{W}{PF_0} \frac{1}{D}.$$

Combining this expression with (7.7) and solving for full wealth, we obtain the intertemporal expenditure function, say $W(PF_0, D, V)$, where

$$W(PF_0, D, V) = PF_0 \left[\frac{(1-\sigma)V}{D^\sigma} \right]^{\frac{1}{1-\sigma}}. \quad (7.8)$$

We employ the intertemporal expenditure function to provide a money measure of differences in levels of welfare associated with alternative tax policies. For this purpose we first calculate the solution to our dynamic general equilibrium model of the U.S. economy for the reference tax policy. We denote the resulting prices and discount rates by PF_0 and D_0 and the corresponding level of welfare by V_0 . We then solve the model for an alternative tax policy and denote the resulting level of welfare by V_1 . Finally, we calculate the *equivalent variation in full wealth*, say ΔW , where

$$\begin{aligned} \Delta W &= W(PF_0, D_0, V_1) - W(PF_0, D_0, V_0), \\ &= W(PF_0, D_0, V_1) - W_0. \end{aligned} \quad (7.9)$$

The equivalent variation in full wealth (7.9) is the difference between the wealth required to attain the level of welfare associated with the alternative tax policy at prices of the reference policy $W(PF_0, D_0, V_1)$ less the wealth required for the reference policy W_0 . If the equivalent variation is positive, a change in policy produces a gain in welfare; otherwise, the policy change results in a welfare loss. The equivalent variations in full wealth enable us to rank the reference policy and any number of alternative policies in terms of a money metric of the corresponding welfare levels.

Obviously, there are many different ways of expressing welfare comparisons among alternative tax policies. The approach proposed by Ballard, Fullerton, Shoven and Whalley (1985, chap. 7) is based on the difference between present values of time paths of full

consumption associated with alternative tax policies, rather than the equivalent variation in full wealth. Although there are important similarities between comparisons of present values of full consumption and the equivalent variation, the two approaches do not coincide. Only comparisons based on the equivalent variation provide a money metric of intertemporal welfare useful in ranking alternative tax policies.

The first proposal of Ballard *et al.*, is to calculate the present value of differences in full consumption at prices of the reference tax policy. This amounts to replacing the present value of the full consumption $W(PF_0, D_0, V_1)$ required for the level of welfare under the alternative tax policy (7.9) with the present value of the time path of full consumption associated with that policy. Since the representative consumer minimizes the present value of the full consumption required to attain any level of welfare, this overstates welfare gains and understates welfare losses. The second proposal of Ballard *et al.*, is to calculate the present value of differences in full consumption at prices of the alternative tax policy. This measure understates welfare gains and overstates welfare losses and has the added disadvantage of producing welfare comparisons among alternative tax policies that are not transitive.

7.3 Computational Algorithm

The computational algorithm for determining the solution of our dynamic general equilibrium model of the U.S. economy has two stages. In the first stage we determine the steady state consistent with a given tax policy. In the second stage we find the transition path that is consistent with this steady state and the initial conditions at the time the tax policy is introduced. The evolution of the economy from one period to the next is determined by the transition equation for full consumption and the accumulation equations for capital stock, government debt, and claims on the rest of the world. Since the paths of government debt and claims on the rest of the world are predetermined and the initial value of capital stock is given, the second stage reduces to finding the initial level of full consumption that is consistent with convergence to the steady state of the economy.

Along the transition path, as well as in the steady state, the time endowment in efficiency units grows at the constant rate $(1 - \alpha_T)(1 + n) - 1$. We find it convenient to use the property of constant returns in order to scale the solution of the model to the time

endowment. When the economy moves from one period to the next, we re-scale the economy by dividing the three stock variables — capital stock, government debt, and claims on the rest of the world — at the end of the period by the factor $(1 - \alpha_T)(1 + n)$ in order to obtain the stocks available at the beginning of the next period.

With a rate of inflation different from zero it is convenient to normalize the price system in each period by first setting price levels for the six categories of assets, investment goods, capital stock, government debt, and claims on the rest of the world. We set the prices of the six categories of assets and the price of investment goods at the values shown in panel 10 of table 5.6. For capital stock, government debt, and claims on the rest of the world, we set the current prices at unity and, the lagged prices at $1/(1 + \pi)$. Once the normalized equilibrium of the economy is determined, conversion to the actual size of the economy with the absolute price level is straightforward.

We turn next to the algorithm for finding the equilibrium for our model of the U.S. economy. The model is in balanced growth equilibrium when all the quantities grow at the same rate $(1 - \alpha_T)(1 + n)$ and relative prices are constant. This is a steady state in the sense that the relative prices and quantities per unit of labor expressed in efficiency units are constant. In each period the relative prices and the allocation of the capital stock and the time endowment are determined so that all the markets clear, producers maximize profit, and consumers maximize utility.

We can characterize the steady state of the economy by three conditions: First, capital stock, government debt, and claims on the rest of the world grow at the same rate as the time endowment:

$$VK = VKL - D + V + (S - DG - DR) = VKL(1 - \alpha_T)(1 + n)(1 + \pi), \quad (7.10a)$$

$$VG = VGL + DG = VGL(1 - \alpha_T)(1 + n)(1 + \pi), \quad (7.10b)$$

$$VR = VRL(1 + \pi) + DR = VRL(1 - \alpha_T)(1 + n)(1 + \pi). \quad (7.10c)$$

Equation (7.10a) shows that the nominal value of private capital decreases by the value of depreciation (D) and increases by revaluation of the capital remaining (V) and gross investment. Investment equals gross private saving (S), net of the accumulation of government debt (DG) and claims on the rest of the world (DR). Equation (7.10b) shows that the outstanding government debt grows at the rate of government budget deficit of the rest of the world (DG). Equation

(7.10c) shows that growth of the claims on the rest of the world is the sum of the current account deficit (DR) and the revaluation of the outstanding claims. In a steady state with a constant rate of inflation, the nominal value of private capital (VKL), government debt (VGL), and claims on the rest of the world (VRL) all grow at the same rate and the quantities of these variables per unit of labor in efficiency units remain constant.

Second, full consumption per unit of labor in efficiency units remains constant:

$$F_t = F_{t-1} . \quad (7.11)$$

Together with (7.1) and (7.2), Equation (7.11) implies that the nominal rate of return ρ is equal to its steady state value $\tilde{\rho}$.

Finally, every market must clear in the steady state. By invoking Walras' Law we can ignore the labor market and consider clearing of markets for consumption goods, investment goods, and capital services. The market clearing condition for consumption goods from chapter 5 is:

$$PC(C + CG + CR - CE) = (1 + t_C)PCS \cdot CS , \quad (7.12)$$

where $PC = (1 + t_C)PCS$. Similarly, the market clearing conditions for the investment goods is

$$PI(ID + IG + IR) = (1 + t_I)PIS \cdot IS , \quad (7.13)$$

where $PI = (1 + t_I)PIS$. Finally, the market clearing condition for the capital services is (5.53):

$$PK_{QS}QS + PK_{QL}QL + PK_{MS}MS + PK_{ML}ML \\ + PK_{HS}HS + PK_{HL}HL = (1 + \pi)VKL . \quad (7.14)$$

In the steady state all the endogenous variables can be expressed in terms of the seven variables — $F, KL, GL, RL, PC, PLD, LD$ — where $KL, GL,$ and RL are quantity indexes of capital stock, government debt, and claims on the rest of the world, respectively.² Note that both the price and quantity indexes of labor demand by the business sector are included, since we do not make use of the labor market clearing condition. Thus, we have seven unknowns and six equations, (7.10a)—(7.10c) and (7.12)—(7.14). The system is closed by the price possibility frontier (5.1) of the business sector:

$$i = i_0 + \pi,$$

where i_0 is the real interest rate, given exogenously. Given the nominal private rate of return to equity, the nominal discount rates for investments in the corporate, noncorporate, and household sectors (r^q, r^m, r^h) can be calculated from the equations given in chapter 2:

$$r^q - \pi = (1 - \beta_q) \frac{[\rho^e - \pi(1 - (1 - DC)t_q^e])(1 - \alpha DD \cdot t_q)}{1 - [\alpha t_q^e + (1 - \alpha)t_q^e]} + \beta_q [(1 - (1 - DI)t_q)i - \pi], \quad (7.19a)$$

$$r^m - \pi = (1 - \beta_m)[\rho^e - \pi(1 - (1 - DC)t_m^e)] + \beta_m [(1 - (1 - DI)t_m^e)i - \pi], \quad (7.19b)$$

$$r^h - \pi = (1 - \beta_h)[\rho^e - \pi(1 - (1 - DC)t_h^e)]_h + \beta_h [(1 - DHI(1 - HDI)t_h^e)i - \pi]. \quad (7.19c)$$

The nominal private rate of return on equity ρ^e can be calculated from (7.18) if the average debt-asset ratio of private national wealth β and the average after-tax nominal interest rate i_k are known. However, β and i_k depend on the allocation of capital among the corporate, noncorporate and household sectors, which in turn depends on ρ^e through the discount rates for investment in the three private sectors as defined in (7.19a)–(7.19c). In order to cut through this interdependence and simplify the algorithm, we include the nominal private rate of return to equity ρ^e in the list of unknowns and (7.18) to the simultaneous equation system to be solved. The computational procedure for applying Newton's method to our seven equation system for the steady state under the reference policy, or the *base case*, is summarized in the following steps; the variables in parenthesis at the end of each step are those determined in that step:

(1) Start with an initial guess of the vector of the seven unknowns ($FSL, KL, GL, RL, \rho^e, PC, LD$).

(2) Set the current prices of capital assets in the three private sectors. Lagged prices of capital assets are obtained by deflating the current prices with $1 + \pi$, where π is the rate of inflation in asset prices. Also set the purchasers' price of investment goods, and the current and lagged prices of the aggregate capital stock, government debt and the claims on the rest of the world. Compute the producer's prices of consumption and investment goods from $PCS = PC/(1 + t_C)$ and $PIS = PI/(1 + t_I)$ ($PK_{QS}, PK_{QL}, PK_{MS}, PK_{ML}, PK_{HS}, PK_{HL}, PI, PK, PKL, PG, PGL, PR, PRL, PCS, PIS$).

(3) Making use of (7.19a), (7.19b), and (7.19c), compute the discount rates for investment in the corporate, noncorporate, and household sectors (r^q, r^m, r^h).

(4) Compute the prices of capital services from the formulas given in chapter 2 ($PQS, PQL, PMS, PML, PHS, PHL$).

(5) Using the price functions for capital services in each sector, (5.4) and (5.15), compute the service prices (PQD, PMD, PHD).

(6) Making use of the share equations (5.5) and (5.16), compute the value shares of the capital services for short-lived and long-lived assets in the corporate, noncorporate, and household sectors ($v_{QL}, v_{QS}, v_{ML}, v_{MS}, v_{HL}, v_{HS}$).

(7) From the price function for labor in the business sector (5.1) and the corresponding share equations (5.2), compute the purchaser's price of labor services and the value shares of the outputs and inputs relative to the value of labor input ($PLD, v_{CS}, v_{IS}, v_{QD}, v_{MD}$).

(8) Making use of (5.52), compute the prices of time endowment, leisure, and the labor employed in the government, government enterprises, and the rest of the world (PLH, PLJ, PLG, PLE, PLR).

(9) Making use of the price function for full consumption (5.14) and the corresponding share equations (5.16), compute the price of full consumption and the value shares of consumption goods, capital services, and leisure in full consumption (PF, v_C, v_{HD}, v_{LJ}).

(10) Making use of the fact that, in a steady state, the rate of inflation in asset price is equal to the rate of inflation in the price of full consumption, compute the lagged value of full consumption from (7.2) and set it to be equal to its current value (F).

(11) Combining $F, PF, v_C, v_{HD}, v_{LJ}, PC, PLJ$, and PHD , compute the household demands for consumption goods, leisure and capital services (C, LJ, HD).

(12) Making use of (5.51), compute the total value of labor supply. Then, from (5.27), compute the labor employed by the government enterprises (VLS, LE).

(13) Combining the value shares obtained in step (7) and the value of labor demanded by the business sector ($PLD \cdot LD$), compute the supplies of consumption and investment goods and the demands for the corporate and noncorporate capital services by this sector. Note that LD is taken as given in the initial guess for the iteration and does not interact with the supply side of the labor market in the iteration process (CS, IS, QD, MD).

(14) Combining the value shares of the capital services from the short-lived and long-lived assets, sectoral demands for aggregate

capital services and their prices ($QD, MD, HD, PQD, PMD, PHD$), compute the demands for the six classes of capital services (QL, QS, ML, MS, HL, HS).

(15) From the allocation of capital in step (14), compute economic depreciation and revaluation of capital. Then compute the imputed capital consumption allowances in the corporate and noncorporate sectors and the imputed investment tax credits in the corporate, noncorporate, and household sectors ($D, V, DQ, \tau TCQ, ITCM, \tau TCH$).

(16) From (5.28) compute the amount of consumption goods produced by government enterprises (CE).

(17) Making use of (5.17)–(5.19), (5.21), (5.25)–(5.26), and (5.29), compute the revenues from sales taxes on consumption and investment goods, income on labor and capital income, the surplus of government enterprises, property taxes, non-tax payments, and wealth taxes. Generate government revenue according to (5.33). ($R, R_C, R_I, R_q, R_l, R_e, R_d, R_{ge}, R_q^g, R_m^g, R_h^g, R_t, R_w$).

(18) Compute the gross domestic product, gross national product, and private national income defined by (5.38) and (5.39) (GDP, GNP, Y).

(19) Making use of (5.30), (5.34), and (5.35), compute the government deficit, government spending, and its allocation among consumption goods, investment goods, labor, and transfer payments ($DG, XPND, CG, IG, LG, EL, ER$).

(20) Making use of (5.31) and (5.32), compute the price and quantity indexes of the aggregate government spending (PGS, GS).

(21) Making use of (5.36) and (5.37), compute the net exports of consumption goods, investment goods, labor services, and the deficit of the rest of the world (CR, IR, LR, DR).

(22) Making use of (5.40), compute gross private saving (S).

(23) Making use of (5.41), compute gross private domestic investment (ID).

(24) Evaluate both sides of (7.10a)–(7.10c), (7.12)–(7.14) and (7.18) and revise the vector of unknowns with the information derived in steps (1)–(23).

(25) Repeat the steps (2)–(24) until a solution is obtained.

(26) Check if GL and RL are roughly 20% and 10% of GDP , respectively. If not, adjust $SGOV$, SCR , and SIR and repeat steps (1)–(25).

The remaining problem is to find the transition path consistent with the steady state and the initial conditions of the economy. Once the steady state of the economy under the reference policy is determined, we constrain government debt and claims on the rest of the world in

such a way that they converge to their steady-state values along smooth transition paths. Capital stock and full consumption remain the essential determinants of the dynamics of the economy along the transition path. Given the level of full consumption in the first year on the transition path, the complete time path of full consumption is determined by the model.

It is convenient to reformulate the problem by assuming that the economy has been under a new policy regime in period 0, one period before the new policy is actually introduced. Then we can characterize the starting point of the transition with the variables FS_0, K_0, G_0, R_0 , where the subscript indicates the time period. Since K_0, G_0, R_0 are already known from the initial conditions, the only problem is to find FS_0 . For this purpose we employ the method of multiple shooting.³

Suppose we start with an initial guess of FS_0 . Then we have all the initial conditions for the period 1 (FS_0, K_0, G_0, R_0). The next step is to find the equilibrium of the economy in period 1 such that consumer maximizes utility and the producer maximizes profits. For period 1 all the endogenous variables can be expressed in terms of the elements of the vector (ρ_f, PC_1, LD_1) , given the initial conditions of the economy. However (7.2) shows that F_1 depends upon PF_1 and ρ_f and ρ_1 in turn is affected by F_1 . We simplify the algorithm by including F in the list of unknowns and adding (7.2) to the simultaneous equation system to be solved. Thus we have a vector of four unknowns (F_1, ρ_f, PC_1, LD_1) and three market conditions (7.8), (7.9) and (7.10) plus one transition equation for full consumption (7.2).

The computational procedures are similar to those of the steady state solution except that we now take the full consumption (F_1) as one of the unknowns and FS_0, K_0, G_0, R_0 as given. The current and lagged prices of assets, and the producer and purchaser's price of investment goods are determined as before. We summarize the iterative process of Newton's method in the following steps:

- (1) Start with an initial guess of the unknowns (F, ρ^e, PC, LD).
- (2) Repeat steps (2)–(23) for the steady state solution with the following modifications: Since full consumption F is treated as an unknown, step (10) is no longer necessary. The government deficit (DG) and deficit of the rest of the world (DR) are obtained from (5.43) and (5.44). Government expenditure is set equal to the sum of tax revenues and the budget deficit, and the government spending is net of interest payments. Finally, there is no guarantee that the net exports of consumption goods (CR), investment goods (IR), and labor services

$$\ln PLD = \ln P' \alpha_p + \alpha_T \cdot T + \frac{1}{2} \ln P' B_{PP} \ln P . \quad (7.15)$$

This form of the price possibility frontier is consistent with the existence of a balanced growth equilibrium.

Making use of (7.15), we can eliminate PLD and reduce the number of unknowns and the number of equations to six. We solve for the variables - FSL, KL, GL, RL, PC, LD — where FSL is the lagged value of FS , defined as a function of F and PF

$$FS = F \cdot PF^{\frac{1}{\sigma}} . \quad (7.16)$$

Since PF can be expressed in terms of PC and other variables that are known and F can be determined from (7.2), replacing F with FSL leaves the solution to the model unchanged. We can solve the equation system (7.10a)–(7.10c) and (7.12)–(7.14) by Newton's method.

To solve for the steady state, we set the prices of investment goods, capital stock, government debt, and claims on the rest of the world exogenously. The prices of aggregate capital stock, government debt, and claims on the rest of the world are set at unity. The producers' price of investment goods is obtained from:

$$PIS = \frac{PI}{1+i_l} .$$

Since the real private rate of return r is equal to the value \bar{r} in the steady state, the nominal private rate of return is defined as

$$\rho = (1 + \bar{r})(1 + \pi) - 1 , \quad (7.17)$$

and the nominal private rate of return on equity, say ρ^e , is obtained from the definition of ρ :

$$\rho(VKL + VGL + VRL) = ((1 - \beta)\rho^e + \beta i_k)(VKL + VRL) + i_g \cdot VGL . \quad (7.18)$$

where β is the average debt-asset ratio of private national wealth, including private assets and claims on the rest of the world, i_k is the average after-tax nominal interest rate on private national wealth, and i_g is the after-tax nominal interest rate on government debt, defined as

$$i_g = [1 - (1 - DI)t_g^d] \cdot i .$$

The nominal interest rate i is determined according to the strict version of Fisher's law:

(LR)

determined as in the steady-state solution are consistent with the predetermined path of the deficit of the rest of the world (DR). We adjust these variables in proportion to their absolute values so that net exports are consistent with the time path of the claims on the rest of the world.

(3) Evaluate both sides of (7.2), (7.12), (7.13), and (7.14) with the information derived so far, and revise the initial guess of the vector (F, ρ^e, PC, LD).

(4) Repeat the process until a solution is found.

After the equilibrium of period 1 is found, we move on to the next period. The initial conditions of the period 2 are obtained from

$$FSL = F_1 \left[\frac{PF_1}{1+\pi} \right]^{\frac{1}{\sigma}}, \quad (7.21a)$$

$$KL = \frac{K_0 + (PI \cdot ID_1 - D_1) / PK}{(1 - \alpha_T)(1 + n)}. \quad (7.21b)$$

In (7.21a), PF_1 is deflated by $1 + \pi$, since the entire price system is renormalized in period 2.

After equilibrium in period 2 is obtained we proceed to period 3, and so on. We assume that the economy reaches the steady state in 100 years. In most cases the economy comes very close to the steady state within 30–35 years after the introduction of a new policy. Hence, our time horizon is sufficiently long for practical purposes. However, if we actually solve the economy forward for 100 years, even a very small error in FS_0 will be quickly magnified, so that the computation will break down. In order to control the iterative process, we divide the 100-year period into intervals and introduce starting values of FS and K for each interval. We find that setting the number of intervals at ten is sufficient to control the explosiveness of the iterative process.

In general the welfare level of an economy depends upon both private consumption and government spending. In chapter 5 we did not include government spending in the intertemporal utility function. When we compare the performance of tax policy alternatives in terms of levels of welfare attainable by the economy, it is essential to control the size and composition of government spending so that the benefits from government spending are the same for all the policies compared.

We have assumed that the allocation of total government

expenditure, net of the interest payments on government debt, among consumption goods (CG), investment goods (IG), labor (LG), and transfer payments to U.S. citizens (EL) and to foreigners (ER) can be represented by a Cobb-Douglas price function (5.31):

$$\ln PGS = SCG \ln PC + SIG \ln PI + SLG \ln PLD + SEL \ln PEL + SER \ln PER ,$$

where PGS is the price index of aggregate government spending, and SCG , SIG , SLG , SEL and SER are the exogenously given shares of government expenditure. We set the prices of transfer payments at unity:

$$PEL = PER = 1 .$$

Under a proper normalization of the indirect utility function of the government, the benefits derived from government spending are equal to the quantity of government spending (GS).

Under the reference policy, we set the steady-state level of government equal to fixed proportion $SGOV$ the gross domestic product. Along the transition path the level of government spending is determined as the sum of the tax revenue and budget deficit. When we solve the model under the alternative policy, we control the level of welfare derived from government spending by setting the quantity of government spending in each period at the value under the reference policy.

On the receipt side of the government budget taxation and borrowing from the public are the two alternative means of raising revenues. In a dynamic setting the budget constraint of the government takes the form that the present value of government spending equals the present value of government receipts plus the net worth of the government. Under this budget constraint, the government can finance a given amount of spending either by taxation or by issuing debt, followed by a tax increase to service and eventually repay the debt. However, this is not to say that tax financing and debt financing are equivalent.

In our model, Ricardian equivalence of taxation and borrowing does not hold because taxes are not distortion free. Therefore, it matters whether a given amount of revenue is raised by taxation or borrowing. In order to take account of this aspect of the revenue side of the government budget, we require the budget deficit of the government and government tax revenue must follow the same path under all the policies being compared. We assume that the level of government debt reaches its steady-state value in thirty-nine years

after the introduction of the new policy. We close the gap between the initial and the steady-state levels of the government debts at the annual rate of $1/34$ during the first twenty-nine years and then at the annual rate of $1/68$ for the remaining ten years. The steady-state value is reached in year 40.

Since the time paths of real government spending and the government budget deficit are predetermined, the level of tax revenue under an alternative tax policy must be adjusted to meet the budget constraint. In order to adjust the tax revenues, we consider four alternative approaches. These include the adjustments of a hypothetical lump sum tax, sales taxes, the labor income tax, and the individual income tax. This procedure requires that in each period we have to find the size of tax adjustment along with other endogenous variables. When the lump sum tax is adjusted to meet the government budget constraint, R_{lum} is added to government tax revenue and is subtracted from private national income.

Under the labor income tax adjustment we adjust the average and marginal tax rates on labor income by the same percentage points or by the same proportion. These adjustment methods are referred to the *additive adjustment* and *proportional adjustment*, respectively. Under the sales tax adjustment, we adjust the tax rates on consumption goods and investment goods by the same percentage points. When the sales taxes are flat and the tax rates are the same, additive and proportional adjustments are equivalent. Finally, when the individual income tax is adjusted, we adjust the average and marginal tax rates on labor income either by the same percentage points or by the same proportion. If the average and marginal tax rates on labor income are adjusted by the same percentage points, the average tax rate on capital income is also adjusted by the same percentage points, but the marginal tax rates on capital income are adjusted in the same proportion as the marginal tax rate on labor income. If the average and marginal tax rates on labor income are adjusted by the same proportion, the average and marginal tax rates on capital income are also adjusted in the same proportion. We represent the size of tax adjustment by ADJ , and to close the equation system for the equilibrium of the economy, we add the budget constraint of the government (5.35) as one of the balancing equations.

The algorithm used to solve for the steady state under an alternative tax policy is similar to the one used for the steady state under the reference policy. The steady state values of GL , RL , GS , DG , and DR are the same as those under the reference policy. This implies that we

must adjust tax revenues and net exports in order to satisfy the budget constraints on the government and the rest of the world. The adjustment of net exports is simple enough so that we can eliminate it. By contrast with the reference policy, we can eliminate GL and RL from the list of unknowns and add the tax adjustment to the list.

Once the steady state solution for the alternative policy is found, the next step is to find the transition path between the initial and the steady states of the economy. The computational algorithm is similar to the one used for the reference policy. For the intertemporal part of the problem, we solve for the paths of FSL and KL , since the paths of GL and RL are the same as those under the reference policy. For the atemporal part of the problem, we solve for the variables (F, p^e, PC, LD) and the tax adjustment ADJ .

In our model of the U.S. economy trade with the rest of the world need not be balanced. From the viewpoint of an individual, it does not matter whether a given amount of saving is invested domestically or abroad. However, for the economy as a whole it makes a difference for at least two reasons. First, capital employed abroad does not generate corporate tax revenues. Second, this capital is not combined with domestic labor in production, so that domestic labor productivity is unaffected. Therefore we control the path of the claims on the rest of the world in the same way as we control the path of government debt. In order to keep the trade deficit on a path implied by claims on the rest of the world, we adjust net exports of consumption and investment goods and labor services.

There is no reason to believe that the actual levels of the government budget deficit and the deficit of the rest of the world will follow the time paths used in our simulations. The purpose of controlling government budget deficit and the deficit of the rest of the world sector is to isolate the effects of tax policy changes. Our projections of the future paths of the two deficits is of secondary importance in comparing alternative tax policies.

7.4 Welfare Effects of Tax Reforms

The effects of taxation on the allocation of resources depend not only on the size of the tax wedges imposed on transactions but also on the elasticities of substitution along the relevant margins. Moreover, tax distortion of resource allocation at one margin has further impacts at other margins. The analysis of taxation in terms of effective tax rates and tax wedges may be suggestive but incomplete as an economic

analysis of the tax distortion of resource allocation — in certain contexts, it may even be inappropriate due to the limitation of the typically static and partial equilibrium nature of the analysis. In this section, we employ the dynamic general equilibrium model which we have presented in chapters 5 and 6 in order to evaluate the potential welfare impacts of alternative tax reform proposals.

In evaluating the welfare effects of various tax policies we require a reference economy with which the resource allocation and welfare under alternative tax policies can be compared. We take the U.S. economy under the tax laws effective in 1996 as the reference economy. The simulated dynamic path of the reference economy with an annual inflation rate of four percent is the “base case” for our simulation analysis. Since the base case serves as the reference for the evaluation of the performance of the economy under alternative tax policies, it is useful to describe its main characteristics. We describe the construction of the base case by presenting the exogenous variables that are common to all the simulations we consider.

We take January 1, 1997, as the starting point for all the simulations we consider. The main role of the initial year of the simulation is to determine the initial values of the stock variables and the scale of the economy. The stock variables determined by the starting year are the total time endowment (LH), capital stock (KL), and the claims on the government and the rest of the world (GL and RL). In our simulations, the starting values of LH , KL , GL , and RL are set in their historical values. Specifically, in 1997, $LH = 17,571$ billion, $KL = 25,847$ billion, $GL = 3,784$ billion. Since inflation is assumed to be 4 percent per year in the base case, we set PKL , PGL , and PRL at $(1 + 0.04)^{-1} = 0.96154$ dollar per unit. After 1997, we assume that the distribution of individuals among the categories distinguished by age, sex, and level of education will stabilize and hence the quality of time endowment, leisure, and the labor employed in the various sectors of the economy will not change. This implies that the growth rate of the total effective time endowment will be the same as the growth rate of population. We assume that population will grow at an annual rate of one percent per year and the efficiency of labor improves at the rate of productivity growth we estimated by pooling the entire producer model.

In table 7.1 we present the tax rates that describe the U.S. tax system in 1996. These include the marginal tax rates on individual capital income, the corporate income tax rate, the marginal tax rate on labor income and the average tax rate on personal income. The tax rates also

include sales and property taxes, personal non-taxes, and wealth taxes. Capital consumption allowances are allowed only for corporate and noncorporate business sectors. We have described the estimation of marginal tax rates on capital income in chapter 3. Given the definitions of the tax rates in chapter 5, the data on tax revenues, production of consumption and investment goods, employment and compensation of labor from the National Income and Product Accounts, and our estimates of capital stock in the three private sectors, the estimation of the sales tax rates, property tax rates, and the rate of non-tax payment and wealth tax rate is straightforward.

We estimate the marginal tax rate on labor income t_L^p in exactly the same way as the average marginal tax rates on interest income and dividends, t_β^p and t_β^f of table 3.4. To estimate the average tax rates on labor and capital income of individuals, we use tables A.11 and A.12 based on Internal Revenue Service, *Statistics of Income—1996, Individual Income Tax Returns*. First, we reconcile the total adjusted gross income (*AGI*) in the two tables by creating a zero tax rate bracket in table A.12 and allocating the excess of total positive *AGI* in table A.11 over that of table A.12 ($4536.0 - 4439.7 + 54.6 = 150.9$ billions dollars) to the zero tax rate bracket. Second, assuming that the marginal tax rate increases with the *AGI* bracket in table A.11, we allocate the tax revenue of table A.12 across the positive *AGI* brackets of table A.11. We then allocate the tax revenue in each *AGI* bracket of table A.11 between labor and nonlabor income, using the share of labor income in each *AGI* bracket (see column 3 of table A.11). Third, we calculate the average federal labor income tax rate t_L^{pf} by dividing the total tax revenue allocated to wages and salaries with the total wages and salaries in *AGI*. Similarly, we calculate the average federal nonlabor income tax rate and interpret it as the average federal income tax rate on individual capital income t_K^f . The results are: $t_L^{pf} = 0.12970$ and $t_K^f = 0.18757$.

We note that our approach has a number of shortcomings. For example, *AGI* does not include income not reported in the tax returns; *AGI* excludes tax exempt income; labor income of the self-employed is included in nonlabor income; and nonlabor income includes income other than capital income such as alimony, social security benefits, unemployment compensation, gambling earnings, etc. To offset some the biases that may be caused by these factors, we calculate the federal and state and local average tax rates on labor and capital income as:

$$t_L^p = \frac{t_\beta^p \cdot t_L^{pf}}{t_\beta^{pf}}$$

Table A.11

Adjusted gross income and wages and salaries

Size of AGI (1,000 dollar)	AGI (billions of dollar)	W	S
No AGI	- 54.6	7.2	—
under 5	38.3	33.8	0.88045
5-10	102.1	75.4	0.73816
10-15	165.2	122.0	0.73874
15-20	202.3	154.1	0.76212
20-25	217.9	176.0	0.80738
25-30	221.1	181.2	0.81975
30-40	436.4	362.3	0.83017
40-50	426.8	353.8	0.82907
50-75	871.8	715.5	0.82074
75-100	498.4	394.9	0.79240
100-200	603.7	433.7	0.71840
200-500	347.4	204.7	0.58926
500-1000	144.8	70.5	0.48675
1000 or more	314.4	91.7	0.29181
All Returns, Total	4536.0	3376.9	0.74446

Note:

- 1) AGI is net of deficit
- 2) All figures are estimates based on samples

Notations:

- AGI: Adjusted gross income
W: Wages and salaries
S: Share of wages and salaries in AGI (W/AGI)

Source: Internal Revenue Service, *Statistics of Income - 1996*,
Individual Income Tax Returns, table 1.4.

Table A.12

Tax generated at all rates by marginal tax rate (unit: %, billions of dollar)

Marginal tax rate	AGI	Tax generated at all rates, after credit
0.0	(150.9)	0.0
15.0	1681.8	128.9
28.0	1625.7	235.7
31.0	355.0	70.0
36.0	249.2	59.0
39.6	527.9	161.8
Total	4439.7	655.4

Source: Internal Revenue Service, *Statistics of Income — 1996*
Individual Income Tax Returns table 3.4.

$$t_K^g = \frac{t_\beta \cdot t_K^f}{t_\beta^f}$$

where t_β^f is the average federal tax rate defined as the total tax revenue of table A.12 divided by the total positive *AGI* of table A.11, and t_β is the federal and state and local average personal income tax rates estimated from the National Income and Product Accounts. We estimate that $t_\beta^f = 0.14449$ and $t_\beta = 0.141$ for 1996. We assume the average tax rates are the same for dividends and interest income. The results are $t_L^g = 0.12657$ and $t_g^g = t_g^f = 0.18304$ as shown in table 7.1.

In table 7.2 we present the present value of these allowances for short-lived and long-lived assets under three alternative rates of inflation. We begin the calculation of the capital consumption allowances with the statutory depreciation schedules given in table A.3 and the capital stock weights given in table A.5.

We employ the after-tax nominal interest rate for discounting depreciation allowances. The nominal interest rate is the sum of the real interest rate and the inflation rate. The real interest rate is set equal to the average of the Baa corporate bond rate for our sample period 1970–1996, 0.048604. The rate of inflation varies with the simulation scenario and takes the values of zero, four, and eight percent per year. The after tax nominal interest rate is calculated as $i \cdot (1 - t_q)$, where t_q is the corporate tax rate given in table 7.1. After the present values of depreciation allowances for the 51 depreciable asset classes are calculated, we use the same procedure as the one employed for the average depreciation rates in chapter 6. The only difference is that the weight is now the value of capital stock, adjusted for economic depreciation, inflation, and the after-tax discount rate for investment. These adjustments are necessary to make the sum of the value of capital services from these asset categories equal to the value of aggregate capital services.

In our model, the time horizon of the consumer is infinite and the model is consistent with a wide range of the steady state configurations of the economy. From a practical point of view, this implies that the steady state configuration of the economy can be very different from the initial conditions of the economy. We estimate the welfare effects of the alternative tax reform proposals under three

Table 7.1
Inflation and tax rates (1996)

1. *Marginal Tax Rates on Individual Capital Income*

Inflation Rate	0.0	0.04	0.08
t_q^e	0.20166	0.20203	0.20228
t_m^e	0.28786	0.28786	0.28786
t_h^e	0.28786	0.28786	0.28786
t_f^g	0.05589	0.05589	0.05589
t_h^g	0.07196	0.07196	0.07196
t_h^k	0.00000	0.00000	0.00000
t_q^d	0.17096	0.18228	0.18971
t_m^d	0.22480	0.23003	0.23346
t_h^d	0.26910	0.26917	0.26921
t_s^d	0.19893	0.20252	0.20488

2. *Corporate Income Tax Rate*

t_q 0.38799

3. *Marginal Tax Rate on Labor Income*

t_L^m 0.26447

4. *Average Tax Rate on Personal Income*

t_L^p 0.12657

t_e^a 0.18304

t_d^a 0.18304

5. *Sales Tax*

t_C 0.05800

t_I 0.05800

6. *Property Tax*

t_h^p 0.01201

t_h^h 0.01137

t_h^p 0.00912

7. *Others*

t_i 0.00675

t_w 0.00083

Note: We set $t_h^e = t_m^e$ and $t_h^g = 0$.

Notations:

t_q^e, t_m^e, t_h^e :	Average marginal tax rates of individual income accruing to corporate, noncorporate and household equities, respectively.
t_q^g, t_m^g, t_h^g :	Average marginal tax rates of capital gains accruing to corporate, noncorporate and household equities, respectively.
$t_q^d, t_m^d, t_h^d, t_g^d$:	Average marginal tax rates of interest income accruing to corporate, noncorporate, household, and government debts, respectively.
t_q :	Corporate income tax rate (federal + state and local)
t_L^m :	Average marginal tax rate of labor income
t_L^e :	Average tax rate of labor income
t_e^g, t_d^g :	Average tax rates of personal capital income from equity and debt
t_c, t_I :	Sales tax rates of consumption and investment goods
t_h^p, t_m^p, t_h^p :	Property tax rates of corporate, noncorporate and household assets, respectively.
t_t :	Rate of personal non-taxes
t_w :	Effective rate of wealth taxation

Table 7.2
Present value of capital consumption allowances (1996)

Inflation rate	Corporate		Noncorporate	
	Short	Long	Short	Long
0.00	0.9299	0.5418	0.9347	0.4962
0.04	0.8801	0.4574	0.8878	0.3909
0.08	0.8360	0.3982	0.8460	0.3197

alternative assumptions on the rate of inflation and four alternative methods of adjusting tax revenues. The adjustment of tax revenues is necessary to keep the government's real budgetary position on the same path as in the base case economy. This approach ensures that the government budget does not affect the measured differential welfare effects either through expenditures or through budget deficits/surpluses. However, it should be noted that when the revenue adjustment involves changes in the marginal rate of the adjusted tax, there will be substitution effects.

Under the 1996 tax law, inflation increases the tax burden of corporate assets faster than that of noncorporate assets and the burden of noncorporate assets faster than that of household assets. But inflation has mixed effects on the absolute size of the intersectoral tax wedges where the tax wedges have negative sign. Table 7.3 shows the impact of inflation on the performance of the U.S. economy under the 1996 tax law. An increase in the rate of inflation reduces welfare under a lump sum tax adjustment, but enhances welfare under labor income tax, sales tax, and individual income tax adjustments.

The welfare cost of the distortion of resource allocation by taxes can be measured as the improvement in the economic welfare of the economy when the tax wedges are eliminated. We first analyze the impact of distortions resulting from the taxation of income from capital. We consider the elimination of interasset, intersector, and intertemporal tax wedges. Specifically, we measure the efficiency gains from the following changes in the 1996 tax system:

- (1) Eliminate intra-sectoral tax wedges between short-lived and long-lived assets.
- (2) Eliminate intersectoral tax wedges for short-lived and long-lived assets in the business sector — corporate and noncorporate.
- (3) Eliminate intersectoral tax wedges among all private sectors — corporate, noncorporate, and household.
- (4) Eliminate intersectoral and intra-sectoral tax wedges in the business sector.
- (5) Eliminate intersectoral and intra-sectoral tax wedges in the private sector.
- (6) Corporate tax integration.
- (7) Eliminate taxation of income from capital.

Table 7.3
Welfare effects of inflation under the law (billions of 1997 dollars)

Rate of inflation	Revenue adjustment	Welfare effect
0%	Lump sum tax	482.4
	Labor income tax	-89.5
	Sales tax	-96.8
	Individual income tax	
4%	Lump sum tax	0.0
	Labor income tax	0.0
	Sales tax	0.0
	Individual income tax	0.0
8%	Lump sum tax	-407.0
	Labor income tax	15.6
	Sales tax	31.6
	Individual income tax	19.0

Note: In 1997, the national wealth (beginning of the year) and GDP were \$25,378 and \$8,111 billion dollars, respectively.

(8) Eliminate capital income taxes and the sales tax on investment goods.

(9) Eliminate capital income taxes and property taxes.

(10) Eliminate capital income taxes, the sales tax on investment goods, and property taxes.

In order to eliminate tax wedges between a set of asset categories, we set their social rates of return to be equal. We achieve this objective by assigning an appropriate investment tax credit for each category. The rate of the tax credit required is calculated using the cost of capital formulas presented in chapter 2. Note that equalizing social rates of return across sectors is not equivalent to equalizing effective tax rates, since the private rate of return varies with the capital structure of each sector. However, equalizing the social rates of return to short-lived and long-lived assets within a given sector is equivalent to equalizing their effective tax rates. Table A.9 shows the present value of capital consumption allowances z and the rates of economic depreciation δ . It also shows the allocation of capital stock w and the prices of capital services PKS in the steady state of the base case corresponding to the 1996 tax system.

The tax credits required for the first six sets of changes in the 1996 tax system given above are presented in panel 2 of table A.10, along with the corresponding social rates of return and effective tax rates. Base case figures are presented in panel 1 for comparison. In the first tax change we equalize the social rates of return to short-lived and long-lived assets within each sector, by setting the social rates of return for short-lived and long-lived assets at their sectoral average in the steady state of base case, where the composition of capital stock in the steady state of base case in table A.9 is used as the weight. Once the social rate of return for an asset is determined, the required rate of investment tax credit can be solved from the cost of capital formula.

There is, of course, no interasset tax wedge within the household sector, since no tax is levied on the income of the household sector and property tax rates are the same for short-lived and long-lived assets. In this tax change the intersectoral tax wedges among corporate, non-corporate, and household sectors are maintained. In the second tax change we follow the same procedure and equalize social rates of return of short-lived assets in the corporate and noncorporate sectors and similarly for long-lived assets, but the interasset wedges remain

Table A.9

Steady state of the base case (rate of inflation: 4%)

	Corporate		Noncorporate		Household	
	Short	Long	Short	Long	Short	Long
w	0.0868	0.2430	0.0178	0.2076	0.0968	0.3480
z	0.8801	0.4574	0.8878	0.3909	0.0000	0.0000
δ	0.1367	0.0175	0.1533	0.0112	0.1918	0.0107
PKS	0.2211	0.1066	0.2276	0.0849	0.2486	0.0602

*Notations:**w*: Share of capital stock*z*: Present value of capital consumption allowances δ : Economic depreciation rate*PKS*: Price of capital services

Table A.10

Elimination of interasset and intersectoral tax wedges (rate of inflation: 4%)

	Corporate		Noncorporate		Household	
	Short	Long	Short	Long	Short	Long
1. Base Case						
$\sigma-\pi$	0.0789	0.0884	0.0681	0.0733	0.0491	0.0491
e	0.3983	0.4625	0.3240	0.3715	0.1223	0.1223
k	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2. Alternative Policies						
<i>(1) No interasset wedges: Corporate and noncorporate sectors</i>						
$\sigma-\pi$	0.0859	0.0859	0.0729	0.0729	0.0491	0.0491
e	0.4470	0.4470	0.3680	0.3680	0.1223	0.1223
k	-0.0219	0.0216	-0.0163	0.0049	0.0000	0.0000
<i>(2) No intersector wedges: Corporate and noncorporate sectors</i>						
$\sigma-\pi$	0.0771	0.0814	0.0771	0.0814	0.0491	0.0491
e	0.3840	0.4167	0.4025	0.4342	0.1223	0.1223
k	0.0058	0.0604	-0.0308	-0.0981	0.0000	0.0000
<i>(3) No intersector wedges: All sectors</i>						
$\sigma-\pi$	0.0636	0.0673	0.0636	0.0673	0.0636	0.0673
e	0.2538	0.2947	0.2762	0.3159	0.3227	0.3599
k	0.0481	0.1829	0.0155	0.0718	-0.0600	-0.3392
<i>(4) No interasset and intersector wedges: All assets, corporate and noncorporate sectors</i>						
$\sigma-\pi$	0.0806	0.0806	0.0806	0.0806	0.0491	0.0491
e	0.4108	0.4108	0.4285	0.4285	0.1223	0.1223
k	-0.0053	0.0675	-0.0429	-0.0883	0.0000	0.0000
<i>(5) No interasset and intersector wedges: All assets, all sectors</i>						
$\sigma-\pi$	0.0666	0.0666	0.0666	0.0666	0.0666	0.0666
e	0.2868	0.2868	0.3083	0.3083	0.3528	0.3528
k	0.0388	0.1893	0.0053	0.0808	-0.0722	-0.3253
<i>(6) Corporate tax integration</i>						
$\sigma-\pi$	0.0681	0.0733	0.0681	0.0733	0.0491	0.0491
e	0.3030	0.3520	0.3240	0.3715	0.1223	0.1223
k	0.0340	0.1311	0.0000	0.0000	0.0000	0.0000

Notes:

- $\sigma-\pi$: Social rate of return
- e : Effective tax rate
- k : Investment tax credit
- π : Rate of inflation

the same. The third tax change extends this analysis to the household sector. In the fourth tax change both interasset and intersectoral tax wedges in the business sectors are eliminated and the fifth extends the analysis to the household sector.

We eliminate tax wedges in the first five tax changes given above by setting the relevant social rates of return at the average value in the steady state of the base case corresponding to the 1996 tax law. This assures that the resulting tax change will be approximately revenue neutral. We implement corporate tax integration, the sixth tax change given above, by setting the social rates of return for short-lived and long-lived assets in the corporate sector equal to their values in the noncorporate sector. This is not, of course, revenue neutral. In the appendix, figures A10.1–A10.7 and figures A10.1ETR–A10.ETR present the social rates of return and the effective tax rates for the six asset categories under the seven tax policy regimes of table A.10, including the base case.

In the seventh through tenth tax changes we evaluate the potential welfare gains from the elimination of intertemporal tax wedges. These are determined by capital income taxes, sales taxes on investment goods, and property taxes. The seventh tax change measures the welfare gain from elimination of the taxation of capital income for both individuals and corporations. We then move step-by-step to eliminate intertemporal tax wedges. In the eighth tax change we eliminate the sales tax on investment goods, as well as capital income taxes. In the ninth tax change we also eliminate property taxes. Finally, in the tenth change we eliminate capital income taxes, sales taxes on investment goods, and property taxes.

The welfare effects of the ten simulations are summarized in table 7.4b. Beginning with the simulations with a lump sum tax adjustment, we find that the welfare gain from the elimination of the interasset tax wedges within sectors are \$182.1 billion under the 1996 Tax Law. Under the lump sum tax adjustment, elimination of intersectoral wedges between the corporate and noncorporate assets yields a welfare gain of \$45.1 billion.

The result of the third simulation suggests that there is potentially a

Table A.10

Elimination of interasset and intersectoral tax wedges (rate of inflation: 4%)

	Corporate		Noncorporate		Household	
	Short	Long	Short	Long	Short	Long
1. Base Case						
$\sigma-\pi$	0.0789	0.0884	0.0681	0.0733	0.0491	0.0491
e	0.3983	0.4625	0.3240	0.3715	0.1223	0.1223
k	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2. Alternative Policies						
<i>(1) No interasset wedges: Corporate and noncorporate sectors</i>						
$\sigma-\pi$	0.0859	0.0859	0.0729	0.0729	0.0491	0.0491
e	0.4470	0.4470	0.3680	0.3680	0.1223	0.1223
k	-0.0219	0.0216	-0.0163	0.0049	0.0000	0.0000
<i>(2) No intersector wedges: Corporate and noncorporate sectors</i>						
$\sigma-\pi$	0.0771	0.0814	0.0771	0.0814	0.0491	0.0491
e	0.3840	0.4167	0.4025	0.4342	0.1223	0.1223
k	0.0058	0.0604	-0.0308	-0.0981	0.0000	0.0000
<i>(3) No intersector wedges: All sectors</i>						
$\sigma-\pi$	0.0636	0.0673	0.0636	0.0673	0.0636	0.0673
e	0.2538	0.2947	0.2762	0.3159	0.3227	0.3599
k	0.0481	0.1829	0.0155	0.0718	-0.0600	-0.3392
<i>(4) No interasset and intersector wedges: All assets, corporate and noncorporate sectors</i>						
$\sigma-\pi$	0.0806	0.0806	0.0806	0.0806	0.0491	0.0491
e	0.4108	0.4108	0.4285	0.4285	0.1223	0.1223
k	-0.0053	0.0675	-0.0429	-0.0883	0.0000	0.0000
<i>(5) No interasset and intersector wedges: All assets, all sectors</i>						
$\sigma-\pi$	0.0666	0.0666	0.0666	0.0666	0.0666	0.0666
e	0.2868	0.2868	0.3083	0.3083	0.3528	0.3528
k	0.0388	0.1893	0.0053	0.0808	-0.0722	-0.3253
<i>(6) Corporate tax integration</i>						
$\sigma-\pi$	0.0681	0.0733	0.0681	0.0733	0.0491	0.0491
e	0.3030	0.3520	0.3240	0.3715	0.1223	0.1223
k	0.0340	0.1311	0.0000	0.0000	0.0000	0.0000

Notes:

- $\sigma-\pi$: Social rate of return
- e : Effective tax rate
- k : Investment tax credit
- π : Rate of inflation

Table 7.4b

Welfare effects of tax distortion: 1996 tax law (Billions of 1997 dollars)

Eliminated wedges and method of revenue adjustment	Welfare effect	
	Additive	Proportional
<i>(1) Within Sector Interasset Distortion</i>		
Lump sum tax adjustment	182.1	182.1
Labor income tax adjustment	193.4	266.5
Sales tax adjustment	185.5	185.5
Individual income tax adjustment	184.6	252.0
<i>(2) Intersector Distortion: Corporate and Noncorporate Sectors</i>		
Lump sum tax adjustment	45.1	45.1
Labor income tax adjustment	-25.3	-59.0
Sales tax adjustment	-31.4	-31.4
Individual income tax adjustment	-32.2	-48.4
<i>(3) Intersector Distortion: All Sectors</i>		
Lump sum tax adjustment	1616.8	1616.8
Labor income tax adjustment	1716.8	1906.8
Sales tax adjustment	1709.5	1709.5
Individual income tax adjustment	1701.5	1849.6
<i>(4) Interasset and intersector Distortion: Corporate and Noncorporate Sectors, all Assets</i>		
Lump sum tax adjustment	127.6	127.6
Labor income tax adjustment	80.4	67.0
Sales tax adjustment	70.5	70.5
Individual income tax adjustment	70.1	72.3
<i>(5) Interasset and intersector Distortion: All sectors, all Assets</i>		
Lump sum tax adjustment	1692.7	1692.7
Labor income tax adjustment	1810.2	2015.0
Sales tax adjustment	1800.3	1800.3
Individual income tax adjustment	1789.6	1949.9
<i>(6) Corporate Tax Integration (Set $\sigma^d = \sigma^m$)</i>		
Lump sum tax adjustment	1067.4	1067.4
Labor income tax adjustment	282.8	-976.2
Sales tax adjustment	250.3	250.3
Individual income tax adjustment	280.4	-595.2
<i>(7) Capital Income Taxes (Business and Personal)</i>		
Lump sum tax adjustment	2691.5	2691.4
Labor income tax adjustment	362.9	-5480.2
Sales tax adjustment	493.0	493.0
Individual income tax adjustment	362.9	-5480.2

<i>(8) Capital Income Taxes and Sales Tax on Investment Goods</i>		
Lump sum tax adjustment	3367.4	3367.4
Labor income tax adjustment	383.6	-8957.9
Sales tax adjustment	710.2	710.3
Individual income tax adjustment	383.6	-8957.9
<i>(9) Capital Income Taxes and Property Taxes</i>		
Lump sum tax adjustment	3723.2	3723.3
Labor income tax adjustment	-1085.0	—
Sales tax adjustment	-554.0	-554.0
Individual income tax adjustment	-1085.0	—
<i>(10) Capital Income Taxes, Sales Tax on Investment Goods, and Property Taxes</i>		
Lump sum tax adjustment	4309.5	4309.3
Labor income tax adjustment	-1101.0	—
Sales tax adjustment	-237.8	-237.9
Individual income tax adjustment	-1101.0	—

Notes:

1. Inflation is fixed at 4% per year
2. Under the additive tax adjustment, the average and marginal tax rates of labor income and the average tax rates of individual capital income are adjusted in the same percentage points. The marginal tax rates of individual capital income are adjusted by the same proportion as the marginal tax rate of labor income
3. Under the proportional tax adjustment, average and marginal tax rates are adjusted in the same proportion.

very large welfare gain to be realized from eliminating the intersectoral wedges between the business and household sectors. The estimated gains are \$1,616.8 billion under the 1996 Tax Law. This result is not surprising, given the large tax wedges between business and household assets. The welfare gains from eliminating the interasset and intersectoral wedges among business assets are estimated to be \$127.6 billion under the 1996 Tax Law. The welfare gain from eliminating all the atemporal tax wedges in the entire private economy is estimated to be \$1692.7 billion under the 1996 Tax Law. Most of this welfare gain can be attributed to the elimination of the tax wedges between business and household sectors.

In the sixth simulation we eliminate the intersectoral tax wedges between the assets in the corporate and noncorporate assets by setting the social rates of return of corporate assets to be equal to the corresponding rates of return of the noncorporate assets in the reference case. The tax burdens on the corporate assets are unambiguously reduced without an offsetting increase in other marginal tax rates. The estimated welfare gains from this experiment are \$1,067.4 billion under the 1996 Tax Law. These welfare gains are more than half of those attainable by eliminating all the atemporal tax wedges.

In the first six simulations we focused on the distortionary effects of atemporal tax wedges. However, in the following four simulations, we estimate the welfare cost of intertemporal tax distortions. For this purpose we measure the welfare gains from eliminating the distortions caused by the taxes on capital income, including property taxes and sales taxes on investment goods. In the seventh simulation we set the effective tax rates on all forms of capital equal to be zero. Social rates of return are not equalized across sectors, due to the differences in the debt/asset ratios and the property tax rates.

We find that elimination of capital income taxes at both individual and corporate levels generates a welfare gain of \$2,691.5 billion under the 1996 Tax Law. Eliminating sales taxes on investment goods as well increases this gain to \$3,367.4 billion. Eliminating capital income taxes and property taxes produces a gain of \$3,723.2, while eliminating taxes on investments goods as well generates a gain of \$4,309.0 billion. If we start with the 1996 Tax Law and eliminate all intertemporal tax wedges, the welfare gain is as large 53.1% of the U.S. *GDP* and 16.8% of the private national wealth in 1997.

Table 7.4b shows that the magnitudes of welfare gains under the distortionary tax adjustments are substantially different from those under the lump sum tax adjustment. Since the elimination of the tax

wedges are not calibrated to be revenue neutral, the changes in the marginal tax rates due to the revenue adjustments can generate significant substitution effects. We find that the welfare effects from the elimination of tax wedges are very sensitive to the choice of the revenue adjustment method. The welfare effects are most sensitive to the choice between the lump sum tax adjustment and the distortionary tax adjustments. The results are also somewhat sensitive to the choice among the distortionary tax adjustments, especially when the size of the required revenue is large.

Note that when elimination of tax wedges implies tax cuts at the relevant margins, the welfare gains under the distortionary tax adjustments are substantially smaller than the corresponding gains under the lump sum tax adjustment. The logic underlying this observation is straightforward. The excess burden tends to increase more than proportionally with the required revenue increase. When elimination of tax wedges involves tax cuts with substantial revenue impacts, the welfare measures under the lump sum tax adjustment are best interpreted as the upper bounds of the welfare gains. Lowering marginal tax rates coupled with broadening the tax base is a successful strategy for improving the efficiency of resource allocation.

The fact that the estimated welfare gains from the elimination of the intertemporal tax wedges is in the range of \$2,691.5–4,309.0 billion suggests that the potential welfare gain from replacing the current income taxes with consumption based individual taxes is potentially very large. At the same time, welfare gains under the distortionary tax adjustments are much smaller, indicating that improvements in the efficiency of resource allocation can be best achieved by reducing distortions at the atemporal margins of resource allocation.

Our final simulation is intended to measure the distortions associated with progressivity of the tax on labor income. This produces marginal tax rates far in excess of average tax rates. Our point of departure is the elimination of all intersectoral and interasset tax distortions in Panel (5) of table 7.4b. In table 7.5 we replace the progressive labor income tax by a flat labor income tax with the same average tax rate. Under a lump sum tax adjustment this generates a welfare gain of \$4,585.9 billion, relative to 1996 Tax Law. We conclude that elimination of the progressive labor income tax, together with elimination of all intersectoral and interasset tax distortions, would produce the largest welfare gains of all the tax changes we have considered. These gains are even larger with distortionary tax adjustments as the lower marginal tax rate on labor income improves resource allocation and

allows the marginal tax rates of the adjusted taxes to be lowered.

7.5 Efficiency Costs of Taxation

If the government could employ non-distorting or lump sum taxes, the social value of a dollar in the private sector and the social cost of raising a dollar of tax revenue would be the same. However, lump sum taxes are not available in practice, so that the government must use distorting taxes to raise revenue. Even under an optimal tax policy, the social value of a dollar in the private sector and the cost of a dollar of public funds raised through taxation will differ.⁴ Measurement of the social cost of tax distortions has attracted the attention of public finance economists and significant progress has been made.⁵ The final objective of this chapter is to employ our model of the U.S. economy to measure the social cost of different tax programs, including the existing tax law and alternative tax reform programs.

Figure 7.2. Efficiency cost of taxation.

To fix ideas we first consider an economy with only two goods, say X and Y . Under the *reference tax policy*, only good X is taxed. In Figure 7.2 AD is the budget line of the consumer under the reference tax policy and AA is the budget line when there is no tax on good X . The consumer is in equilibrium at E^0 and the level of utility is U^0 . The line LL passes through E^0 and is parallel to AA . Therefore LL represents the locus of points with equal tax revenue at prices before taxes. It may also be interpreted as the budget line of the consumer under a lump sum tax that generates the same revenue as the reference tax policy.

Now, suppose that the government reduces the tax on good X . There are a number of budgetary alternatives we could consider. For example, the government could reduce expenditures, it could maintain the level of expenditures and finance the reduction in the tax revenues by issuing bonds, or it could introduce a new tax on good Y . In order to isolate the distorting effect of the tax on X , we hold the level of government expenditures constant and make up the lost revenue by levying a lump sum tax on the consumer. This is the *alternative tax policy*.

The alternative tax policy consists of a lower tax on good X and a

Figure 7.2 Efficiency Cost of Taxation

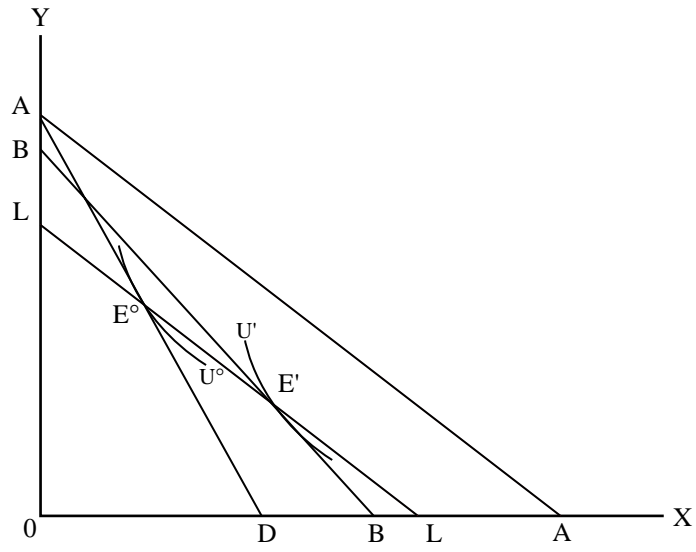


Table 7.5

Welfare cost of labor tax progressivity under efficient capital allocation
(Billions of 1997 dollars)

Revenue adjustment	Progressive		Proportional
	Additive	Proportional	Additive
Lump sum tax	1692.7	1692.7	4585.9
Labor income tax	1810.2	2015.0	4823.0
Sales tax	1800.3	1800.3	4899.9
Individual income tax	1789.6	1949.9	4857.8

Notes

1. Inflation is fixed at 4% per year
2. Under the additive tax adjustment, the average and marginal tax rates of labor income and the average tax rates of individual capital income are adjusted in the same percentage points. The marginal tax rates of individual capital income are adjusted in the same proportion as the marginal tax rate of labor income.
3. Under the proportional tax adjustment, average and marginal tax rates are adjusted in the same proportion.
4. The figures for progressive labor income tax are the same as in Panel (5) of Table 7.4b.
5. Under proportional labor income tax, additive and proportional tax adjustments are equivalent.

lump sum tax. Under this policy consumer equilibrium is at E^1 in Figure 7.2, where AB represents the lump sum tax and the indifference curve U^1 is tangent to the new budget constraint BB . At E^1 the consumer is enjoying a higher level of utility ($U^1 > U^0$) and the government is collecting the same revenue as at E^0 . The reduction of the tax on X has improved the efficiency of resource allocation and the welfare of the consumer.

Our objective is to measure the welfare loss attributable to the distorting tax on good X . Equivalently, we are interested in measuring the welfare gain achieved by replacing part of the tax on X with a lump sum tax. Let $e(P, U)$ be the expenditure function which gives the minimum amount of expenditure required to attain the utility level U at prices given by the vector P . Making use of the expenditure function we can measure the welfare cost of tax distortion in terms of either the Hicksian equivalent variation or compensating variation.

The equivalent variation, say EV , is the welfare cost attributable to the part of the tax we have replaced with a lump sum tax. This is implicitly defined by (with sign reversion) $U^1 = V(P^0, Y^0 + EV)$ or, equivalently,

$$Y^0 + EV = e(P^0, U^1), \quad (7.22)$$

where V is the indirect utility function and Y^0 equals OA in Figure 7.2. Furthermore, $U^0 = V(P^0, Y^0)$, or:

$$Y^0 = e(P^0, U^0). \quad (7.23)$$

Combining (7.22) and (7.23), we have the equivalent variation, say EV :

$$EV = e(P^0, U^1) - e(P^0, U^0). \quad (7.24)$$

The equivalent variation EV is a money measure of the tax distortion, based on the prices under the reference tax policy. This is represented in figure 7.2 by the difference between the indifference curves U^1 and U^0 .

Similarly, the compensating variation, say CV , is defined by (with sign reversion) $U^0 = V(P^1, Y^0 - TLUMP - CV)$, where $TLUMP$ equals the lump sum tax AB in figure 7.2. Equivalently,

$$CV = Y^0 - TLUMP - e(P^1, U^0), \quad (7.25)$$

Since, from $U^1 = V(P^1, Y^0 - TLUMP)$ and $Y^0 - TLUMP = e(P^1, U^1)$, equation (7.25) can be rewritten as

$$CV = e(P^1, U^1) - e(P^1, U^0). \quad (7.26)$$

Equation (7.26) shows that CV is a money measure of the welfare cost of tax distortion, based on the prices under the alternative policy. Comparison of (7.25) and (7.26) confirms the well-known fact that the difference between EV and CV lies in the prices used in converting the utility measure into a money measure of welfare.

When we compare a single alternative policy with the reference policy, both the equivalent and the compensating variation give the same ranking. With more than one alternative policy to compare with the reference policy, only the equivalent variation gives a transitive ordering, since all comparisons involve prices under the reference policy. The compensating variation employs prices under each of the alternative policies and, hence, does not provide a transitive ordering. Therefore, we employ the equivalent variation in measuring the welfare effects of tax policy changes.⁶

Since the total revenue of the government is held constant, the reduction in the revenue from the distorting tax on X is precisely equal to the additional revenue from the lump sum tax, say $TLUMP$. Hence, we define the equivalent variation measure of the *average efficiency cost*, say AEC , per dollar of tax revenue replaced by the lump sum tax as:

$$AEC = \frac{EV}{TLUMP}. \quad (7.27)$$

Alternatively, if we consider a small change in the tax on X , we can measure the *marginal efficiency cost*, say MEC , of dollar of tax revenue, defined as

$$MEC = \frac{\Delta EV}{\Delta TLUMP}, \quad (7.28)$$

where ΔEV and $\Delta TLUMP$ denote changes in EV and $TLUMP$ corresponding to a small change in the rate of tax on good X .

Next, we generalize the above example to our dynamic general equilibrium model of the U.S. economy. First, we replace the expenditure function of the static model with the intertemporal expenditure function introduced in section 7.2. At the same time we replace the utility index by the intertemporal utility function of chapter 5. In order to assure transitivity of the welfare comparisons we evaluate the intertemporal expenditure function at the prices of full consumption under the reference tax policy.

We reduce tax rates in part or all of the tax system and employ

lump sum tax adjustments so that the time paths of real government spending and government debt are unaffected by the tax reductions. Finally, to calculate the present value of lump sum taxes under the alternative tax policies, we convert these taxes into full consumption units. We add the time path of the taxes to the time path of full consumption under the reference policy. We employ the intertemporal expenditure function to evaluate the composite time path. The difference between the present value of the composite path and the time path of full consumption under the reference tax policy represents the present value of the lump sum taxes, discounted at the marginal rates of substitution of full consumption in different time periods.

The steps outlined above enable us to generalize the example of tax reduction in the static two-good model to our dynamic general equilibrium model of the U.S. economy. Using the intertemporal expenditure function (7.8), we can express the equivalent variation as:

$$EV = [W(D_0, V_1) - W(D_0, V_0)]PF_0, \quad (7.29)$$

where V_1 and V_0 are the levels of intertemporal utility under the alternative and the reference policies, respectively, and all the other symbols are as defined in section 7.2. Similarly the present value of the stream of lump sum taxes can be calculated as

$$TLUMP = [W(D_0, V_2) - W(D_0, V_0)]PF_0, \quad (7.30)$$

where V_2 is the level of intertemporal utility attainable with the composite path of the lump sum taxes and full consumption under the reference policy. As in the example of the static two-good model, we can define the *AEC* of the tax revenue raised by distorting taxes and replaced by the lump sum tax as:

$$AEC = \frac{EV}{TLUMP}, \quad (7.31)$$

where EV and $TLUMP$ are defined by (7.29) and (7.30), respectively. Similarly, we can represent the *MEC* of the tax revenue raised by the distorting taxes as

$$MEC = \frac{\Delta EV}{\Delta TLUMP}. \quad (7.32)$$

7.6 Efficiency Costs under the 1996 Tax Law

In this section, we estimate the efficiency costs for various components of the U.S. tax system under the 1996 Tax Law and for several fundamental tax reforms. For this purpose, we employ our dynamic general equilibrium model to simulate the U.S. economy under hypothetical tax policies that replace parts of the U.S. tax system by a hypothetical non-distorting tax.

We carry out tax policy simulations for ten components of the U.S. tax system. The first is the corporate income tax. The second is capital income taxes at the individual level, including taxation of noncorporate capital income as well as the individual capital income originating from the corporate sector. The third is property taxes on corporate, noncorporate, and household assets. The fourth is capital income taxes at both the corporate and individual levels. The fifth is labor income taxes. The sixth is all taxes on capital and labor income. The seventh is the individual income tax. The eighth is sales taxes on consumption and investment goods. The ninth is the combination of all taxes, except property taxes. The tenth is all taxes.

The tax rates corresponding to each of the components of the tax system are (1) corporate tax rate (t_q), (2) marginal and average tax rates of individual capital income ($t_q^e, t_m^e, t_h^e, t_q^d, t_m^d, t_h^d, t_g^d, t_e^d, t_d^d$), (3) property tax rates in the corporate, noncorporate, and household sectors (t_h^c, t_h^n, t_h^h), (4) corporate income tax rate and the average and marginal tax rates on individual capital income, equivalent to the combination of (1) and (2), (5) average and marginal tax rates on labor income (t_l^m and t_l^a), (6) the combination of (4) and (5), (7) the combination of (2) and (5), (8) sales tax rates of consumption and investment goods (t_c and t_i), (9) the combination of (1), (2), (5) and (8), and finally, (10) the combination of (1), (2), (3), (5), and (8).

In each simulation we reduce the tax rates,⁷ by five percent, ten percent, and then by ten percent intervals until the tax rates are reduced to zero. These reductions are distributed evenly, except for the first two reductions of five percent each. We then evaluate the *MEC* and *AEC* of raising tax revenues for all eleven reductions between the reference tax policy and the tax system with tax rates reduced to zero.

In the first set of simulations we evaluate the efficiency cost of U.S. tax policy under the tax law in 1996. We take tax policy under this law as the reference policy. We then lower the average and marginal tax rates sequentially. For each alternative tax policy we evaluate the *AEC* for the tax revenue replaced by a hypothetical non-distorting lump

sum tax. Since the economy under the 1996 Tax Law is the reference, the present value of the stream of lump sum taxes is discounted at the marginal rate of substitution of full consumption between the initial time period and the relevant time period along the consumption path.

Table 8.1 and figure 8.1 present the *AEC* and *MEC* of the various parts of the U.S. tax system under the 1996 Tax Law. For example, in the case of corporate income tax, *MEC* is 0.279 when the corporate income tax rate is increased from 95% to 100% of their 1996 levels. This implies that if the government increases the corporate income tax rate proportionally, the burden to the economy in excess of the tax revenue is 27.9 cents per dollar of the extra tax revenue. Conversely, if the corporate tax rate is reduced by 5% and the revenue loss is made up for by lump sum tax, the economy will gain 27.9 cents per dollar of the corporate income tax revenue which is replaced by the lump sum tax. Since the first column of table 8.1 represents the efficiency costs measured from the first tax reduction, the estimated *MEC* and *AEC* are the same. The *MEC* in figure 8.1 represents the marginal efficiency cost estimated from the first 5% tax reduction from the 1996 tax system (see *MEC* in column 1 of table 8.1).

Figure 8.1. Efficiency cost of taxation in U.S.: 1996 Tax Law.

Now consider the last column of table 8.1. For the corporate income tax, *MEC* is 0.205 meaning that the efficiency cost is 20.5 cents per dollar of tax revenue raised by increasing the tax rate from 0 to 10% of the 1996 levels. On the other hand that *AEC* is 0.242 implies that the efficiency cost is 24.2 cents per dollar for the entire revenue raised by the corporate income tax of 1996. To be precise, our measure of *AEC* may be referred to as the local *AEC* which includes the concepts of deadweight loss employed by Hausman (1981, 1985) and the average welfare cost of Ballard, *et al.* (1985a,b) as special cases. In fact our measure of the *AEC*s in column 11 of table 8.1 are exactly the same as the concepts employed by Hausman and Ballard, *et al.* The *AEC* in figure 8.1 represents the average efficiency cost estimated from complete elimination of the relevant part of the 1996 tax system (see *AEC* in column 11 of table 8.1).

For the tax programs we consider the *MEC* declines with the size of tax reduction, so that the *MEC* is lower than the *AEC*, except for the first tax reduction in each set. In particular, the *MEC* of the actual tax

8.1 Efficiency Cost of Taxation in the U.S.: 1996 Law

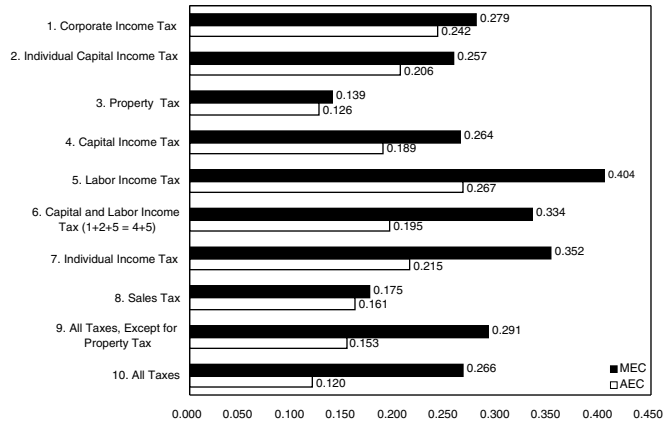


Table 8.1
Efficiency cost of taxation in the U.S. 1996 tax law

Taxes	Reduction in Tax Rates (%)										
	5	10	20	30	40	50	60	70	80	90	100
<i>1. Corporate Income Tax</i>											
MEC	0.279	0.273	0.264	0.254	0.245	0.237	0.229	0.222	0.216	0.211	0.205
AEC	0.279	0.276	0.270	0.266	0.261	0.257	0.254	0.250	0.247	0.245	0.242
<i>2. Individual Capital Income Tax</i>											
MEC	0.257	0.251	0.241	0.230	0.219	0.208	0.198	0.188	0.178	0.169	0.160
AEC	0.257	0.254	0.248	0.242	0.236	0.231	0.226	0.221	0.216	0.211	0.206
<i>3. Property Tax</i>											
MEC	0.139	0.137	0.135	0.133	0.130	0.128	0.125	0.123	0.120	0.118	0.115
AEC	0.139	0.138	0.137	0.135	0.134	0.133	0.132	0.130	0.129	0.128	0.126
<i>4. Capital Income Tax</i>											
MEC	0.264	0.253	0.238	0.219	0.202	0.185	0.170	0.156	0.142	0.130	0.118
AEC	0.264	0.259	0.249	0.239	0.231	0.223	0.215	0.208	0.201	0.195	0.189
<i>5. Labor Income Tax</i>											
MEC	0.404	0.384	0.357	0.323	0.293	0.265	0.240	0.218	0.198	0.179	0.162
AEC	0.404	0.394	0.375	0.358	0.342	0.328	0.314	0.301	0.289	0.277	0.267
<i>6. Capital and Labor Income Tax (1 + 2 + 5 = 4 + 5)</i>											
MEC	0.334	0.314	0.287	0.252	0.221	0.191	0.164	0.139	0.115	0.093	0.073
AEC	0.334	0.324	0.306	0.289	0.273	0.258	0.244	0.231	0.218	0.206	0.195
<i>7. Individual Income Tax</i>											
MEC	0.352	0.333	0.307	0.274	0.244	0.216	0.189	0.165	0.142	0.120	0.100
AEC	0.352	0.343	0.325	0.308	0.293	0.278	0.264	0.251	0.239	0.227	0.215
<i>8. Sales Tax</i>											
MEC	0.175	0.176	0.173	0.170	0.166	0.163	0.159	0.156	0.153	0.149	0.146
AEC	0.175	0.175	0.174	0.173	0.171	0.169	0.168	0.166	0.164	0.163	0.161
<i>9. All Taxes, Except for Property Tax</i>											
MEC	0.291	0.274	0.246	0.211	0.180	0.150	0.123	0.099	0.076	0.055	0.035
AEC	0.291	0.283	0.264	0.247	0.231	0.216	0.202	0.189	0.176	0.164	0.153
<i>10. All Taxes</i>											
MEC	0.266	0.246	0.217	0.182	0.150	0.120	0.093	0.067	0.044	0.023	0.003
AEC	0.266	0.256	0.237	0.219	0.202	0.186	0.171	0.157	0.144	0.132	0.120

Note:

1. Inflation is fixed at 4% per year.

system in column 1 is always greater than the *AEC* in column 11. This simply confirms the standard result that total welfare cost increases more than in proportion to the tax rate.

Second, except for the reduction of all the taxes, the *MEC* is substantially greater than zero, even when the relevant tax rates are close to zero.⁸ For example, in the taxation of corporate income and individual capital income, the *MEC*s are 0.205 and 0.160, respectively, even when the tax rates are reduced to zero from 10% of the 1996 levels. This suggests that there are significant interactions between taxes in the allocation of resources. The *MEC* for mutually exclusive components of the tax system are not additive. The results of a partial equilibrium analysis of tax distortions can be grossly misleading. For example, starting with initial tax rates at ten percent of those under the 1996 tax system, the complete elimination of distorting taxes brings about a welfare gain of 0.3 cents per dollar of replaced revenue while the elimination of any subset of the taxes brings about much larger welfare gain per dollar of revenue reduction.⁹

Another example is the interaction between the taxation of capital and labor incomes. The *MEC* in column 11 are 0.118 for capital income and 0.162 for labor income. But the *MEC* of capital and labor incomes combined is only 0.073. Similarly, the *MEC* of the individual income tax (0.100) is smaller than those of individual capital income (0.160) and labor income (0.162) taxes. The *MEC* of a given set of taxes is likely to be higher if the rates of other taxes are higher. This underlines the importance of distortions due to other taxes in analyzing the welfare effects of a given subset of taxes.

The *MEC* of the entire U.S. tax system is 0.266, suggesting that there are large potential welfare gains to be realized through the reduction of marginal tax rates. In particular the *MEC* of labor income is as high as 40.4 cents per dollar of tax revenue, so that one dollar of revenue collected from individual labor income taxes incurs an additional burden of about 40 percent of the tax revenue.

The marginal efficiency cost of the labor income tax is considerably greater than might be implied by the marginal tax rate and the own- and cross-elasticities of labor supply. In table 8.1 the average and marginal tax rates on labor income are reduced in the same proportion, so that the welfare cost depends on the change in the average tax rate as well as the marginal rate. In the reference case the marginal and average tax rates on labor income are 0.264 and 0.127, respectively.¹⁰ A ten percent reduction in these tax rates implies a cut of 2.64 percent for the marginal tax rate, but only 1.27 percent for the average tax rate. By

contrast the individual marginal tax rates for corporate dividends and interest income are 0.202 and 0.182, respectively, while the average tax rate is 0.183 for both types of income. The marginal efficiency cost for taxation of labor income is higher due to greater progressivity.

7.7 Alternative Approaches

At this point we find it useful to compare our estimates the *AEC* and the *MEC* with estimates obtained in other studies. Table 8.2 summarizes key features of the alternative approaches and the central estimates of the efficiency costs of distorting taxes obtained in previous studies.¹¹

The studies of Browning (1976) and Hausman (1981) are based on partial equilibrium analysis and estimate the efficiency cost of taxes on labor income in the U.S. Hausman estimates only the *AEC*. Stuart (1984) employs a static general equilibrium model to estimate the *MEC* of taxes on labor income in the U.S. Similarly Hansson and Stuart (1985) use a static general equilibrium model to estimate the *MEC* of the Swedish tax system. In their study, the Swedish tax system is represented by separate taxes on capital and labor incomes and the average and marginal tax rates are carefully distinguished. Finally Ballard, Shoven and Whalley (BSW) use a dynamic general equilibrium model of the U.S. to estimate *MEC* (1985a) and *AEC* (1985b) of various components of the U.S. tax system.

Compared with the results of Browning (1976), Hausman (1981), and Stuart (1984) our estimates of the *AEC* (0.267) and the *MEC* (0.404) for taxes on labor income are higher. The differences can be attributed to many factors. Some of these include the differences in modeling the economy, the representation of the tax system, or the selection of parameters describing substitution in consumption and production.

Another interesting comparison is between the results of our study and *BSW*, which is also based on a dynamic general equilibrium model of the U.S. Table 8.3 compares our results with the central estimates of the *AEC* and *MEC* by *BSW*. Since the classifications of taxes in the two studies are different it is impossible to make a precise comparison. Overall, our estimates of the *AEC* and the *MEC* are lower than those of *BSW*. In particular, our estimate of the *MEC* and *AEC* of

Table 8.2

Efficiency costs of taxation: Comparison with other studies

Author(s)	Key Features	Central Results
Browning (1976)	Partial equilibrium model (tax on labor, U.S.)	MEC = 0.09–0.16
Stuart (1984)	Simple static general general equilibrium model, (tax on labor, U.S.)	MEC = 0.207
Hausman (1981)	Partial equilibrium model (tax on labor, U.S.)	AEC = 0.221 for prime age male, 0.184 for wives
Ballard, Shoven and Whalley (1985a,b)	Dynamic general equilibrium model (U.S. tax system, 1973)	MEC = 0.332, AEC = 0.238 for the tax system
Hanson and Stuart (1985)	Two-sector static general equilibrium model, taxes on capital and labor (Sweden, marginal tax rate on labor is 0.7)	MEC = 0.69–1.29
Jorgenson and Yun	dynamic general equilibrium model (U.S. tax system, 1996)	MEC = 0.266, AEC = 0.120 for the tax system MEC = 0.404, AEC = 0.267 for tax on labor

Note: Hausman's results are quoted from Hausman (1985).

corporate income tax are 0.279 and 0.242, respectively, while estimates of the *MEC* and *AEC* for capital taxes at industry level by *BSW*¹² are 0.463 and 0.355, respectively. The differences in the estimated efficiency costs appear to be even larger when the taxes on capital income is defined to include both corporate income tax and taxes on capital income at the individual level. In this case, our estimates of the *MEC* and the *AEC* are 0.264 and 0.189, respectively.

BWS's estimates of the welfare costs of labor taxes at the industry level and our results for the labor income tax are not comparable. *BSW*'s labor taxes represent social security taxes, unemployment insurance and workman's compensation, while our labor income tax represents the portion of individual income tax attributable to labor income. For the individual income tax, our estimate of the *MEC* is larger than of *BSW*, but our estimate of the *AEC* is smaller than that of *BSW*. It is surprising that the estimate of the *AEC* by *BSW* is larger than the estimate of the *MEC*.

Major differences between our study and that of *BSW* include the structure of models representing the economy, the treatment of the U.S. tax system, the choice of parameter values describing technology and preferences, and assumptions about expectations. It is difficult to allocate the differences between the estimates of efficiency costs among the many possible sources. However, differences between the treatments of the tax system appear to be an important factor in explaining differences between the estimated efficiency costs.

For example, *BSW* treat the corporate income tax as an *ad valorem* tax on capital inputs. They do not distinguish between the average and marginal tax rates and represent the individual income tax by a linear income tax. By contrast, we distinguish average and marginal tax rates for firms and individuals. We distinguish the average and marginal tax rates for firms by recognizing the difference between the effective marginal tax rates and the statutory tax rates. We model average income tax rates for individuals as part of the process for generating government revenues, while marginal tax rates are used in determining the relative prices at the relevant margins of substitution.

At the individual level we have separate average tax rates for labor income and capital income, and separate marginal tax rates for labor income, dividends, noncorporate equity income, interest income originating from the corporate, noncorporate, household, and

Table 8.3
Comparison with Ballard-Shoven-Whalley

Author(s)	Taxes	MEC	AEC
Ballard, Shoven and Whalley 1985a,b)	all taxes	0.332	0.238
	capital taxes at industry level	0.463	0.355
	labor taxes at industry level	0.230	0.145
	consumer sales taxes	0.388	0.208
	sales taxes on commodities other than alcohol, tobacco, and gasoline	0.115	0.087
	income taxes	0.314	0.374
	output taxes	0.279	0.194
Jorgenson and Yun	all taxes	0.266	0.120
	corporate income tax	0.279	0.242
	capital income taxes, corporate and individual	0.264	0.189
	property taxes	0.139	0.126
	labor income tax	0.404	0.267
	sales tax	0.175	0.161
	individual income tax	0.352	0.215

government sectors, capital gains, and the marginal tax rates of the household equity owners. In addition, our representation of the economy and the tax system is designed to capture the major sources of tax distortions in the allocation of capital. As we have seen in chapter 4, the U.S. tax system derives large tax wedges between the short-lived and long-lived assets and between corporate, noncorporate, and household sectors. By ignoring interasset and intersector differences in the taxes on income from capital, *BSW* have left out these important tax wedges.

An important factor in measuring distortions in the allocation of labor is the compensated elasticity of labor supply. In the central case of *BSW*, the uncompensated elasticity of labor supply is 0.15. Since *BSW* do not report the income elasticity of labor supply, this can not be compared with our estimate of the compensated elasticity of 0.31653.¹³ Whatever the difference, the compensated elasticities of labor supply can explain only part of the differences in the estimated *AEC* and *MEC*. There are important interactions between labor supply and other parts of the economy and between taxes on labor income and other taxes.

7.8 Conclusion

Eliminating the intersectoral tax wedges between the assets in the corporate and noncorporate sectors may worsen the resource allocation if the wedges are removed through a intersectoral redistribution of the tax burdens. On the other hand, if the intersectoral tax wedges are removed through the reduction of tax burden on the corporate assets, substantial welfare gains are possible under the lump sum tax adjustment. However, under a more realistic distortionary tax adjustment, the welfare gains are much smaller. Much larger welfare gains can be attained if the tax burden of the business capital is redistributed evenly across all private capital. However there are many political and technical difficulties in redistributing the tax burden from business assets to household assets and thus such a reform remains only as a remote possibility.

Replacing the current income tax system with a consumption-based individual tax system may be more realistic strategy than equalizing the tax burdens between business and household assets. This still implies radical changes in the U.S. tax policy. Under the lump sum tax adjustment, replacing the current income tax system with a consumption-based tax system can generate a welfare gain in the

range of \$2,691.5–4,309.5 billion dollars. However, such a tax reform effectively excludes capital income from the tax base. Since lump sum taxes are not available, the welfare gain from switching from an income-based tax system to a consumption-based system would be substantially smaller.

In this chapter we have estimated the efficiency costs of various components of the U.S. tax system under the 1996 Tax Law and a number of hypothetical tax reforms. We find that the efficiency cost of taxation under the 1996 Tax Law is substantial. There still appear to be large potential welfare gains that could be exploited through tax reform aimed at lowering marginal tax rates.

The most important differences between our study and other studies are in the representation of the U.S. economy and the U.S. tax system. Our study differs from other studies in key parameter values describing producer and consumer behavior, in assumptions about expectations, in simulation methods, and in the definition of efficiency costs. Not surprisingly, our results are different from those obtained in other studies. In particular, our estimates of *MEC* are on average much larger. An important conclusion that can be drawn from our analysis is that reducing marginal tax rates can bring about large welfare gains.

To obtain additional perspectives on the efficiency costs of taxation and tax reform in the U.S., it is useful to analyze the structure of efficiency costs of tax revenue for alternative tax systems. In particular, for a large-scale tax reform like the fundamental tax reforms we discuss in chapter 8, one may identify basic components of the proposal and evaluate their economic impacts individually or jointly. We shift our reference from the 1996 tax law to the tax policies of Panel 5 in table 7.4b, where all interasset and intersector tax wedges for capital allocation are eliminated. We estimate the efficiency costs of taxation for two tax policy regimes, one of which is obtained by eliminating tax wedges for capital allocation under the additive adjustment of labor income tax and the other, under the proportional adjustment of labor income tax. To extend our analysis of the welfare cost of progressivity in labor income taxation, we also consider the tax policy regime where the capital income tax of panel 5 of table 7.4b is combined with a proportional tax on labor income.

The labor income tax rates of the tax policy regimes for which we estimate the efficiency costs of tax revenue are represented by the three sets of time paths of tax rates shown in table 7.6 and Fig. 7.6. All the other tax rates are the same as in the 1996 tax law. To reduce a

Table 7.6
Transition paths of labor income tax rates under efficient capital allocation

Year	Progressive Labor Tax				Proportional Labor Tax
	Additive	Proportional		Additive	
	t_L^a	t_L^p	t_L^a	t_L^p	$t_L^a = t_L^p$
1	0.1210	0.2589	0.1198	0.2504	0.1033
2	0.1211	0.2590	0.1200	0.2507	0.1039
3	0.1212	0.2591	0.1201	0.2510	0.1044
4	0.1213	0.2592	0.1203	0.2513	0.1053
5	0.1213	0.2592	0.1204	0.2516	0.1053
6	0.1214	0.2593	0.1205	0.2518	0.1056
7	0.1215	0.2594	0.1206	0.2520	0.1060
8	0.1216	0.2595	0.1207	0.2522	0.1063
9	0.1216	0.2595	0.1208	0.2524	0.1066
10	0.1216	0.2595	0.1208	0.2526	0.1068
12	0.1216	0.2595	0.1209	0.2528	0.1072
14	0.1218	0.2597	0.1211	0.2530	0.1076
16	0.1219	0.2598	0.1212	0.2532	0.1079
18	0.1219	0.2599	0.1212	0.2533	0.1082
20	0.1219	0.2598	0.1213	0.2535	0.1084
25	0.1221	0.2600	0.1214	0.2637	0.1087
30	0.1221	0.2600	0.1214	0.2537	0.1091
35	0.1220	0.2599	0.1214	0.2537	0.1092
40	0.1221	0.2600	0.1214	0.2537	0.1094
45	0.1220	0.2599	0.1214	0.2536	0.1094
50	0.1219	0.2598	0.1213	0.2536	0.1094
60	0.1219	0.2598	0.1214	0.2536	0.1094
70	0.1220	0.2599	0.1213	0.2536	0.1094
80	0.1220	0.2599	0.1213	0.2536	0.1094
90	0.1220	0.2599	0.1213	0.2536	0.1094
100	0.1220	0.2599	0.1213	0.2536	0.1094

Notes:

1. All the other tax rates are the same as in the base case.
2. Under additive tax adjustment, the average and marginal tax rates are adjusted in the same percentage points.
Under proportional tax adjustment, the average and marginal tax rates are adjusted in the same proportion.

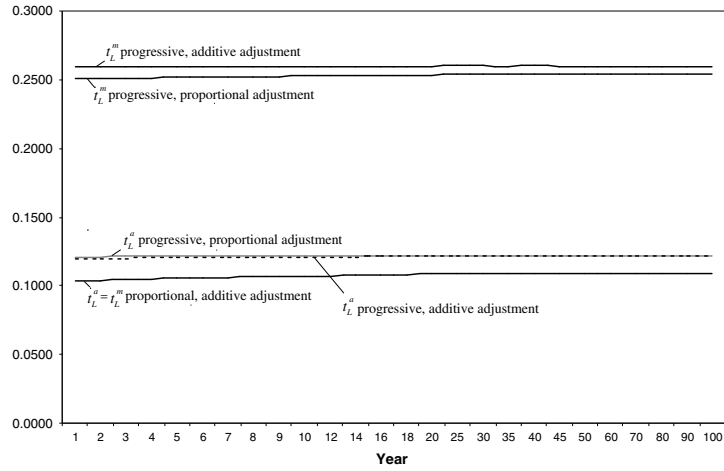
3. Under proportional labor income tax, additive and proportional tax adjustments are equidistant.

Notations:

t_L^m : Marginal tax rate of labor income

t_L^a : Average tax rate of labor income

7.6 a Transition Paths of Labor Income Tax Rates Under Efficient Capital Allocation



subset of tax rates, we cut the relevant average and marginal tax rates and the investment tax credits by the same proportion throughout the transition period and in the steady state.

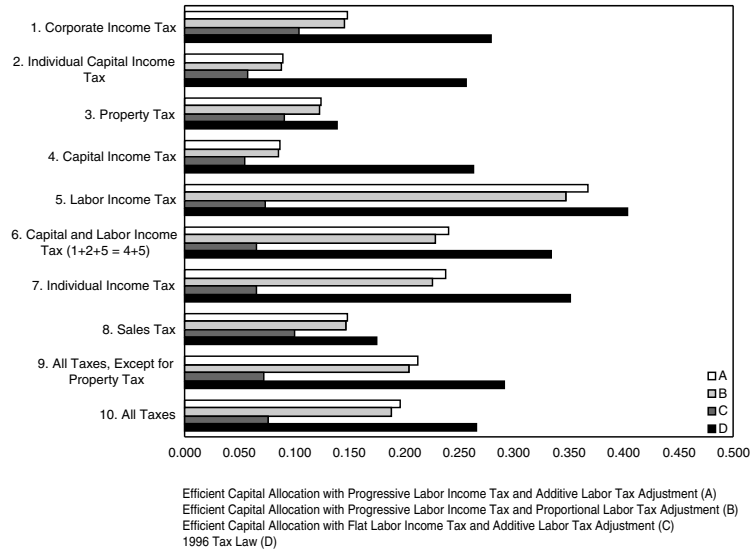
Tables 7.7a and 7.7b show the average and marginal efficiency costs of tax revenue for the tax systems with progressive labor income tax. Comparison of tables 7.7a and 7.7b with table 8.1 reveals that the *MEC* and *AEC* of corporate and individual capital income taxes are reduced dramatically by the elimination of interasset and intersector tax wedges for capital allocation. If labor income tax rates are adjusted additively for the reference tax policy regime, table 7.7a shows that *MEC* is reduced from 0.264 to 0.087 for capital income tax and from 0.266 to 0.197 for all taxes. If proportional tax adjustment is used for the reference tax policy regime, table 7.7b shows that *MEC* is reduced from 0.264 to 0.085 for capital income tax and from 0.266 to 0.189 for all taxes. One interesting aspect of the simulation is that the *MEC* and *ACE* of corporate income tax increase with tax reduction as the simultaneous reduction of the tax rate and investment tax credit increase effective tax burden on corporate investment.

Table 7.7c shows the efficiency costs of tax revenues for the policy regime that combines capital income tax policy of Panel 5 of table 7.4b and the proportional labor income tax. The effects of flattening the labor income tax is striking. The *MEC* drops from 0.404 to 0.073 for labor income tax, and from 0.266 to 0.076 for all taxes. Figures 7.7a and 7.7b compare the marginal and average efficiency costs for the three tax policy regimes. For ease of comparison, we also present the *MEC* and *AEC* for the 1996 tax law.

Figure 7.7a. Marginal efficiency cost of taxation in the U.S.

Figure 7.7b. Average efficiency cost of taxation in the U.S.

7.7a Marginal Efficiency Cost of Taxation in the US



7.7b Average Efficiency Cost of Taxation in the U.S.

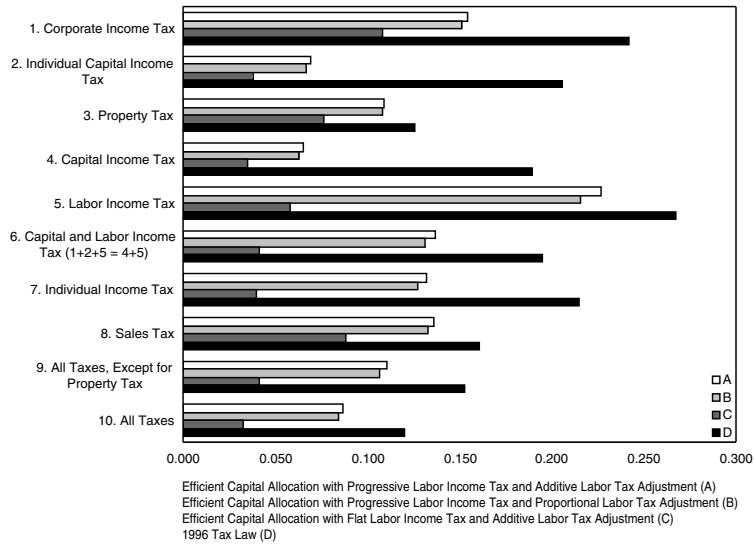


Table 7.7a

Efficiency cost of taxation: Efficient capital allocation with progressive labor income tax and additive labor tax adjustment

Taxes	Reduction in Tax Rates and Investment Tax Credits (%)										
	5	10	20	30	40	50	60	70	80	90	100
<i>1. Corporate Income Tax</i>											
MEC	0.149	0.150	0.150	0.150	0.151	0.152	0.153	0.154	0.156	0.157	0.158
AEC	0.149	0.149	0.149	0.150	0.150	0.151	0.151	0.152	0.152	0.153	0.154
<i>2. Individual Capital Income Tax</i>											
MEC	0.090	0.087	0.084	0.079	0.075	0.070	0.066	0.062	0.059	0.055	0.051
AEC	0.090	0.088	0.086	0.084	0.081	0.079	0.077	0.075	0.073	0.071	0.069
<i>3. Property Tax</i>											
MEC	0.124	0.123	0.121	0.118	0.114	0.111	0.108	0.105	0.102	0.099	0.095
AEC	0.124	0.124	0.122	0.121	0.119	0.117	0.116	0.114	0.113	0.111	0.109
<i>4. Capital Income Tax</i>											
MEC	0.087	0.084	0.080	0.075	0.070	0.066	0.062	0.057	0.053	0.049	0.046
AEC	0.087	0.086	0.083	0.080	0.078	0.075	0.073	0.071	0.069	0.067	0.065
<i>5. Labor Income Tax</i>											
MEC	0.368	0.348	0.321	0.287	0.255	0.227	0.200	0.176	0.154	0.134	0.115
AEC	0.368	0.358	0.339	0.322	0.306	0.291	0.276	0.263	0.250	0.238	0.227
<i>6. Capital and Labor Income Tax (1 + 2 + 5 = 4 + 5)</i>											
MEC	0.240	0.226	0.206	0.180	0.157	0.136	0.116	0.098	0.082	0.067	0.053
AEC	0.240	0.233	0.219	0.207	0.195	0.184	0.173	0.163	0.154	0.145	0.137
<i>7. Individual Income Tax</i>											
MEC	0.238	0.223	0.203	0.177	0.154	0.132	0.112	0.094	0.077	0.062	0.047
AEC	0.238	0.231	0.217	0.204	0.192	0.180	0.170	0.159	0.150	0.141	0.132
<i>8. Sales Tax</i>											
MEC	0.149	0.150	0.147	0.144	0.141	0.138	0.135	0.131	0.128	0.125	0.122
AEC	0.149	0.149	0.148	0.147	0.145	0.144	0.142	0.141	0.139	0.137	0.136
<i>9. All Taxes, Except for Property Tax</i>											
MEC	0.213	0.201	0.181	0.155	0.132	0.110	0.091	0.073	0.056	0.041	0.027
AEC	0.213	0.207	0.194	0.181	0.169	0.158	0.147	0.137	0.128	0.119	0.111
<i>10. All Taxes</i>											
MEC	0.197	0.182	0.161	0.135	0.111	0.088	0.068	0.049	0.031	0.016	0.002
AEC	0.197	0.190	0.176	0.162	0.150	0.138	0.126	0.115	0.105	0.096	0.087

Notes:

1. In the case of corporate income tax, MEC and AEC increase with tax reduction because proportional reduction of the tax rates and investment tax credit increases the tax burden on corporate capital.
2. Inflation is fixed at 4% per year.

Table 7.7b

Efficiency cost of taxation: Efficient capital allocation with progressive labor income tax and proportional labor tax adjustment

Taxes	Reduction in Tax Rates and Investment Tax Credits (%)										
	5	10	20	30	40	50	60	70	80	90	100
<i>1. Corporate Income Tax</i>											
MEC	0.146	0.147	0.147	0.148	0.149	0.150	0.151	0.152	0.154	0.155	0.156
AEC	0.146	0.147	0.147	0.148	0.148	0.148	0.149	0.150	0.150	0.151	0.151
<i>2. Individual Capital Income Tax</i>											
MEC	0.088	0.086	0.082	0.077	0.073	0.069	0.065	0.061	0.057	0.053	0.050
AEC	0.088	0.087	0.084	0.082	0.080	0.078	0.075	0.073	0.071	0.069	0.067
<i>3. Property Tax</i>											
MEC	0.123	0.121	0.119	0.116	0.113	0.110	0.107	0.103	0.100	0.097	0.094
AEC	0.123	0.122	0.120	0.119	0.117	0.116	0.114	0.113	0.111	0.109	0.108
<i>4. Capital Income Tax</i>											
MEC	0.085	0.083	0.079	0.073	0.069	0.064	0.060	0.056	0.052	0.048	0.044
AEC	0.085	0.084	0.081	0.079	0.076	0.074	0.072	0.069	0.067	0.065	0.063
<i>5. Labor Income Tax</i>											
MEC	0.347	0.329	0.304	0.272	0.243	0.217	0.192	0.170	0.149	0.130	0.112
AEC	0.347	0.338	0.321	0.305	0.290	0.276	0.262	0.250	0.238	0.227	0.216
<i>6. Capital and Labor Income Tax (1+2+5 = 4+5)</i>											
MEC	0.228	0.215	0.196	0.172	0.150	0.130	0.112	0.094	0.079	0.064	0.051
AEC	0.228	0.222	0.209	0.197	0.186	0.175	0.165	0.156	0.147	0.139	0.131
<i>7. Individual Income Tax</i>											
MEC	0.226	0.213	0.194	0.170	0.147	0.127	0.108	0.090	0.074	0.060	0.046
AEC	0.226	0.220	0.207	0.195	0.183	0.172	0.162	0.152	0.143	0.135	0.127
<i>8. Sales Tax</i>											
MEC	0.147	0.147	0.145	0.142	0.138	0.135	0.132	0.129	0.126	0.123	0.119
AEC	0.147	0.147	0.146	0.144	0.143	0.141	0.140	0.138	0.137	0.135	0.133
<i>9. All Taxes, Except for Property Tax</i>											
MEC	0.204	0.192	0.173	0.149	0.127	0.106	0.087	0.070	0.054	0.040	0.027
AEC	0.204	0.198	0.186	0.174	0.162	0.152	0.142	0.132	0.123	0.114	0.107
<i>10. All Taxes</i>											
MEC	0.189	0.175	0.155	0.130	0.107	0.085	0.065	0.047	0.030	0.015	0.002
AEC	0.189	0.182	0.169	0.156	0.144	0.132	0.121	0.111	0.101	0.092	0.084

Note: See table 7.7a.

Table 7.7c
Efficiency cost of taxation: Efficient capital allocation with proportional labor
income tax and additive labor tax adjustment

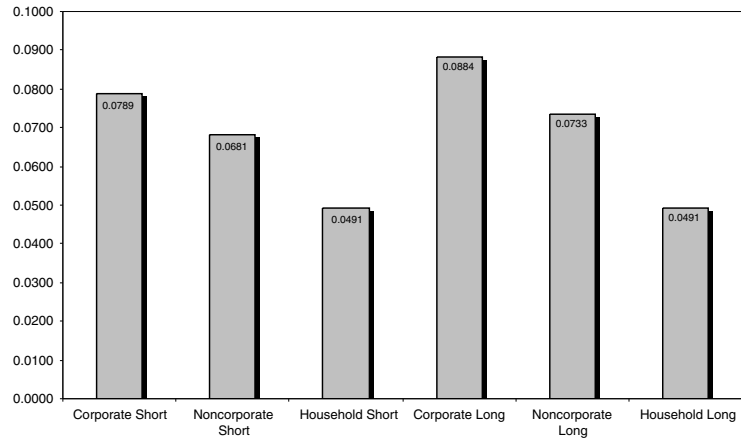
Taxes	Reduction in Tax Rates and Investment Tax Credits (%)										
	5	10	20	30	40	50	60	70	80	90	100
<i>1. Corporate Income Tax</i>											
MEC	0.104	0.105	0.105	0.106	0.106	0.107	0.108	0.109	0.110	0.112	0.112
AEC	0.104	0.105	0.105	0.105	0.105	0.106	0.106	0.107	0.107	0.108	0.108
<i>2. Individual Capital Income Tax</i>											
MEC	0.057	0.055	0.051	0.047	0.043	0.039	0.035	0.031	0.028	0.024	0.021
AEC	0.057	0.056	0.054	0.051	0.049	0.047	0.045	0.043	0.041	0.039	0.038
<i>3. Property Tax</i>											
MEC	0.091	0.089	0.087	0.084	0.081	0.078	0.075	0.071	0.068	0.065	0.062
AEC	0.091	0.090	0.089	0.087	0.085	0.084	0.082	0.081	0.079	0.077	0.076
<i>4. Capital Income Tax</i>											
MEC	0.055	0.052	0.048	0.044	0.040	0.035	0.032	0.028	0.024	0.021	0.018
AEC	0.055	0.054	0.051	0.049	0.046	0.044	0.042	0.040	0.038	0.037	0.035
<i>5. Labor Income Tax</i>											
MEC	0.073	0.072	0.069	0.065	0.062	0.059	0.056	0.052	0.049	0.046	0.044
AEC	0.073	0.072	0.071	0.069	0.067	0.066	0.064	0.062	0.061	0.059	0.058
<i>6. Capital and Labor Income Tax (1+2+5 = 4+5)</i>											
MEC	0.065	0.062	0.057	0.052	0.046	0.041	0.037	0.032	0.028	0.024	0.020
AEC	0.065	0.063	0.060	0.057	0.055	0.052	0.050	0.047	0.045	0.043	0.041
<i>7. Individual Income Tax</i>											
MEC	0.066	0.062	0.058	0.052	0.047	0.041	0.037	0.032	0.027	0.023	0.019
AEC	0.066	0.064	0.061	0.058	0.055	0.053	0.050	0.047	0.045	0.043	0.040
<i>8. Sales Tax</i>											
MEC	0.100	0.100	0.098	0.095	0.092	0.090	0.087	0.084	0.081	0.078	0.075
AEC	0.100	0.100	0.099	0.098	0.097	0.095	0.094	0.092	0.091	0.089	0.088
<i>9. All Taxes, Except for Property Tax</i>											
MEC	0.072	0.070	0.064	0.056	0.049	0.042	0.036	0.030	0.025	0.020	0.015
AEC	0.072	0.071	0.067	0.064	0.060	0.057	0.053	0.050	0.047	0.044	0.041
<i>10. All Taxes</i>											
MEC	0.076	0.071	0.063	0.054	0.044	0.036	0.027	0.019	0.012	0.005	-0.002
AEC	0.076	0.073	0.068	0.063	0.059	0.054	0.049	0.045	0.041	0.037	0.033

Note: See table 7.7a.

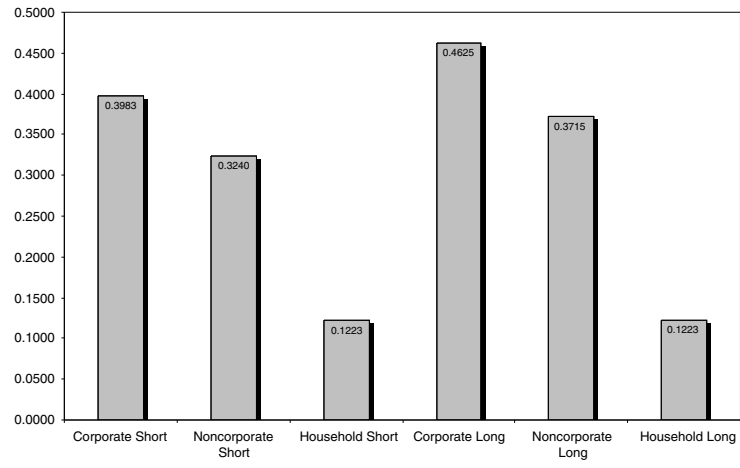
Notes

1. The elasticity of labor supply is typically estimated to be close to zero for primary workers, while the elasticity for secondary workers is close to unity. See Hausman (1981, 1985).
2. The quantity indexes are implicitly defined by $VKL = KL.PKL$, $VGL = GL.PGL$, and $VRL = RL.PRL$.
3. For a systematic treatment of the multiple shooting technique, see Lipton, Poterba, Sachs, and Summers (1982).
4. Diamond and Mirrlees (1971a,b), Stiglitz and Dasgupta (1971).
5. Harberger (1966), Diamond and McFadden (1974), Kay (1980), Browning (1976), Stuart (1984), Ballard, *et al.* (1985a), Hansson and Stuart (1985).
6. See Kay (1980).
7. When the corporate income tax is reduced, we also reduce the tax credits on corporate investment in the same proportion. Similarly, when the capital income tax at the individual level is reduced, we reduce the tax credits on noncorporate investments in the same proportion.
8. See column 11.
9. See the *MEC* in column 11 of table 8.1.
10. See table 7.1.
11. In this section, the *AEC* of our study refers to the average efficiency cost of the revenue raised by the taxes in question. Estimates for our study are from column 11 of table 8.1.
12. In BSW, capital taxes at industry level include corporate taxes, corporate franchise taxes, and property taxes on business capital.
13. See table 5.3.

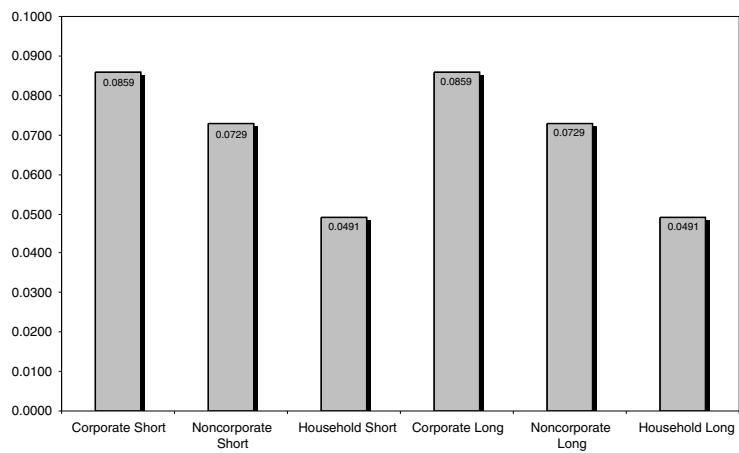
A-10 Chart 1
Social Rates of Return: Base Case



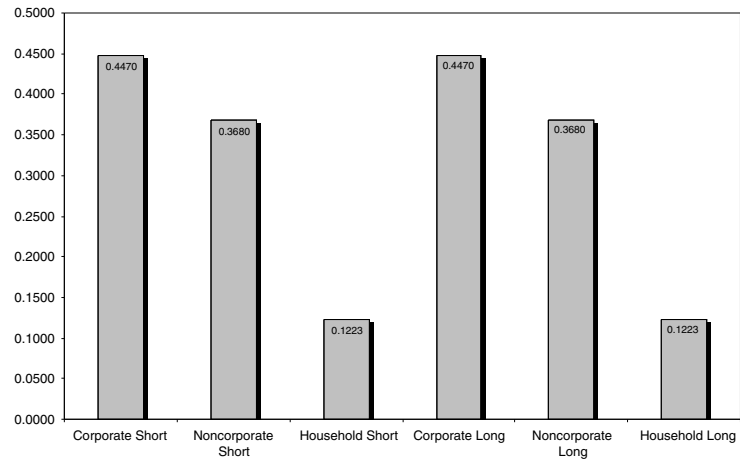
A-10 Chart 1 ETR
Effective Tax Rates: Base Case



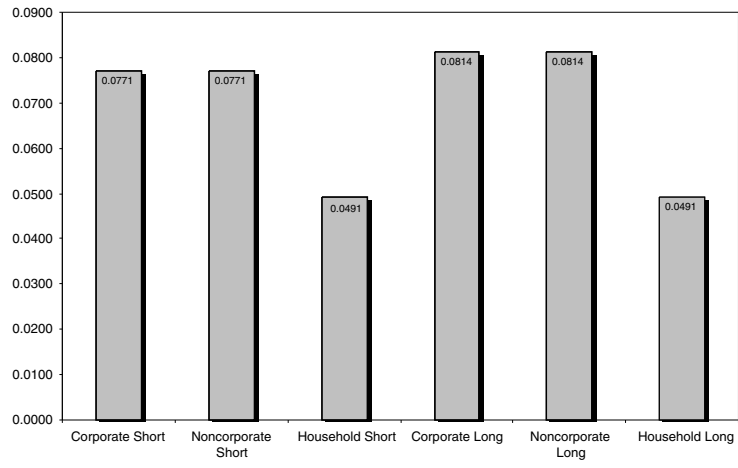
A-10 Chart 2
Social Rates of Return
No Interasset Wedges: Corporate and Noncorporate Sectors



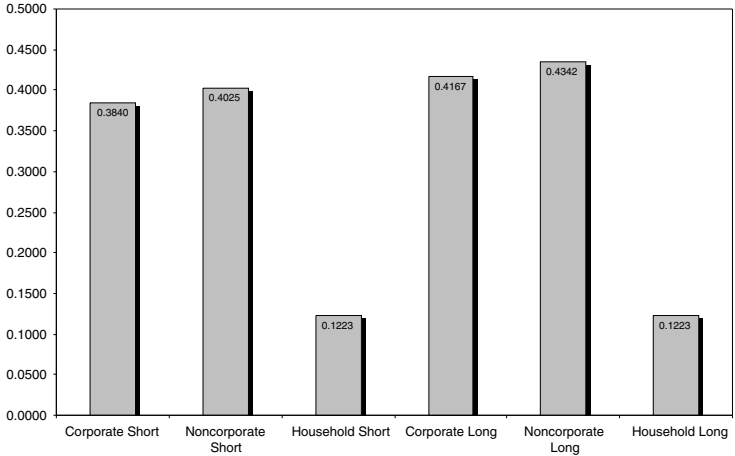
A-10 Chart 2 ETR
Effective Tax Rates
No Interasset Wedges: Corporate and Noncorporate Sectors



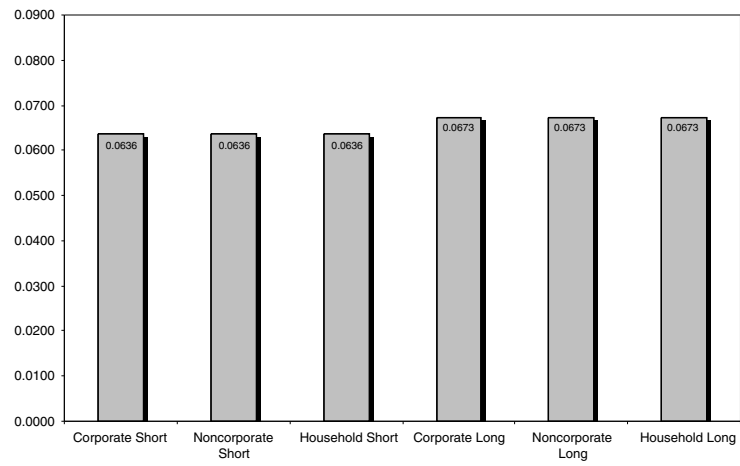
A 10 Chart 3
Social Rates of Return
No Intersector Wedges: Corporate and Noncorporate Sectors



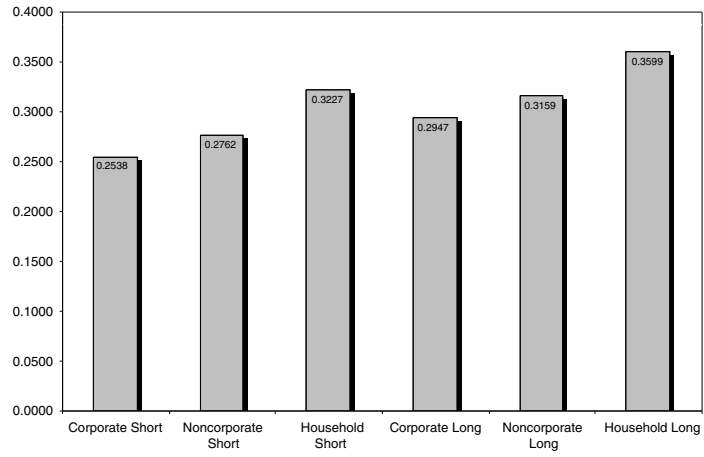
A-10 Chart 3 ETR
Effective Tax Rates
No Intersector Wedges: Corporate and Noncorporate Sectors



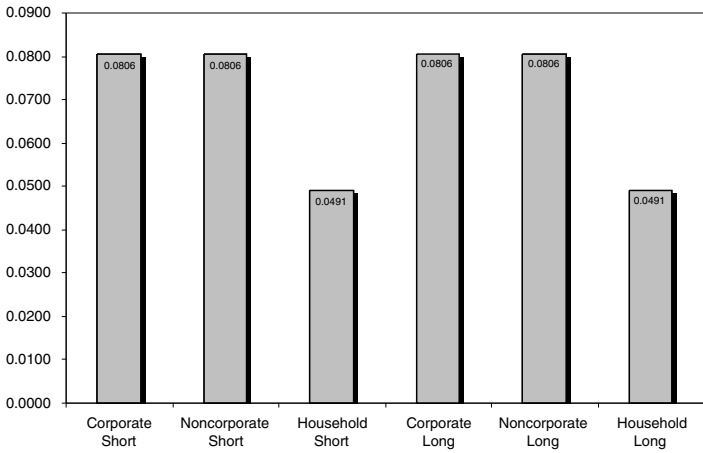
A 10 Chart 4
Social Rates of Return
No Intersector Wedges: All Sectors



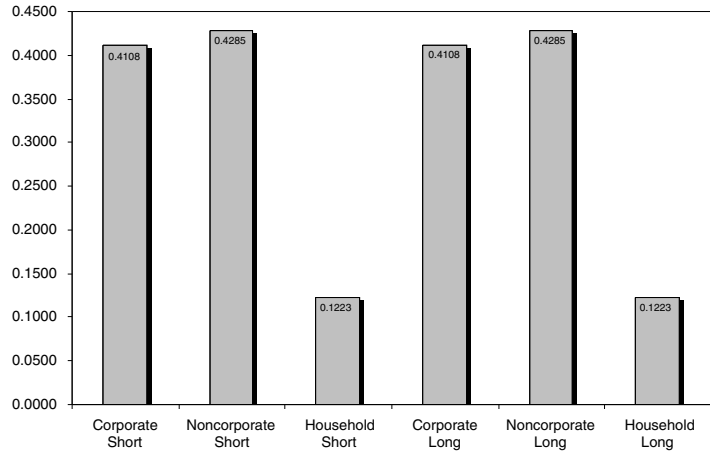
A-10 Chart 4 ETR
Effective Tax Rates
No Intersector Wedges: All Sectors



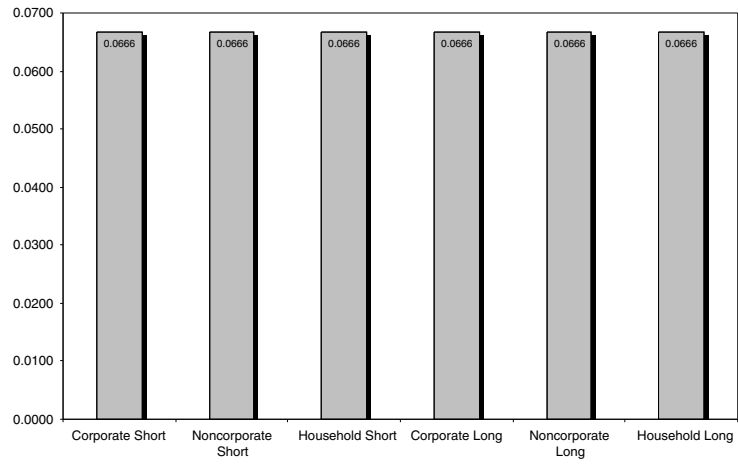
A 10 Chart 5
Social Rates of Return
No Interasset and Intersector Wedges: All Assets, Corporate and Noncorporate Sectors



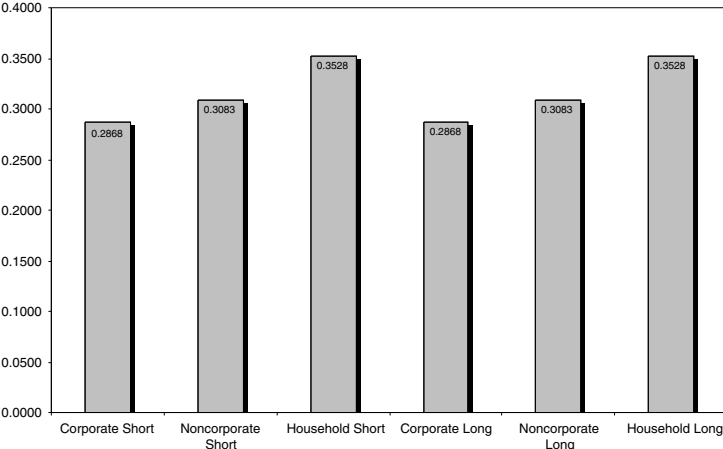
A-10 Chart 5 ETR
Effective Tax Rates
No Interasset and Intersector Wedges: All Assets, Corporate and Noncorporate Sectors



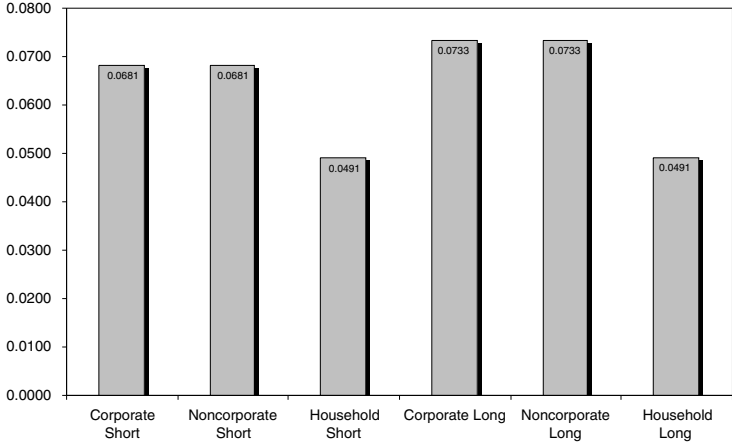
A-10 Chart 6
Social Rates of Return
No Interasset and Intersector Wedges: All Assets, All Sectors



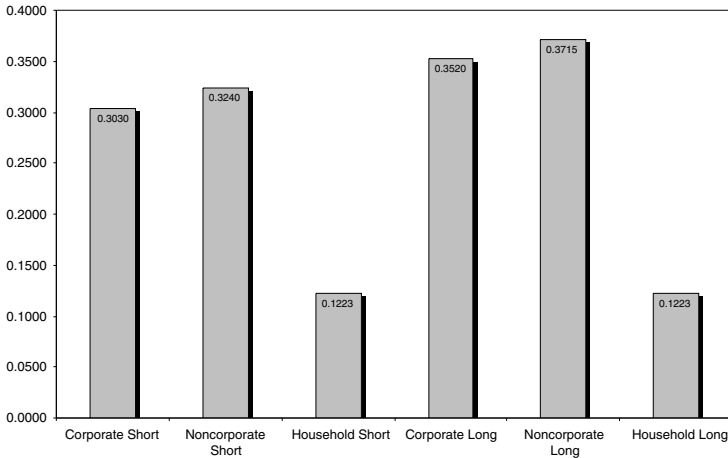
A-10 Chart 6 ETR
Effective Tax Rates
No Interasset and Intersector Wedges: All Assets, All Sectors



A-10 Chart 7
Social Rates of Return
Corporate Tax Integration



A-10 Chart 7 ETR
Effective Tax Rates
Corporate Tax Integration



지방재정의 현황과 정책과제

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(연구위원, 한국조세연구원)

<요약>

지방재정의 현황과 정책과제

지방정부 지출의 규모는 정부 총 지출의 50%를 넘을 정도로 크기 때문에 지방재정의 효율성과 형평성 제고는 공공부문의 생산성 제고와 직결되는 중요한 사안이다. 그런데 지방자치 출범 이후 지난 5년 동안 지방재정의 발전을 위한 다양한 방안들이 제시되어 왔음에도 불구하고 가시적인 정책변화가 일어나지는 않았다.

우리나라에서 지방재정의 발전이 어려운 가장 큰 이유는 정책 목표의 상충성에 있다. 지방재정의 효율성을 강조할 경우 시장경제에서의 경쟁력을 확보한 수도권 및 도시와, 사회간접자본과 인적자원 측면에서 열등한 위치에 놓여 있는 비수도권 및 농촌간의 격차가 더욱 벌어질 할 가능성이 있기 때문이다. 즉, 지방재정의 효율성 강화와 지역균형발전이라는 형평성 강화 정책간에 근본적인 상충관계가 존재하기 때문에 일관적인 지방재정 정책을 수립하기 어렵다.

그런데 우리나라에서 지역간 균형발전은 하나의 규범(norm)으로 정착되었고, 특히 중앙집권체제하에서 권력이 집중되어 왔던 수도권의 규모가 비정상적으로 비대해졌다는 비판을 받고 있으므로, 지방자치의 활성화를 목적으로 지역간 형평성을 위한 중앙정부의 역할을 축소하는 것은 바람직하지 않고, 최소한 현실적인 정책 대안이 될 수 없는 것으로 판단된다.

그러나 지역균형발전의 기초를 유지하면서, 지방재정의 효율성을 제고하는 방안의 모색이 완전히 불가능한 것은 아니다. 이와 같은 방향 모색을 위해서는 다음과 같은 기본 전략이 필요하다. 우선 지방자치 기능을 활성화시킬 수 있는 지역과 그렇지 못한 지역을 구분하여야 한다. 보다 구체적으로, 도시와 농촌, 수도권과 비수도를 구분함으로써 도시와 수도권 지역에서는 자치기능을 강화하고, 농촌과 비수도권 지역에 대해서는 삶의 질 향상을 위한 중앙정부의 지원이 집중되는 이원화 정책이 필요하다. 또한 도시·농촌을 구분하는 중앙정부 지원과 수도권·비수도를 구분하는 중앙정부 지원 역시 하나의 정책 수단(예를 들어 지방교부세)이 아닌 이원화된 정책 수단(지방교부세는 도시·농촌, 지방양여금은 수도권·비수도권)으로 이루어지는 것이 바람직하다.

이원화 정책의 관점에서 현 지방재정 관련 제도를 평가하면, 자치단체의 재정력과 상관없이 모든 지방자치단체에 골고루 재원을 지원하는 지방교육재정은 형평성이 크게 떨어져지고, 지방세제에서는 도시·농촌, 수도권·비수도권간의 차별화가 부분적으로만 이루어지고 있다. 또한 지방재정조정제도는 이원화 정책이 수립되어 있다고 볼 수 있으나 효과성 측면에서 개선의 여지가 많다.

지방재정의 발전을 위한 향후의 정책과제를 정리하면 다음과 같다.

지방세제

- 도시 및 수도권 지역에서의 자주재원 확충이 필요하다. 즉, 수도권에서의 지방세 부담, 특히 토지 및 재산관련세 부담의 증가는 주민들의 지방세에 대한 관심을 제고시키기 때문에 지방자치의 활성화 측면, 지역간 인구의 효율적 분산을 위한 측면에서 필요한 조치이다.
- 거의 모든 지방세 세목에 걸쳐 탄력세율을 적용하는 것은 조세수출의 가능성을 높일 뿐만 아니라 지방정부의 기간세 역할을 강화시키는 데 오히려 방해가 된다. 따라서 탄력세율 적용 대상 세목을 토지·재산 보유세, 주민세, 자동차세 등으로 한정하는 것이 바람직하다.

지방재정조정제도

- 지방교부세의 형평화 효과를 강화하기 위하여 공식을 변경할 필요가 있다. 특히 일본과 같이 지방교부세의 조정률을 기준재정 수요액에만 적용하는 방식으로 변경하여 지방교부세 재원의 형평화 효과를 강화하는 것이 바람직하다.
- 도로를 기준으로 지역균형발전을 도모하는 지방양여금 제도에 다른 부처에서 시행하고 있는 지역균형발전정책과의 연계성을 강화하는 포괄보조금을 도입하는 것이 필요하다.

지방교육재정

- 형평화 측면에서 도시·농촌, 수도권·비수도권 지역간 격차가 가장 많이 일어나는 부문이 교육인 데 반하여, 중앙정부의 교육재정 지원은 지역간 재정력 격차를 전혀 고려하지 않고 있다. 따라서 교육재정과 지방재정을 통합하여 재정력이 풍부한 지방정부는 자체재원을 통하여 교육재원을 마련하도록 유도하고, 재정력이 열악한 지역에 대하여 교육재정의 지원을 집중하는 것이 바람직하다.

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<참고문헌>

I. 서론

- 지방정부가 담당하는 공공지출의 규모는 정부 총 지출의 50%를 넘을 정도로 크기 때문에 지방재정의 효율성과 형평성 제고는 공공부문의 생산성 제고와 직결되는 중요한 사안임.
- 지방자치가 출범한 이래 지난 5년 동안 지방재정과 지방자치의 발전을 위한 다양한 방안들이 제시되어 왔는데, 지방행정이나 지방재정 측면에서 가시적인 정책변화가 일어나지는 않았음.
- 지방자치제도의 가시적 변화가 일어나지 않는 첫 번째 이유는 지방자치의 기본 방향에 대한 국가 전체적인 입장을 명확하게 수립하기가 어렵기 때문인 것으로 보임.
 - 지방자치 선진국과는 달리 우리나라에서는 오랜 세월 동안 중앙집권적 체제 하에서 지방행정과 지방재정이 관리되어 왔기 때문에, 지방행정과 지방재정 측면에서 지방정부의 독자적인 행위가 무엇이고, 왜 필요한가가 명확하게 제시되지 않은 상태임.
 - 지방자치의 가장 큰 특징은 공공부문에서 작은 단위의 의사 결정을 활성화시키는 것이기 때문에 지방자치는 ‘시장기능의 강화’와 동질적인 성격을 지니고 있음. 즉, 지방자치의 활성화는 본질적으로 시장경제에서의 경쟁력을 확보한 수도권과, 사회간접자본과 인적자원 측면에서 열등한 위치에 놓여 있는 비수도권간의 격차를 더욱 크게 할 속성을 지니고 있음. 지방자치의 강화와 수도권정책은 본질적으로 상충된 성격을 지니고 있기 때문에 일관된 지방자치 정책의 수립이 어려운 실정임.
- 지방자치제도의 변화가 어려운 두 번째 이유는 제도의 변화가 왜 필요한가에 대한 이유가 명확하지 않기 때문임.
 - 지방자치의 장점은 ‘풀뿌리 민주주의’로 흔히 표현되기 때문에 오랜 세월 동안 비민주적 권력구조 속에 살아 온 우리나라 국민들에게는 지방자치가 인권 신장을 위한 가장 효과적인 수단으로 인식되어 왔음. 즉, 지방자치는 정치적 측면에서 권력의 분산이라는 매우 중요한 기능을 수행하고 있음.

- 이러한 측면에서는 지방자치단체의 장을 직접선거로 뽑는 것으로 지방자치의 순기능이 상당 부분 발휘된 것으로 볼 수가 있을 것임.
 - 민주적 권력구조가 어느 정도 자리 잡힌 현 상황에서 ‘풀뿌리 민주주의’의 필요성은 그만큼 줄어들었고, 이제 경제 측면에서 지방자치의 역할이 주로 강조되고 있음.
 - 그러나, 어떠한 지방자치제도가 경제측면에서 바람직한가에 대한 명확한 답을 제시하기 어려운 실정임. 우리나라의 지방자치제도는 경제 효율성 측면에서 개선되어야 할 여지를 많이 보이고 있지만 경제 형평성(지역간 형평성) 측면에서는 상당히 안정적인 체제가 정착되어 있기 때문임.
- 우리나라에서 지역간 형평성은 하나의 규범(norm)으로 정착되었고, 특히 비민주적 권력구조하에서 권력이 집중된 수도권이 비정상적으로 비대해졌다는 비판을 받고 있는 바, 지방자치의 활성화를 목적으로 지역간 형평성을 위한 중앙정부의 역할을 축소하는 것은 바람직하지 않고, 최소한 현실적인 정책 대안이 될 수 없는 것으로 판단됨.
- 우리나라와 성격이 유사한 일본의 경우, 지난 5년간 대대적인 지방분권 추진을 위한 연구가 진행되었지만, 지방소비세를 도입한 것 이외에는 지방재정의 구조를 가시적으로 변화시키는 안은 마련되지 않았음. (일본의 지방소비세는 부가가치세를 중앙정부와 지방정부가 공식에 의하여 나누어 갖는 독일의 공동세적 특징을 지니고 있는 바, 지방자치의 기능을 활성화시키는 방안이라 평가하기는 힘들.)
- 이러한 관점에서 보았을 때, 우리나라 지방자치제도의 발전을 위한 정책 대안으로 형평성과 효율성의 균형을 어느 한 쪽으로 기울게 하는 방식을 모색하기는 힘들 것으로 보임.
- 그러나, 지역간 형평화 정책의 기초를 유지하면서, 효율성을 제고할 수 있는 대안을 모색하는 것이 불가능하다고 생각되지는 않음.
- 지방재정의 형평성과 효율성을 동시에 제고하기 위해서는 지방자치 기능을 활성화시킬 수 있는 지역과 그렇지 못한 지역을 구분하는 것이 필요할 것임.
 - 보다 구체적으로, 도시와 농촌, 수도권과 비수도권을 구분함으로써 도시와 수도권 지역에서는 자치기능을 강화하고, 농촌과 비수도권 지역에 대해서는 삶의 질 향상

- 을 위한 중앙정부의 지원이 집중되는 이원화 정책이 필요하다고 봄.
- 국고보조금은 예산의 편성과 집행 면에서 재원의 효율성을 제고시킬 수 있는 여지를 많이 가지고 있음.
- 우리나라 지방재정의 구조를 보면, 지방교육재정과 지방세계 측면에서는 이원화가 이루어지지 않고 있음. 지방재정조정제도 측면에서는 일단 이원화 정책이 수립되어 있다고 볼 수 있으나 효과성 측면에서 개선의 여지가 많이 있고, 또한 운영상의 효율성 제고가 필요함.
- 지방세계 측면에서 도시 및 수도권 지역에서의 지방세 부담의 증가가 필요하다고 봄. 도시 및 수도권에서의 지방세 부담, 특히 토지 및 재산 관련세 부담의 증가는 지역간 인구의 효율적 분산을 위하여 필요하기 때문임.
 - 지방교육재정 측면에서 도시 및 수도권 지역에서의 교육재정 부담의 증가가 필요하다고 봄. 형평화 측면에서 도시·농촌, 수도권·비수도권 지역간 서비스 격차가 가장 많은 일어나는 부문이 교육인데 반하여 현재 중앙정부의 교육재정 지원은 이러한 지역간 격차를 전혀 고려하지 않고 있음.
 - 지방재정조정제도에서 도시·농촌간 격차는 지방교부세가 맡고 있고, 전국적 균형개발은 지방양여금이 맡고 있음. 그러나, 지방교부세의 형평화 효과가 떨어지고 또한 지방양여금은 도로 위주로 지역간 형평화 정책을 펴고 있는 바 이 역시 효과성이 떨어지고 있음.
 - 국고보조금의 성격 재분류를 통하여 국가적인 차원에서 미시적 관리가 필요한 지원 대상을 선별할 필요가 있음.
- 이러한 시각을 바탕으로 본고에서는 다음과 같은 정책 과제들을 검토하고 있음.
- 첫째, 지방세 중 탄력세율의 강화가 필요한 세목을 3~4(토지·재산 보유세, 주민세, 자동차세)개로 한정, 도시 및 수도권에서의 지방세 부담의 증가를 유도.
 - 교육재정과 지방재정을 통합, 재정력이 풍부한 지방정부는 자체재원을 통하여 교육재원을 마련토록 유도하고, 재정력이 열악한 지역에 대하여 교육재정의 지원을 집중.
 - 지방교부세의 형평화 효과를 강화하기 위하여 공식을 변경. 특히 일본과 같이 지방교부세의 조정율을 기준재정수요액의 일정 비율로 변경하여 형평화 효과를 강화.

- 도로 위주의 지역균형발전 정책 수단인 지방양여금 제도를 개편하여 타 부처의 지역균형발전 정책과의 연계성을 강화하는 포괄보조금의 도입.
- 세분화되어 있는 국고보조금을 객관적 지표를 근거로 하는 포괄보조금 또는 항목간 지출 전용의 유연성을 높이는 통합보조금으로의 전환이 필요함. 동시에 지방정부의 지출 투명성을 제고하고, 지출의 효과성을 높이도록 중앙정부의 감독 기능도 선진화할 필요가 있음.

- 본고의 진행은 다음과 같음.

- II에서 지방재정과 관련된 주요 현황을 살펴 봄. 구체적으로 지방세제, 지방재정조정제도, 교육재정, 수도권 정책 등의 현황을 II에서 살펴볼 것임. III에서는 우리나라 지방재정의 주요 현안과 관련한 외국제도를 간략하게 살펴 봄. IV에서는 이상에서 언급된 정책 과제를 개별적으로 살펴보고자 함.

II. 지방제정의 현황

1. 지방세제

가. 지방세제의 골격

- 지방세는 16개의 세목으로 구성되어 있음.
 - 작년까지 15개 세목으로 되어 있었으나 2000년부터 지방주행세가 도입되었음.
 - 지방세에서 가장 큰 세수 비중을 차지하는 세목은 등록세로 1999년 전체 지방세 세수 18조 5,000억에서 23.3%를 차지하였음. 다음으로 높은 비중을 차지하는 것은 취득세로 16.5%를 차지함.
 - 취득·등록세 다음으로 높은 비중을 차지하는 세목들은 주민세(13.7%), 담배소비세(11.2%), 자동차세(10.4%) 등임.
 - 재산보유세인 종합토지세, 재산세, 도시계획세, 공동시설세 등의 비중은 모두 합쳐 16.2% 정도의 비중을 차지함.
- 1999년 기준 국세 세입은 75조 6,000억으로 국세와 지방세의 비중은 약 8:2 정도임. 이와 같은 추세는 지난 10년 동안 거의 비슷하게 유지되어 왔음.

나. 지방세제의 특징

- 우리나라 지방세제의 가장 큰 특징은 지방세의 세율이 전국적으로 거의 같다는 것임.
 - 지방세의 세율이 전국적으로 같은 이유는 중앙정부가 지방세 세목의 과표와 세율을 정하기 때문이라는 주장이 제기됨. 그러나,
 - 지방정부의 지방세 세율 결정권은 상당히 폭 넓게 인정되고 있는 편인데, 15개 세목 중 12개 세목에 대한 실효세율의 결정권이 지방정부에 있음.
 - 지방세에 대한 탄력세율의 적용 대상 및 범위는 중요한 의미를 지니므로 <표 II-1>에 그 내용을 요약하였음.

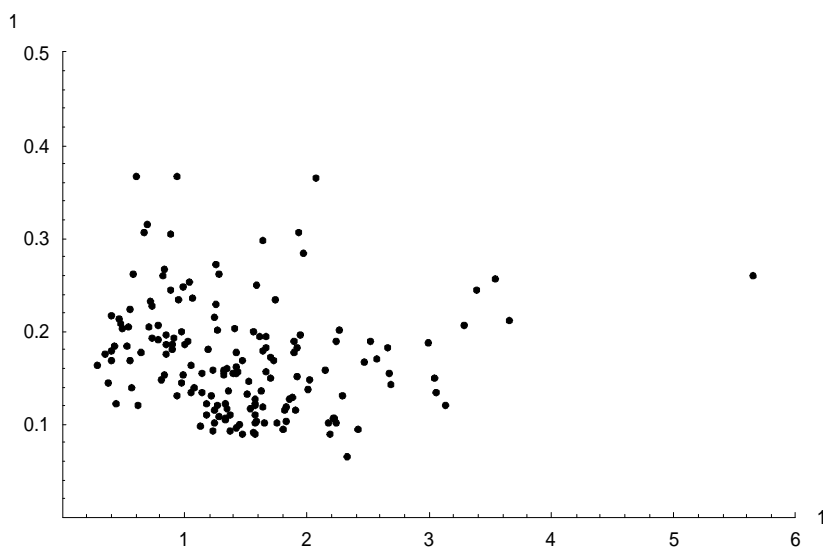
<표 II-2> 지방정부의 지방세 세율 결정 권한

세 목	탄 력 세 율	도입연도
취득세	과표: 개별공시지가에 대통령령이 정하는 바에 의하여 자치단체의 장이 결정고시한 과세표준액 적용 비율을 곱하여 산정(지방세법 제111조 제2항 1목) 세율: 표준세율의 50% 범위 안에서 가감(지방세법 제112조 제6항)	97.8.30
등록세	과표: 개별공시지가에 대통령령이 정하는 바에 의하여 자치단체의 장이 결정고시한 과세표준액 적용 비율을 곱하여 산정(지방세법 제130조 제2항) 세율: 표준세율의 50% 범위 안에서 가감(지방세법 제131조 제5항)	97.8.30
주민세	개인균등할: 10,000원을 초과하지 아니하는 범위(지방세법 제176조 제1항) 소득할: 표준세율의 50% 범위 안에서 가감(지방세법 제176조 3항)	95.12.6 79.12.28
재산세	표준세율의 50% 범위 안에서 가감(지방세법 제188조 제6항)	97.8.30
자동차세	표준세율의 50%까지 초과(지방세법 제196조의5 제3항)	91.12.14
담배소비세	표준세율의 30% 범위 안에서 가감(지방세법 제229조 제3항)	88.12.26
도축세	1% 이하(지방세법 제234조의2 제3항)	88.4.6
종합토지세	과표: 개별공시지가에 대통령령이 정하는 바에 의하여 자치단체의 장이 결정고시한 과세표준액 적용 비율을 곱하여 산정한 가액(지방세법 제234조의 15 제5항)	95.12.6
도시계획세	가액의 3% 이하에서 세율 조정(지방세법 제237조 제2항)	88.4.6
공동시설세	가액의 1% 이하에서 세율 조정(지방세법 제240조 3항)	88.4.6
사업소세	표준세율 이하로 세율 조정(지방세법 제248조 제2항)	88.4.6
지역개발세	표준세율의 50%에서 가감(지방세법 제257조 제2항)	91.12.14

주: 마권세, 면허세, 농지세에는 탄력세율이 적용되지 않음.

- 지방세제의 두 번째 특징은 지방정부의 지출에 있어서 지방세가 차지하는 역할이 크지 않다는 것임.
- 1인당 세출이 높은 지역은 1인당 지방세가 높고, 1인당 세출이 낮은 지역은 1인당 지방세가 낮은 것이 일반적으로 우리가 예측하는 관계이지만, [그림 II-1]에서 확인할 수 있는 바와 같이 전국적으로 1인당 세출과 1인당 지방세는 거의 무관함.

[그림 II-1] 1인당 세출과 1인당 지방세의 관계(1998, 시·군)
(단위: 백만원)



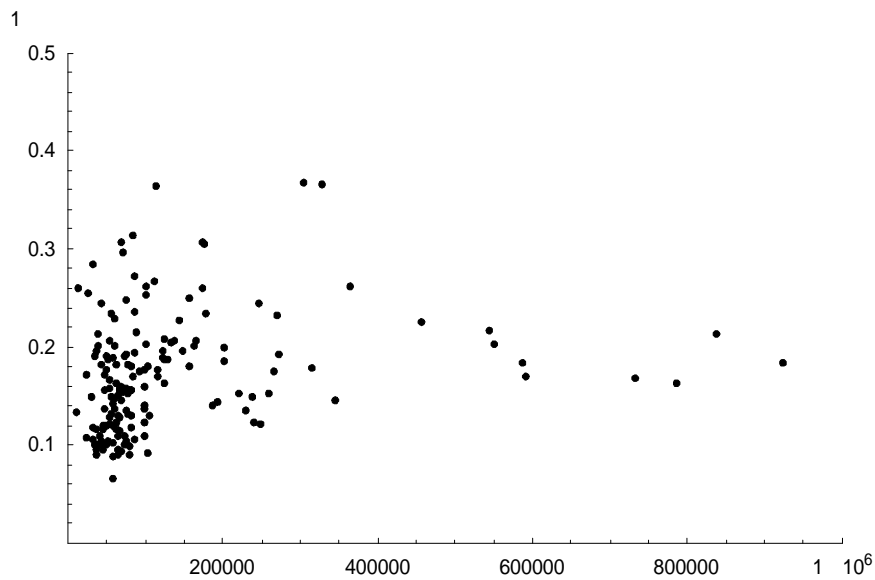
- 위 그림은 지방정부가 세출을 한계적으로 늘릴 때 추가적인 부담이 지방세를 통해서 이루어지지 않고 있음을 시사함. 즉, 지방정부가 세출을 추가적으로 늘릴 때는 그 재원이 중앙정부의 지원을 통하여 마련되고 있음.
- [그림 II-1]과 같은 결과는 지방세의 세율이 전국적으로 동일하기 때문에 발생한다고 볼 수 있겠으나 반드시 그렇지는 않음. 1인당 과표가 인구에 비례하여 증가할 경우(과표의 인구 탄력성이 1보다 클 경우) 동일한 세율을 유지하더라도 1인당 지방세 수입이 인구 규모에 따라서 증가할 것임.

- 그러나 [그림 II-2]는 이러한 가설이 데이터에 의하여 뒷받침되지 않음을 보여주고 있음.

- 인구가 40만명 이상인 시의 경우 인구 증가와 상관 없이 1인당 지방세는 일정액(약 20만원)을 유지함. 인구 40만명 이하의 시·군에서는 1인당 지방세가 인구 규모와 상관 없이 10만원 이하에서 40만원까지 다양한 분포를 보이고 있음.

[그림 II-2] 인구와 1인당 지방세의 관계(1998, 시·군)

(단위: 백만원, 명)

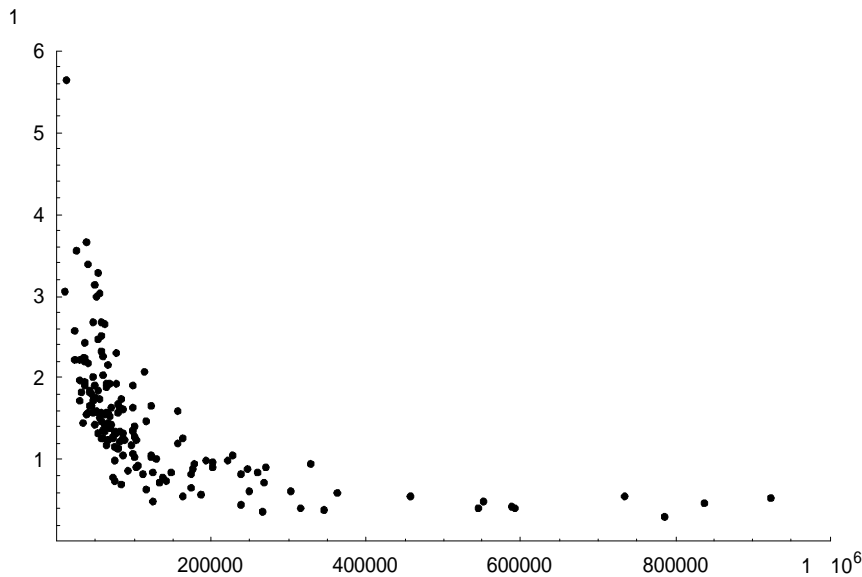


- [그림 II-1]처럼 1인당 지방세와 1인당 세출간의 상관 관계가 낮고, [그림 II-2]처럼 1인당 지방세와 인구간의 상관 관계가 낮다면, 1인당 세출과 인구간의 상관 관계도 낮아야 하겠지만, 양자간에는 매우 밀접한 상관 관계가 있음.

- [그림 II-3]에서 인구가 감소할수록 1인당 세출은 뚜렷하게 증가하는 것을 확인할 수 있음.

[그림 II-3] 인구와 1인당 세출의 관계(1998, 시·군)

(단위: 백만원, 명)



- [그림 II-3]은 우리나라 지방재정의 운영과 관련하여 매우 중요한 정보를 담고 있음.
 - 쓰레기 수거, 마을 도서관, 치안 등과 같은 전형적인 지방공공재는 총비용이 인구수에 비례하는 경우가 많음. 즉, 1인당 지방세의 규모가 전국적으로 동일한 경우 전국적으로 거의 동일한 수준의 지방공공재를 보장할 수 있음.
 - 따라서 만약 중앙정부가 전국적으로 균등한 수준의 지방공공재 공급을 원한다면 (national minimum) 1인당 지방세가 평균보다 낮은 지역에 이전재원을 지원하고 1인당 지방세의 부담이 평균보다 높은 지역에는 상한선(capping)을 정하는 것이 타당할 것임.
 - 영국이 이러한 방식으로 지방재정을 운용하고 있음.
- 그러나 우리나라에서는 인구가 적을수록 1인당 세출이 증가하도록 이전재원제도를 운영하고 있음. 이는
 - 우리나라의 지방공공재가 순수공공재적 성격을 띠어서 공공재 공급의 고정비용이 높고 한계비용이 낮다는 점을 시사하는 것일 수 있고, 또는

- 인구가 적은 지역의 지방공공재 사용량과 상관없이 그 공급을 증가시켜서 균형발전 차원에서 지역의 경제적 가치를 높이고자 하기 때문일 수 있음.
- 이용자가 거의 없는 농어촌도로의 개설, 이용자가 적은 문화회관, 체육관의 건립 등이 한 예임.

2. 지방재정조정제도

가. 개관

- 행정자치부가 발간하는 2000년 「지방자치단체예산개요」에 따르면 일반회계의 세입이 40조 5,000억, 특별회계의 세입이 14조 9,000억임.
- 일반재원에서 의존재원의 비중은 39.8%. 의존재원 중에서 지방교부세의 비중이 17.5%이고 국고보조금의 비중은 14%.
- 지방세 세수가 일반재원에서 차지하는 비중은 45.7%로 가장 높고, 세외수입은 13.6%임.

<표 II-2> 지방정부의 세입(일반회계, 2000년)

(단위: 10억원, %)

의존재원(39.8)			자체재원(59.3)과 채무(0.8)		
지방교부세	지방양여금	국고보조금	지방세	세외수입	지방채
7,090(17.5)	3,352(8.3)	5,685(14.0)	18,520(45.7)	5,528(13.6)	331(0.8)

자료: 「지방자치단체 예산개요」 행정자치부, 2000년.

- 지방정부의 특별회계에는 세외수입이 세입의 절대적 비중을 차지함. 그러나, 국고보조금도 1조 6천억(2000년 예산)으로 큰 액수임.
- 「지방자치단체 예산개요」에는 지방자치단체의 특별회계에 대한 자세한 내역이 없기 때문에 특별회계 국고보조금의 구체적 용도는 미확인됨. 세출 보고서를 바탕으로 판단할 때, 지방자치단체를 통한 개인보조가 큰 비중을 차지하는 것으로 추측됨.

<표 II-3> 지방정부의 세입(특별회계, 2000년)

(단위: 10억원, %)

의존재원(11.4)			자체재원(72.9)과 채무(15.8)		
지방교부세	지방양여금	국고보조금	지방세	세외수입	지방채
-	40(0.03)	16,986(11.4)	-	109,023(72.9)	23,582(15.8)

자료: 「지방자치단체 예산개요」 행정자치부, 2000년.

나. 지방교부세

- 지방교부세는 다음과 같은 공식에 따라 지방정부에 배분됨.

○ 지방교부세 = 조정율 × (기준재정수요액 - 0.8 × 지방세 수입).

· 조정율은 2000년 기준 약 0.9.

· 기준재정수입액은 인구, 공무원수, 가구수, 면적, 도로 등과 같은 지수를 바탕으로 계산됨.

· 지방세 수입은 보통세와 목적세 수입을 포함. 탄력세율의 적용 또는 과표현실화율의 변동에 따른 실효세율의 변동이 있을 때에는 평균실효세율 적용(주민세, 종합토지세).

- 우리나라 지방교부세 배분 공식은 일반교부금의 비중이 큰 일본이나 영국과 비교할 때 약간씩 다른 특징을 가지고 있음.

○ 일본의 경우 조정율은 기준재정수요액에만 적용됨.

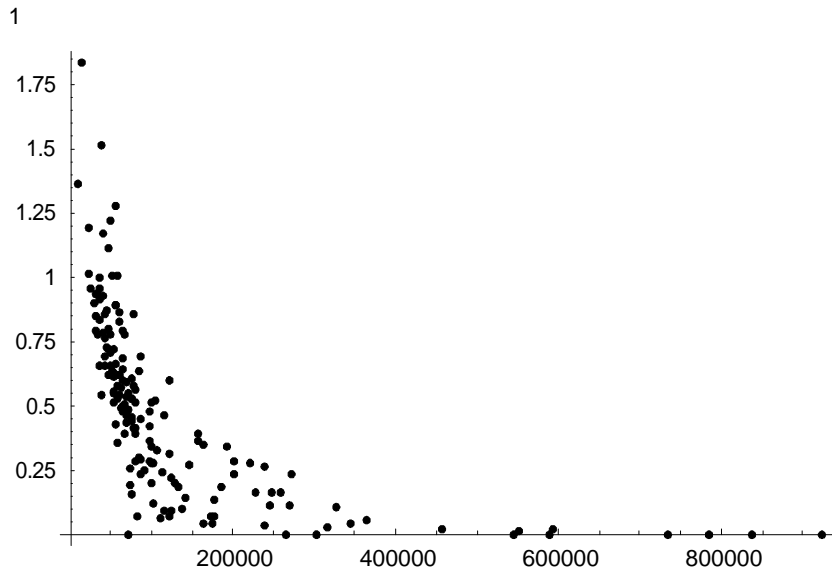
· 조정율을 기준재정수입액에도 적용하는 한국의 경우 지방세 수입이 많이 지방정부에게 유리. 즉 일본 방식에 비하여 한국 방식은 지방세 수입이 상대적으로 적은 지방정부에게 불리하고 따라서 형평화 효과가 일본보다 떨어짐.

○ 영국의 경우 한국, 일본과는 달리 지방세수입 전액이 기준재정수입액으로 계산됨. 따라서 한국, 일본에 비하여 영국 일반보조금의 형평화 효과가 더 큼.

- 우리나라 지방교부세 배분 공식의 가장 큰 특징은 1인당 교부세의 규모가 인구에 뚜렷하게 역비례한다는 것임. 이는 지방정부의 지출이 의존재원에 의하여 결정되고, 1인당 세출이 인구에 역비례한다는 점에서 추론할 수 있음. 영국의 경우 1인당 형평화 보조금(RSG)은 인구와 상관없이 거의 일정함([그림 II-5])

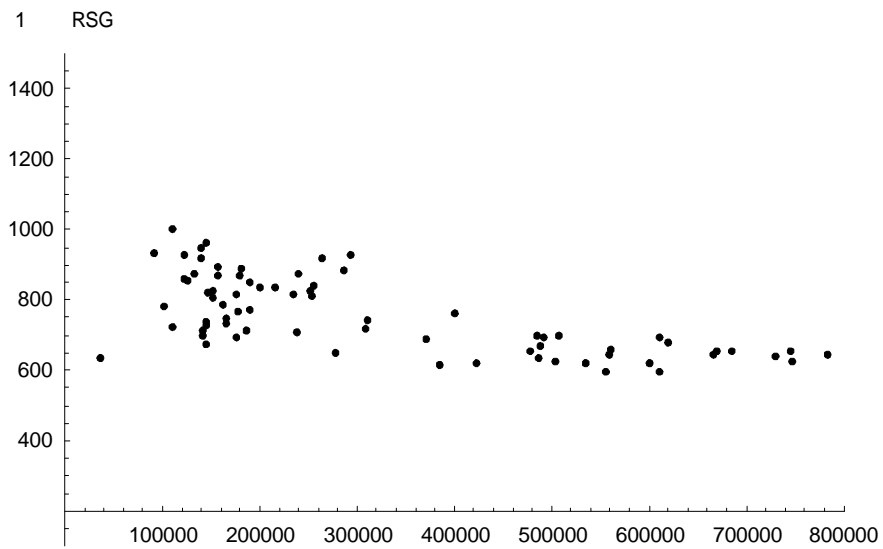
[그림 II-4] 한국의 인구와 1인당 교부세와의 관계(1998, 시·군)

(단위: 백만원, 명)



[그림 II-5] 영국의 인구와 1인당 RSG와의 관계(1999, All purpose authorities)

(단위: £, 명)



다. 지방양여금

- 지방양여금은 주세·전화세 및 농어촌특별세 19/150를 재원으로 5개의 지방 사업을 지원하는 이전재원으로 2000년 예산은 3조 6,710억원. 항목별 지출 비중을 보면 도로사업이 1조 7,800억원, 수질오염방지사업이 9,317억원, 지역개발이 6,278억원, 농어촌개발이 3,050원, 청소년육성이 265억원임.

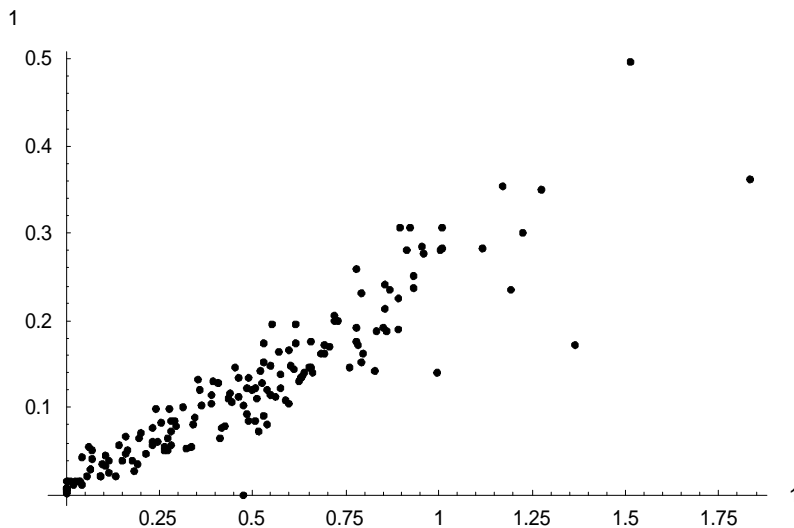
<표 II-4> 지방양여금의 항목별 규모(2000년, 억원)

도로사업	수질오염	청소년육성	농어촌개발	지역개발
광역시도 3,008	9,317	265	정주권개발 2,013 오지개발 1,027	6,278
지방도 3,342				
군도 3,008				
농어촌도로 3,596				
시의국도 2,507				

- 지방양여금은 다양한 공식 및 심사에 의하여 배분되지만, 1인당 지방양여금의 궁극적인 분포는 1인당 지방교부세와 유사함.

[그림 II-6] 1인당 교부세와 1인당 양여금의 관계(1998, 시·군)

(단위: 백만원, 명)



주: 1인당 양여금 = 0.0071 + 0.236×1인당 교부세 ($R^2 = 0.85$).

- 168개의 시·군 자료를 이용하여 1인당 지방양여금을 1인당 지방교부세로 설명하였을 때의 설명력은 0.85인데, 양자간의 관계가 약한 7~8개의 지방정부를 제외할 경우 설명력은 0.9 이상임.
- 지방양여금의 목적은 지방양여금법 제1조에 명시되어 있는데, 그 내용은 다음과 같음.
 - “국세수입의 일부를 지방자치단체에 양여하여 지방자치단체의 재정기반을 확충하고 도로정비사업 등을 추진함으로써 지역간의 균형있는 발전을 도모함을 목적으로 한다”.
- 지방양여금의 목적이 지역간의 균형발전이기 때문에 지방정부의 일반경비를 보전하는 지방교부세와는 달리 균형발전에 필요한 간접자본, 즉 도로 및 지역개발 사업을 지원하고 있음.
 - 그러나 지역균형 발전을 위한 재원이 현재의 지방양여금 형태로 활용되는 것이 가장 바람직한가에 대하여 의문을 제기할 수 있음.
- 지방양여금은 지방교부세처럼 인구에 크게 역비례하도록 배분하고 있기 때문에 현재의 지역균형발전 정책은 소규모 지역에 보다 많은 재원을 지원하는 정책이라고 평가할 수 있음.
 - 소규모 지역의 인구 흡인력을 제고하는 것은 한계가 있기 때문에 중간 규모의 거점 도시 중점의 지역균형발전 전략이 필요할 것이고, 이는 건교부에서 추진하는 지역균형발전 정책의 기초이기도 함.
 - 결론적으로, 각 부처별로 분산되어 있는 지역균형발전 정책의 상호 연계성을 제고하는 방향으로 지방양여금 제도의 개편 방안이 모색되어야 할 것임.

라. 국고보조금

- 국고보조금의 2000년 예산 규모는 8조원에 육박할 정도로 지방재정에서 큰 비중을 차지하고 있음.
 - 또한 국고보조금은 1995년부터 2000년까지 5년 동안 규모가 2배 가량 증가할 정도로 빠른 성장세를 보이고 있음.
- 국고보조금이 이처럼 지방자치가 실시된 이후 급증하는 추세를 보이고 있는 이유로는 다음과 같은 것들을 생각해 볼 수 있음.
 - 가설 1: 독립적 권한을 획득한 지방정부가 지역적 이해만을 고려하는 성향이 두드러진 바, 국가적 목표의 달성을 위하여 국고보조금의 역할이 더욱 강화되었음(경제이론적 해석).
 - 가설 2: 지방자치단체장의 정치적 힘이 증대, 중앙정부에 대한 로비가 확대되고, 그 결과 임의성이 큰 국고보조금의 규모가 증가하였음(정치경제적 해석).
 - 가설 3: 지방자치로 인하여 중앙정부의 역할이 축소된 상황에서, 임의적 결정을 통한 중앙부처의 재정적 권한을 유지하기 위하여 국고보조금이 확대되고 있음(정치경제적 해석).
- 최근 국고보조금이 확대되는 이유로 가설1보다 가설2와 가설3이 보다 설득력이 있는 것으로 생각되는데, 그 이유로는,
 - 국고보조금의 구체적 내용을 보면, 국가적 이해의 조정을 위한 사업보다는 지역사업(중앙 정부 지원 근거가 희박한 사업)이 국고보조금에 많이 포함되어 있음.
 - 포괄적 재원 조치가 가능한 경우에도 세부 심사를 거친 후 국고보조금을 지원하는 방식이 적용되고 있음.
 - 국가의 정책목표 달성을 위해서는 보조금의 사전 심사보다는 사후 관리를 위한 행정인력의 재배치가 필요함. 그러나 사후 관리를 위한 지수 개발과 감사 기능 향상을 위한 노력은 아직 미미한 실정임.

3. 지방교육재정

가. 현황

- 교육재정은 중앙정부 지원, 자치단체 전입금, 자체수입으로 분류되는데, 중앙정부 지원은 지방교육재정교부금, 지방교육양여금, 교육환경개선, 재정융자로 구성됨.
 - 지방교육재정교부금은 일반회계에서 지원되는데, 「지방교육재정교부금법」은 교부금의 재원을 봉급과 각종 수당, 내국세의 11.8%(2001년부터 13%), 그리고 증액교부금으로 규정하고 있음.
 - 지방교육양여금과 교육환경개선은 특별회계에서 관리되는데, 교육세 세수에서 7,000억이 교육환경개선특별회계의 재원이고 나머지는 인구비례로 지방자치단체에 배분됨.
 - 재정융자는 교원의 명예퇴직 수당, 학교 신설을 위한 지원, 소규모 학교 교육 여건 개선 등을 위하여 재정융자특별회계에서 융자하여 지방자치단체에 지원.
- 자치단체 전입금은 중등교원 봉급 전입금, 담배소비세 전입금, 시·도세 전입금, 기타 전입금으로 구성됨.
 - 중등교원 봉급 전입금은 서울(100%)과 부산(50%)의 일반재원에서 교육비특별회계로 지원되는 전입금임. 2001년부터는 광역시와 경기도에서도 중등교원 봉급의 10%를 교육비특별회계로 전입할 예정임.
 - 담배소비세 전입금은 서울시와 광역시의 경우 담배소비세 수입의 45%를 교육비특별회계로 전입.
 - 지방교부세의 산정시 서울시와 광역시 담배소비세 수입의 45%는 기준재정수요액으로 보정함.
 - 시·도세 수입의 2.6%는 교육비특별회계로 전입되는데, 2001년부터는 3.6%로 증가될 예정임.
 - 시·도세 전입금도 지방교부세의 기준재정수요액 산정시 보정.
 - 자체수입은 납입금과 이월금 등으로 구성됨.
 - 자체수입은 입학금, 수업료 등이 대부분을 차지

- 2000년 예산 기준 지방교육재정의 총 규모는 19조원인데, 중앙정부의 지원이 16조로 교육재정의 84%를 차지하고, 자치단체 전입금이 1.1조(5.8%), 자체수입이 1.9조(10%)를 차지함.

<표 II-5> 지방교육재정 자원

(단위: 조원, %)

	1999		2000	
	금 액	구성비	금 액	구성비
중앙지원	14.9	82.3	16.0	84.2
교육교부금	8.6	47.5	9.1	47.9
교육양여금	4.7	26.0	5.2	27.4
교육환경개선	0.7	3.9	0.7	3.7
재정용자	0.9	5.0	1.0	5.3
자치단체 전입금	1.1	6.1	1.1	5.8
자체수입	2.1	11.6	1.9	10.0
계	18.1	100.0	19.0	100.0

나. 특징

- 지방교육재정의 가장 큰 특징은 배분 규모를 결정함에 있어서 지방정부의 재정력이 거의 반영되지 않는다는 점임.
 - 교육양여금은 인구수에 따라 배분되고, 지방교육재정교부금은 지방교부세와 마찬가지로 '기준재정수요액 - 기준재정수입액'의 공식에 의하여 결정되는데, 기준재정수입액에는 교육양여금, 법정전입금, 기초자치단체 전입금, 수업료·입학금을 합한 것임. 즉, 지방정부의 세입(지방세, 세외수입)은 교육교부금을 교부할 때 고려되지 않음.
 - 지방자치단체 전입금에 한하여 지방정부의 재정력이 반영된다고 볼 수도 있으나, 이는 다시 지방교부세를 산정할 때 보정하므로 그 효과는 미미함.
- 이와 같은 구조는 이전재원의 비중이 높은 일본이나 영국과는 대비되는 것인데, 이 국가는 일반보조금의 산정시 교육을 하나의 측정항목으로 포함하고 있음.

4. 지역균형발전 정책

가. 현황

- 지역균형발전 정책은 저소득 지방에 대한 지원 정책이라고 보았을 때 지방조정제도가 지역균형발전 정책의 대표적인 정책 수단이라고 볼 수 있음. 그러나, '수도권 정책'이라고 불리는 지역균형발전 정책은 기업과 인구의 지방 분산이라는 좀 더 구체적인 정책 목표를 설정하고 있음.
 - 수도권 정책에 영향을 주는 법안은 수도권정비계획법, 공장배치법, 산업입지법, 조세감면규제법, 지방세법 등 다양한데, 물리적으로 기업의 수도권 입지를 제한하는 유형과 감면 또는 중과세와 같이 경제적 유인을 통하여 기업의 수도권 입지를 제한하는 유형으로 나뉨.
- 수도권 정책이 왜 필요한가에 대해서는 여러 가지 논란이 있지만¹⁾, 중앙집권체제 하에서 수도권에 비정상적으로 비대해졌다는 것이 그 이유 중에 하나임. Ades and Glaeser(1995)에 의하면 정치 형태가 비민주적일수록 수도권의 비대화 경향이 강함.

<표 II-6> 정치 형태와 도시집중도와와의 관계

안정적 민주국가 도시 집중도 = 0.23 (국가 수 = 24)	안정적 독재국가 도시 집중도 = 0.3 (국가 수 = 16)
불안정적 민주국가 도시 집중도 = 0.35 (국가 수 = 6)	불안정적 독재국가 도시 집중도 = 0.37 (국가 수 = 39)

자료: Ades and Glaeser(1995).

나. 특징

- 지역균형발전 정책(수도권 정책)의 특징은 각종 규제, 지방이전 감면, 수도권 중과 정책이 또 하나의 지역균형발전 정책인 지방재정조정제도와는 별도로 수립, 집행된다는 점임.

1) 보다 자세한 내용은 김정훈(2000) 참고.

- 지역균형발전 정책은 현재 「국민경제자문회의」 산하 「지역균형발전기획단」에서 총괄을 맡고 있긴 하지만 주무 부처는 건교부라고 볼 수 있음. 반면 지방재정조정제도는 행정자치부가 관장하고 있기 때문에 양자간의 연계성을 강화하는 데에는 제도적인 한계가 있음.
- 지역균형발전 정책이 다양한 경로를 통하여 수립되기 때문에 다음과 같은 문제점들을 가지고 있음.
 - 첫째, 상호 상충적인 정책이 각 부처별로 입안, 집행되기 쉬움.
 - 외국인 투자 유치를 위한 수도권외의 경제성 강화라는 정책과 수도권 중과 정책이 동시에 펼쳐짐. 결국 첨단 기술 산업, 통신과 같이 국가 경쟁력이 중요하다고 인식되는 산업의 경우 예외 규정을 통하여 수도권 입지를 허락하게 되는데, 이로 인하여 국내 자본의 생산 입지 선택이 왜곡되는 결과를 가져옴.
 - 둘째, 인구 분산 효과가 미미하여 불필요한 제도와 지역 균형 발전 측면에서 필요한 지원이 선별되지 않은 채 시행.
 - 지방 이전 기업에 대한 인센티브 부여는 인구 분산 효과가 적으면서도 자본의 효율성을 떨어뜨리는 정책임. 이러한 정책이 유지되는 이유는 지역균형발전 정책의 가장 큰 요소인 지방재정조정제도가 지역균형발전 정책으로서 인식되지 않기 때문임. 지역균형발전 정책이 항상 부족하다는 인식으로 인하여 각종 감면 및 중과세 정책이 유지됨.
- 수도권으로의 인구 이동을 억제하기 위한 가장 바람직한 방법은 수도권에서의 재정잉여(fiscal surplus)를 제거하는 것이고 따라서 수도권으로의 인구집중을 억제하기 위해서는 수도권에서의 거주 비용을 높이고(지방세 부담을 높이고), 지방의 인프라 투자를 강화하는 것이 바람직함.
 - 수도권 집중과 지방세 강화에 대한 논의는 Wildasin(1986)의 교과서로부터 추론할 수 있고, 보다 구체적인 논의는 Ithori(1998)에서 찾아 볼 수 있음.
- 최근에는 한 지역의 재정잉여로 인한 인구 이동을 지역간의 이전재원을 통하여 억제할 경우 파레토 개선이 가능하다는 연구들도 제시되고 있음²⁾.

2) Myers and Papageogiou (1993), Fernandez and Rogerson (1996), Bjorvatn (1998) 등 참고.

- 따라서, 지역균형발전 정책 역시 지방재정조정제도와 연계해서 하나의 틀 속에서 정책을 입안하는 것이 정책의 효과성을 제고하고 자원 배분의 효율성을 제고하는 방안이 될 것임.

Ⅲ. 외국의 지방세정

1. 지방세

- OECD 국가들에서 지방세가 조세 수입에서 차지하는 비중은 국가별로 상당한 차이를 나타냄. 최근 발간된 OECD(1999)에는 유럽 국가들의 지방세 구조를 보여주고 있는데,
 - 영국과 네덜란드의 경우 전체 조세에서 지방세가 차지하는 비중은 매우 적어서 각각 4%와 3%이고, 지방세의 비중이 높은 국가들인 스위스, 스웨덴, 그리고 덴마크에서의 지방세 비중은 각각 38%, 32%, 31%임.
 - OECD 국가들에서의 지방세 비중은 20% 내외라고 볼 수 있음.
- OECD(1999)의 자료는 지방정부의 지방세 세입 규모도 중요하지만, 지방세 세입의 결정 권한을 지방정부가 어느 정도 가지고 있는가를 파악하는 것 역시 중요함을 역설하고 있음³⁾. 이 자료에서 지방정부의 과세권을 파악하기 위하여 이용한 지표는 다음과 같음.
 - a: 지방정부가 세율과 과표 산정 권한을 가지고 있음.
 - b: 지방정부가 세율만을 결정함.
 - c: 지방정부가 과표만을 산정함.
 - d.1: 지방정부가 공동세원 규모를 결정함.
 - d.2: 지방정부의 동의 하에 공동세원 규모가 결정됨.
 - d.3: 법률에 의하여 공동세가 결정되고, 중앙정부가 일방적으로 변경 가능.
 - d.4: 공동세 규모가 매년 예산 편성 과정에서 결정.
 - e: 중앙정부가 지방세의 세율과 과표를 산정.
- OECD(1999)에 의하면 대부분의 국가에서 'd.2'의 비중이 가장 큼.
- 이 자료에 일본의 지방세가 분류되어 있는데, 시·정·촌 지방세의 94%, 도도부현 지방세의 83%가 'd.2'에 해당하는 것으로 분류되어 있음.

3) "The present study focuses on the role of taxation in determining the fiscal autonomy of sub-central governments. The study aims to classify taxes in terms of the kind of autonomy they provide to state and local governments." (p. 9)

- 반면, 林 健久(2000)는 일본에서는 지방정부가 탄력세율(초과과세)을 적용할 수 있기 때문에 형식적으로 일본 지방세가 'd.2'에 속한다고 볼 수 있으나, 지방정부가 이를 활용하지 않기 때문에 'e'에 더 가깝다는 의견을 피력함.

<표 III-1> 일본의 초과과세의 실시상황

	(1998. 4. 1 현재)	(1997년도 결산)
도도부현		
도부현민세 법인세할	46단체	1,064억엔
법인사업세	7단체	1,102억엔
계	53단체	2,166억엔
시 정 촌		
시정촌민세 개인균등할	21단체	0억엔
법인균등할	584단체	147억엔
법인세할	1,443단체	2,682억엔
고정자산세	280단체	400억엔
경자동차세	34단체	4억엔
광산세	58단체	0억엔
입양세	4단체	0억엔
계	2,424단체	3,233억엔
합 계	2,477단체	5,399억엔

자료: 林 健久(2000)

- <표 III-1>은 일본에서의 탄력세율 활용 현황을 보여주고 있는데, 거의 전부가 조세수출을 목적으로 한 법인세 관련 세목임.
- <표 III-1>에서 확인할 수 있듯이 주민 부담을 원칙으로 하는 지방세의 역할은 초과과세의 법적 보장에도 불구하고 활성화되지 않기 때문에 林 健久(2000)는 결론 부분에서 왜 개인주민세를 위시한 주요 세목의 세율 변화가 일본에는 일어나지 않는가에 의문을 제기하고 있음⁴⁾.

4) なぜ、個人住民税をはじめとする主要な税について、法文に規定があるのに、ほとんど利用されなかったのか。(林 健久: 2000, p. 9)

2. 지방재정

- 서유럽 지방정부들의 이전재원 규모는 비교적 낮으며 몇몇 국가를 제외하고는 조건부 보조금의 축소 노력을 지속적으로 전개하고 있음. 그러나 미국의 경우 주정부와 지방정부의 이전재원에 대한 의존도가 높으며, 특정보조금이 이전재원의 90%를 차지함.
 - 스웨덴, 덴마크, 핀란드, 벨기에 지방정부의 세입에서 이전재원이 차지하는 비중은 20% 이하임. 그러나 노르웨이의 이전재원 비중은 광역과 기초에서 40%에 달하고 네덜란드에서의 이전재원 비중은 80% 가까이 됨.
 - 핀란드, 벨기에 등은 특정보조금이 없음. 스웨덴, 덴마크, 네덜란드는 특정보조금의 축소를 지속적으로 추진하여 왔으나, 그 비중이 이전재원의 35%, 45%, 55% 정도를 차지하여 그다지 낮은 편은 아님.
 - 영국의 이전재원에서 특정보조금(주로 치안 보조금)의 비율이 23% 정도인데, 치안 보조금은 포괄보조금의 성격이 강하여 특정보조금의 비중은 매우 낮음.
 - 프랑스는 지방분권화를 단행하면서 대부분의 특정보조금을 일반보조금으로 전환, 특정보조금이 이전재원에서 차지하는 비중은 매우 낮음(9% 정도).
 - 일본은 이전재원에서 특정보조금(국고지출금)이 차지하는 비중이 우리나라보다 낮음. 국고지출금은 국고부담금, 위탁비, 보조금, 교부금, 보급금 등으로 구성되어 있는데, 국고지출금 중 매해 예산 심의에 의하여 결정되고, 각 중앙정부 부처의 입김이 가장 많이 작용하는 것이 국고보조금으로 국고지출금에서 차지하는 비중은 약 21%(2000년 예산)임.

<표 III-2> 외국 지방정부의 이전재원 특성

국가	인구(1,000명)	국가 형태	이전재원 비중 (지방세입에서)	특정보조금 비중 (이전재원에서)
스웨덴	8,692	단일형(2계층)	19.1%	35%
덴마크	5,270	단일형(2계층)	18%	44.4%
핀란드	5,159	단일형(1계층)	15%	포괄보조금
네덜란드	15,494	단일형(3계층)	광역(71%) 기초(83%)	광역(53.5%) 기초(56.6%)
벨기에	10,000	연방(3계층)	주정부(20%) 지방정부(14%)	포괄보조금
노르웨이	4,419	단일형(2계층)	광역(47%) 기초(37%)	광역(21%) 기초(45%)
영국	58,649	단일형(3계층)	48%	23%
프랑스	56,614	단일형(3계층)	30%	9%
이탈리아	57,190	단일형(4계층)	일반레지옹(93.3%) 특별레지옹(88.6%) 광역(75.7%) 기초(55%)	일반레지옹(92.7%) 특별레지옹(52.5%) 광역(29%) 기초(30%)
일본	124,960	단일형(2계층)	32%	43.7%

주: 일본 지방정부의 세입은 지방세(36.2%), 지방교부세(17.1%), 지방양여금(1.1%), 국고보조 부담금(14.4%), 지방채(14.1%), 기타(17.1%) 등으로 구성되어 있음.

자료: PricewaterhouseCoopers; 일본 自治省.

IV. 지방재정의 정책과제

1. 지방세제

가. 탄력세율

- 우리나라 지방세제의 가장 큰 문제점은 [그림 II-1]에 나타나 있는 바와 같이 지방세가 지방정부의 한계적 세출 증가를 지원하는 자주재원으로서의 역할을 전혀 담당하지 못하고 있다는 점임.
 - 지방정부가 세부담을 인식하지 않고 지방공공재를 제공할 경우 재원 부족 현상은 만성적으로 발생할 수밖에 없고, 이에 대한 해결책으로 중앙정부로부터의 조세 이양 또는 이전재원 증가가 끊임없이 요구되고 있음.
- 중앙정부는 이에 대한 해결책으로 탄력세율을 적용할 수 있는 세목들을 폭 넓게 인정하여 왔고, 그 결과 현재 거의 모든 지방세 세목에 탄력세율을 적용할 수 있게 되었음.
 - 그럼에도 불구하고, 탄력세율을 적극적으로 활용하는 지방정부는 관찰할 수 없고, 행정자치부의 지침에 따라 주민세 균등할 세율 및 종합토지세의 과표 만이 약간씩 조정되고 있는 상태임.
- 탄력세율과 관련된 또 한 가지 문제점은 우리와 여건이 비슷한 일본에서 <표 III-1>에 나타난 바와 같이 조세수출을 목적으로 하는 탄력세율의 활용이 본격화될 가능성이 있다는 것임.
 - 이미 1997년에 강원도에서 조세수출의 성격이 강한 지역개발세에 대한 탄력세율의 적용 사례가 있었고, 1999년에는 경기도 김포와 경상남도 김포간에 항공기 등록세에 대한 탄력세율 경쟁이 있었음.
- 지방세제와 관련하여 우리나라의 지방세 세목이 너무 많다는 지적이 자주 제기되지만 이러한 문제는 지역적인 것으로 지방세가 전체적으로 주민들의 세부담에 어떠한 영향

을 끼치는가가 보다 중요한 판단 기준이 되어야 할 것임.

- 반면, 비록 지방세 세목수는 큰 문제가 아니더라도 거의 모든 지방세 세목에 걸쳐 탄력세율을 적용하는 것은 조세수출의 가능성을 높일 뿐만 아니라 지방정부의 기간세(토지·재산관련세, 주민세, 자동차세) 역할을 강화시키는 데 오히려 방해가 될 가능성이 있음.
 - 따라서 지방세 세목수를 특별히 축소하지 않더라도 탄력세율 적용 대상은 몇 개의 세목으로 축소하여 이러한 기간세를 통하여 지방정부 세입이 일차적으로 확보될 수 있는 여건 마련이 필요하다고 생각됨.
- 이를 위하여 종합토지세(과표), 도시계획세, 주민세, 자동차세 등으로만 (실효)탄력세율 적용을 제한하는 방안을 검토하는 것이 필요하다고 봄.

나. 지방교육세

- 2000년 세제개편안에 따르면 2001년 1월부터 지방세에 부가되는 교육세를 지방교육세로 전환할 예정임.
 - 이와 같은 조치는 일단 교육에 대한 지방정부의 책임성을 높일 수 있다는 차원에서 바람직한 것으로 평가됨.
- 그러나 지방교육세의 도입에 따라 향후 몇 가지 사항을 검토할 필요가 있을 것으로 보임.
 - 첫번째는 지방교육세 세입의 확충 방안에 관한 것임. 외국의 경우 지방정부는 토지세나 주민세와 같은 기간세를 통하여 교육재정을 확충하고 있음. 우리나라의 경우에도 주민의 교육자치 참여를 유도하기 위하여는 세부담의 인지도를 높이는 것이 바람직하기 때문에 향후 지방정부는 종합토지세, 재산세 또는 주민세 등을 통하여 교육재정의 확충을 도모하는 것이 보다 바람직할 것임.

- 두 번째는 여러 세목에 부가되는 교육세를 영구히 존치시켜야 하는가 또는 일정 시점에서 이를 폐지하는 것이 바람직한가에 대한 문제임. 교육세가 여러 지방세에 부가되는 이유는 교육재정 확충의 부담을 여러 세목에 분산시키는 것임. 이와 같은 목적은 각 세목의 세율을 교육세만큼 증가시켜서도 달성할 수 있는 것인데, 굳이 교육세를 별도로 부과하는 이유는 교육을 목적으로 하는 목적세로서의 교육세를 강조하여 세부담에 대한 저항을 줄이고자 하는 것임. 중앙정부가 교육세를 여러 세목에 부과할 경우 세부담과 교육서비스간의 연계가 미약하여 목적세로서의 기능이 약하지만, 만약 단일 지방정부에서 교육세를 목적세로 하고 여러 지방세에 부가할 경우 교육서비스와 세부담과의 연계가 뚜렷하기 때문에 어떠한 세금에 대한 부담이 높아야 하는가에 대한 문제를 별도로 하면, 목적세로의 정상적인 기능을 나름대로 수행할 수 있을 것이라는 주장도 할 수 있을 것임. 특히 지방교육세의 경우 교육세 세율을 지역별로 차등화할 수 있기 때문에 전국적으로 동일한 세율을 유지하여야 하는 국세 교육세와는 차별적인 성격을 지닐 것으로 생각됨.

2. 지방재정조정제도

가. 지방교부세

- 지방교부세의 개편방안은 크게 다음과 같은 것들이 있음.

- 기준재정수요액의 측정: 기준재정수요액은 12개의 측정항목(28 세항목)에 대하여 인구, 공무원수, 가구수, 도로 면적 등을 기준으로 측정됨. 기준재정수요액의 측정 과정에는 복잡한 조정계수와 회귀식이 이용되기 때문에 그 적정성 여부는 지속적으로 제기될 것이고, 또한 세련화를 위한 노력 역시 지속적으로 전개해 나갈 필요가 있을 것임.
- 기준재정수입액의 측정: 기준재정수입액은 지방세(보통세+목적세) 수입의 80%로 되어 있는데, 지방정부의 재정력을 80%만 포착한다는 점에서, 그리고 교부세 총액이 법으로 결정되어 있다는 점에서 지방교부세의 지역간 형평화 효과를 떨어뜨리는 역할을 함.

- 지방교부세의 공식은 ‘조정율 × (기준재정수요액 - 기준재정수입액)’으로 되어 있는데, 일본의 경우 ‘조정율 × 기준재정수요액 - 기준재정수입액’의 공식을 적용함.
 - 지방세 수입의 80%만을 지방정부의 재정력으로 포착하는 것과 마찬가지로 기준재정수입액에 1보다 적은 숫자인 조정율을 곱하는 방식 역시 지역간 형평화 효과를 떨어뜨림.
- 지방교부세의 공식을 재조정하여 지방세 수입이 보다 적은 곳으로 보다 많은 지방교부세를 배분할 경우 교부세 재원의 형평화 효과는 제고될 것임. 다만 이 경우에 다음과 같은 문제점이 제기될 수 있을 것임.
 - 기준재정수요액 산정의 적정성: 기준재정수요액은 [그림 II-4]에 나타난 바와 같이 인구와 뚜렷한 역비례 관계를 가지고 있음. 중·소 도시의 환경 비용이 증가하고 있고, 또한 지방공공재의 공급 비용이 인구에 비례하여 증가하는 성격을 지니고 있기 때문에 현재의 기준재정수요액 산정이 지나치게 인구가 적은 군 지역에 유리하도록 되어 있다는 주장을 제기할 수 있을 것임.
 - 또한 기준재정수요액에서 큰 비중을 차지하는 공무원 인건비 역시 고정비용의 높은 비중으로 인하여 인구가 적은 지역의 행정비용이 과다 산정되었다는 주장도 제기할 수 있음.
- 따라서 지방교부세의 향후 정책과제는 인구에 대한 역비례적 성격이 지나치게 강한 기준재정수요액 산정 공식을 개선함과 동시에 지방정부의 재정력을 최대한 정확하게 포착하고, 또한 일본식으로 지방교부세의 공식을 변경하는 것 등을 검토할 필요가 있을 것임.

나. 지방양여금

- 지방양여금과 관련하여 단기적으로 가장 중요한 이슈는 도로사업과 환경사업간의 재원비중임.
 - 주세·전화세 세수입 전액을 도로건설에 사용할 경우, ‘주세·전화세 세수입 < 도로수요’의 관계가 성립하면 도로가 매우 중요한 공공재라는 것을 전제로 하였을 때,

- 이 방식은 재원의 안정적 확보라는 순기능을 발휘함.
- 그러나 오랜 기간 동안 도로를 지속적으로 깔고난 후 ‘주세·전화세 세수입 > 도로 수요’의 관계가 성립되면 재원의 안정적 확보라는 순기능이 재원의 경직적 이용이라는 역기능으로 전환됨.
 - 특정 세목의 세입을 도로에만 투입함에 따라 발생하는 경직성을 완화시키기 위하여 지방양여금의 대상 사업에 수질오염방지사업 등이 포함되어 있음. 따라서, 현재의 문제는 ‘주세·전화세의 수입 = 도로 수요 + 환경 수요’의 제약 조건하에서, 도로와 환경의 양자간에 적정 수준을 찾는 것임.
 - 환경과 도로 관련 재정 수요가 주세·전화세 수입에 미치지 못할 경우에는 이 역시 경직성의 문제를 갖게 되겠지만, 당분간은 이 재원을 도로와 환경간에 어떻게 배분하는가가 현안이 될 것임.
- 지방도로는 지난 9년 동안 지속적으로 깔아 왔고 누출효과가 미미한 데 반하여, 수질 오염은 갈수록 악화되고, 또한 누출효과가 많은 사업이기 때문에, 후자의 비중을 향후 지속적으로 늘리는 것이 지방양여금을 최대한 효율적으로 운영하는 방안이 될 것임.
- 또한 도로와 환경간의 적정배분을 위해서는 외국에서 많이 실시하고 있는 바와 같이 일정 기간(3~5년) 후 관련 사업의 성과 측정과 배분 비중 조정을 할 필요가 있고, 이를 위하여 도로 및 환경과 관련된 지표를 현재보다 더 체계적으로 개발·관리하는 것도 필요할 것임.
- 지방양여금에 대한 보다 근본적인 개편방안은 지역간 균형발전을 위한 재원으로 사용되고 있는 지방양여금의 성격을 포괄보조금으로 전환, 지역균형발전 정책의 큰 틀 속에서 운영하는 것임.
- 이와 같은 착상이 필요한 이유는 지역 균형 발전을 굳이 도로에 한정하여 도모할 이론적 근거가 없고, 지방양여금의 중요 사업인 수질오염방지 사업은 그 성격상 국고보조금으로 관리되는 것이 보다 적절하기 때문임.
- 지방양여금을 지역균형발전을 위한 포괄보조금으로 전환하기 위해서는 지역균형발전 전략과 상응하는 재원의 배분 방식이 도출되어야 할 것임. 따라서 지역균형 발전의 개

념 정립이 필요할 것이고 이에 상응하는 재원 배분 방식이 개발되어야 할 것임.

- 중핵도시 중심의 재원 배분, 교육재정 지원 강화 등을 생각해 볼 수 있으나 이 문제에 대해서는 향후 보다 자세한 연구가 필요할 것으로 생각됨.

다. 국고보조금

- 국고보조금을 개편하기 위해서는 국고보조금 대상 사무의 성격을 분석, 개인사무, 외부 누출사무, 지역사무 등으로 구분하여 외부 누출사무를 중점적으로 지원하는 것이 필요함.
 - 또한 국고보조금은 사무의 법적 근거에 따라서 기관위임사무, 단체위임사무, 고유사무로 구분할 수 있는 바, 기관위임사무의 정리를 통하여 객관적으로 지원 기준을 강화하는 것이 필요함(예: 일본의 국고부담금).
- 국고보조금의 통합·단순화는 크게 두 가지로 접근할 수 있는데, 첫 번째 방안은 통합할 수 있는 사업들을 선별, 통계자료를 토대로 일정한 공식에 의하여 지방정부에 보조금을 배분하는 방식임.
 - 국고보조금의 틀에서 이 방안의 도입 방안을 고려해 본다면, 「보조금의 예산 및 관리에 관한 법률」의 제6조 2항에 있는 총액보조금의 규모와 역할을 확대하는 것임.
 - 이러한 총액보조금의 의의가 현실적으로 실현되기 위해서는 일본의 국고부담금처럼 대상 사업, 재원, 그리고 배분방식 등을 법률과 시행령 등을 통하여 구체화하는 것이 필요할 것임.
 - 한편, 국고보조금의 단순화가 총액보조금 또는 포괄보조금의 형태로 이루어지기 위해서는 예산 집행 후 성과 측정이 성공적으로 이루어져야 한다는 중요한 전제조건이 뒤따름.
- 국고보조금 개편의 두 번째 방안은 사업의 누출효과가 중요하기 때문에 미시적인 관리가 필요한 국고보조금 대상 사업이라 하더라도, 개별 심사로 인한 경직성을 해소하기 위하여 일종의 ‘맞춤식 통합보조금’을 운영하는 방안임.
 - 이 방안은 목적이 국고보조금의 정리 및 단순화가 아니라 누출효과를 내재화하되,

자율성도 동시에 추구하는 것임. 따라서 사실상 국고보조금을 매우 정교한 방법으로 사전 심사하고 사후 관리하는 방식임.

- 이를 위하여 지방정부가 항목간 전용의 필요성, 전용 후의 보조금 집행 계획, 보조금 사용 내역, 전용 후 보조금의 집행 효과 등에 대한 신청 서류를 마련하면 중앙정부가 이를 최대한 긍정적으로 받아들이는 제도적 장치가 필요함.

- 국고보조금의 운영 측면에서 다음과 같은 것들을 검토할 필요가 있음.

- 국고보조금의 결정 및 통지시한을 2/4분기 이내로 규제하는 방안의 검토가 필요할 것으로 보임. 모든 국고보조금의 배분을 2/4분기 이내로 하는 것은 중앙관서의 예산운영을 경직화하므로 보조금의 75% 정도를 2/4분기 내에 교부·통지하도록 하는 내부 지침을 마련하는 방안을 검토 필요.
- 국고보조율의 기준을 객관화하여 국고보조금의 투명성과 예측성을 제고하는 것이 필요함. 이를 위하여 기준율을 정액과 100%, 75%, 50%, 25%의 5가지 유형으로 단순화하고, 동일한 사업을 수행하는 경우 동일한 보조율 적용을 검토.
- 국고보조금으로 인하여 지역간의 재정력 격차가 심화될 수 있으므로, 국고보조금의 차등보조율 제도를 적절히 활용. 국고보조금을 순수한 국고보조금(외부효과 내부화)과 지역사업 지원금으로 구분할 경우, 후자의 경우는 일반재원에 대한 지원의 성격이 강하므로 재정력이 열악한 단체에 대해 인상보조율, 재정력이 충실한 지방자치단체에 인하보조율을 적용할 수 있을 것임.

3. 교육재정

가. 일반재정과 교육재정의 통합

- 현행 지방교육재정제도가 그대로 유지될 경우 지방교육세의 과세권자는 지방자치단체의 장이지만 지출은 행정적으로 독립되어 있는 교육청이 맡고 있기 때문에 교육재정의 책임성이 제고될 것으로 기대되지 않음.
- 따라서 과세권자가 지출 책임도 함께 지는 체제로의 전환, 즉 지방재정과 교육재정의 통합이 필요할 것으로 판단됨.

나. 교육재정의 형평성

- 교육은 지방정부가 제공하는 가장 대표적인 공공서비스이고, 지방정부가 자체적으로 이를 제공할 능력이 있을 경우 중앙정부가 굳이 이를 지원할 근거는 없음.
 - 따라서 지방교육재정교부금을 산정함에 있어서 지방교부세와 마찬가지로 지방정부의 재정력, 즉 지방세 수입을 고려하는 것이 필요함.
- 지방교육세의 도입은 지방정부의 지방세 세입을 늘려서 부유단체의 지방교부세를 줄일 것임. 그러나, 이론적으로는 지방교육세의 변동은 지방교부세가 아닌 지방교육재정교부금의 변동으로 이어지는 것이 합리적임.

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