

Optimal Fiscal Equalization under Asymmetric Information

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Abstract

This paper focuses on the problem of how to design optimal fiscal equalization with different fiscal needs among regions with asymmetric information. In the full information condition, our results suggest that an efficient transfer scheme should not simply fully equalize the fiscal need among regions by redistributing among regions. Instead, it should equalize the marginal cost of public funds across regions, in which the social cost of raising tax revenues can be minimized. In the asymmetric information condition, in order to eliminate the incentive of rich regions mimicking poor regions, the second best policies designed for poor regions are distorted while policies for rich regions remain the first best condition. Thus, rich regions get some informational rents.

Keywords: Fiscal equalization; Intergovernmental transfers; Asymmetric information; Global economy

Introduction

The intergovernmental transfer forms the cornerstone of the federalism. In many countries, the fiscal equalization scheme is used for redistributing purposes. Countries such as Canada, Germany, Switzerland, the UK and Australia have applied fiscal equalization formula to transfer fiscal grants to sub-national governments. Due to the fact that regions differ in their fiscal capacities and fiscal needs, one of the important objectives of the fiscal grant is to reduce the horizontal fiscal imbalances, thus equalizing fiscal gap among regions [1]. This paper studies the problem of how to design fiscal equalization scheme with different fiscal needs dealing with horizontal fiscal imbalances. Under the assumptions made, our results suggest that fiscal needs should not be fully equalized. Instead, in order to reduce fiscal imbalances, the optimal policy should aim at equalizing marginal cost of public funds among regions.

The fiscal equalization schemes used in many countries equip fiscal equalization formulas. Those formulas differ in the precise structure, but they do share some common features. Most formulas take both the fiscal capacity and fiscal need into account. Basically, the jurisdictions with high fiscal need and low fiscal capacity should receive more grants to reduce their fiscal gap. With the exception of the Canadian equalization program, which only equalizes fiscal capacity, many countries' transfer schemes, like Australia, UK, Brazil, China, Indian, Switzerland and Germany, have a feature of equalizing cost disparities [2]. Thus, estimating fiscal need is crucial for a fiscal equalization program.

In the world of full information, the estimate of fiscal need seems straightforward. However, the problem arises in the situation under asymmetric information. It is generally accepted that regional authorities are better informed about those local economic variables and the tastes of their constituents than the central authority. As a result, the jurisdictions, especially rich ones, may perform strategically to influence the intergovernmental transfers through fiscal equalization scheme and try to avoid becoming a net contributor. On the one hand, regions may hide the information or report false information to the central authority, in which adverse selection problem arises. Besides considering one kind of public good, [3] model another private good to address this problem. On the other hand, knowing that part of the revenue will be redistributed to other regions; local governments may reduce their effort on collecting tax revenue or cutting administration

cost, in which moral hazard problem emerges. [3-6] study this issue. Hence, such informational asymmetry poses the acute problem for the design of fiscal equalization program.

Theoretical Framework

Here, we follow the theoretical framework of [4,5]. Instead of talking about fiscal capacities, we extend their model with different fiscal needs across regions and discuss both full information and asymmetric information conditions, considering a federation consisting of two regions. The two regions are identical in all respects but differ in fiscal needs. Fiscal needs are measured by different unit costs of public good. There are an equal number of populations living in each region, which is normalized to unity. Assume that all of the households are perfectly immobile. Only one type of good is produced in two regions. This good can be transformed into the private good or the local public good. Therefore, no regional trade occurs. The production function is linear and the only input is the labor supplied by local residents. Local residents choose between work and leisure to maximize their utility. All of their income is spent on consumption of the private good. Within the federation, there are two levels of government, regional government and central government. Local governments seek to maximize the welfare of individuals within their boundaries by providing local public goods. Assume there is no spillover effect on providing local public goods. Central government chooses tax rates on labor in two regions and transfers tax revenues in two regions to maximize the national welfare. Unlike [3,6] who studied the tradeoff between transfers and cost cutting effort, our model focuses on the tradeoff between transfers and tax rates.

As the first best condition, we begin with the situation of full information. In this case, the central government can observe all the local economic variables. It chooses two policy instruments for social

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welfare maximization. The optimal rates of tax result in the standard Samuelson condition for public goods provision rectified by the presence of the distortionary labor taxation. It indicates the public goods will be provided up to the point that marginal benefit of public goods equals marginal cost of public funds. The marginal cost of public funds (MCPF) denotes the cost of raising one additional unit of public revenue for the local government. In addition, the optimal amount of transfers causes the equivalence of ratios of marginal benefit of public services over marginal cost of public goods. Further, it also equalizes MCPF, tax rate and the elasticity of labor supply with respect to the tax rate in two regions.

In the asymmetric information section, the central government cannot verify the cost parameters. The cost of public goods is regions' private information. The only variables the center can observe are the tax rates of two regions. So, the central and local governments play the following three-stage game:

1. The central government designs the transfer formula based on tax rates of two regions.
2. Knowing the transfer rule set by the central government. Both regions set their tax rates simultaneously.
3. Based on the formula, the central government redistributes between regional governments.

In this setting, the welfare maximization problem is bound by the incentive compatibility constraints, which insures every region is better-off to tell the truth than mimic the other. Here, we assume that the cost of leaving the federation is extremely high. Therefore, the participation constraint can be ignored. The result is in line with the standard questions of mechanism design, which is motivated by work of [7,8]. The poor region's elasticity of labor supply, tax rate and marginal cost of public funds are distorted, while the rich region is undistorted. The direction of distortions is ambiguous, depending on the exact values of each variable, such as tax rate, cost parameter and amount of transfer.

Concluding Remarks

This paper has examined the implications of optimal design of intergovernmental transfer scheme with different fiscal needs among regions under full information and asymmetric information. In full information condition, we argue that the transfer rule which simply uses a lump-sum to equalize any cost differences is somewhat inappropriate. Rather, an efficient transfer scheme should equalize the marginal cost of public funds across regions, in order to minimize the social cost of raising tax revenues. This result to some extents denies the scheme of merely equalizing net fiscal benefits (the difference between public services received and taxes paid) among regions proposed by [2] or merely equalizing fiscal gap among regions proposed by [1]. In asymmetric information condition, in order to eliminate the incentive for rich region to mimic the poor, the policies in poor regions are distorted while leaving rich regions undistorted. Therefore, the fiscal equalization is not complete, and rich regions get some informational rents.

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