

Chapter 4

Tax financing and tax equalization: Incentives and distribution in the welfare state

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Abstract

Local tax financing is of importance to local democracy and incentives for economic development and service provision. Since tax base variation leads to variation in service provision, tax equalization may be necessary to limit adverse distributional effects. The purpose of this paper is to discuss the challenges of combining substantial tax financing, incentives, and distribution. We begin with the broad issues related to vertical fiscal imbalance and analyze the incentive effects of tax equalization with respect to local economic development and tax distortion in more detail. The concluding section compares the 'Nordic model' to more decentralized and centralized alternatives. The future of the model will be determined by its ability to control incentive problems in equalization and to avoid strategic interaction in a situation with large dependence upon central government grants.

4.1. Introduction

Local governments in the Nordic countries are responsible for comprehensive welfare services and form an integrated part of the national public sector. This design is very different from the textbook model of local public finance which assumes local public goods, mobility, and benefit taxation. The Nordics differ in all three characteristics. First,

the local public sector is responsible for welfare services with strong redistributive characteristics, most of which may be termed publicly provided private goods, and local public goods only account for a small share of local spending. Second, population mobility is low and local jurisdictions are heterogeneous with respect to preferences for welfare services and local public goods. Third, financing is centralized and dominated by income tax revenue sharing and central government grants. The local governments are formed by national governments to organize efficient division of labor in a large public sector.

Nordic economists have struggled for decades to understand local governments operating under this design. Lotz (1998) expresses the frustration among economists of the region that the guidelines presented by local public finance theory are of so limited relevance. Philip (1954) presented an early account of the issues involved. When publicly provided private goods rather than local public goods are the main responsibility, we are in a much more open territory concerning principles for organization and financing. The international literature has acknowledged the lack of clear criteria for the handling of 'merit goods' (Musgrave, 1959) or 'redistributive services'. It is related to the lack of clear economic arguments in favor of government responsibility for publicly provided private goods in the first place. The design of local public sectors ends up more as a question of administrative convenience than of economic principle. The design is better described as delegation rather than decentralization.

The Nordic departure from the standard recipe for local government also has consequences for the central government level. The Nordics decentralize a large part of the distribution policy, but the decentralization of provision and production is associated with mandating and sophisticated control systems. The active local-central government interaction implies a challenge for central government control, with a permanent and strong spending pressure on central government funds. Interestingly, the central government is vulnerable in this centralized environment. Decentralized governments can exploit the national political concern for the access to and quality of the welfare services they provide. Rattsø (2003) discusses the consequences of vertical fiscal imbalance. The Nordic countries have chosen different ways of handling this situation. Denmark and Sweden have sought to achieve more local responsibility by applying local tax discretion. In all countries mandating

and detailed service regulations combined with balanced budget requirements impose fiscal discipline on the system.

All countries deal with tax base differences by extensive tax equalization schemes. Expenditure equalization arrangements add to the effect. Norway is a case in point: the privately rich urban communities in the south end up with the lowest municipal revenue per capita, while the most prosperous municipalities are small rural communities, particularly when they have waterfalls and/or are located in the north. This is mainly the result of expenditure equalization compensating the small municipalities, additional grants to the north motivated by regional policy, and resource rents being kept outside tax equalization.

In this article we will concentrate on the handling of tax financing and tax equalization in the Nordic system as understood on the basis of local public finance theory. The main challenge addressed is local financing and accountability on the one hand and the consequences of equalization for incentives and performance on the other. In all countries, reforms are underway addressing the incentive problems associated with tax equalization. Municipalities in Finland are rewarded for inward commuting (job creation), Sweden has reduced equalization for high- and middle-income municipalities, and both Denmark and Norway are considering growth incentives in the equalization system.

We draw on earlier work including Borge (2010, 2013), Rattsø (2005) and Borge and Rattsø (1998), but with a more narrow focus on tax financing in this article. In section 2 we outline the basics of tax financing, and section 3 adds a discussion of vertical fiscal imbalance and issues of accountability related to tax financing and grant dependence. The two main incentive effects of tax equalization are analyzed in sections 4 and 5 – incentives to stimulate local economic growth and tax distortions respectively. Section 6 summarizes our arguments in a discussion of alternative models.

4.2. Tax financing

In an international context, the Nordic countries are characterized by the important role they attribute to local income tax. Income taxes dominate as the main source of local tax revenue, varying from 85% of local taxes in Iceland to 100% in Sweden. The tax base of local income tax is a broad measure of income including salaries, capital income and pen-

sions, and all on an individual basis. The income tax is designed by the central government (definition of tax base, tax rules like deductions, etc.) and shared between local and central governments. Income tax is consequently a revenue-sharing arrangement. The local share is determined by a flat tax rate, but the revenue generated by this tax rate is affected by the central government design, such as expenditure deductions. In practice, the local income tax is progressive, the marginal tax is higher than the average tax rate for the tax payer. All local governments in all Nordic countries have some discretion in determining the tax rate for the local income tax.

The international literature on tax assignment, competently summarized by Bird (1999) and McLure (2001), does not pay much attention to income tax financing. The starting point is typically the mobility of the tax base. Oates (1996) clarifies the conditions for efficiency-enhancing competition among jurisdictions, notably the use of benefit taxation. Redistributive taxes may influence the mobility of households and firms, and such tax competition may distort the tax decision. A mobile tax base may encourage tax competition and lead to low taxes and underprovision of local public services. The Brennan-Buchanan (1977) view is less pessimistic about tax competition. The argument is that tax competition may counterbalance political failures that lead to a large and inefficient public sector.

The most obvious argument for an even distribution of the tax base is equity, since an uneven distribution of the tax base is a source of differences in service standards across local governments. The central government can compensate for differences by using a tax equalization system, but an ambitious tax equalization program weakens the link between the local tax base and local government revenue. An even distribution of the tax base may also be defended on efficiency grounds, since it reduces the incentives for fiscally induced migration. One of the consequences of this argument is that local governments should avoid having highly progressive taxes. Associated with this, the tax design should avoid giving local governments instruments for a local distribution policy.

The local public sector is typically considered a destabilizing factor in a macroeconomic context. When local tax revenues are pro-cyclical, balanced-budget rules imply that local public spending tends to increase in

booms and fall in recessions. A tax base that is stable over the business cycle can serve as an automatic stabilizer. The motivation of the Nordics to rely on personal income tax is mainly the need to generate a significant amount of revenue, well beyond countries with fragmented local governments providing limited public goods. The income tax is based on the residence principle, but does not offer the strong linkage between local government performance and tax base desired by theory. Compared to the conventional criteria, the income tax is more mobile and more cyclical. The variation in income tax revenue over the business cycle follows from the pro-cyclical character of labor and capital income. The mobility of the income tax base may induce tax competition, as income taxation may give an incentive to attract high-income individuals. The challenges related to distribution and mobility of income taxation are addressed by tax equalization schemes.

4.3. Vertical fiscal imbalance

In a welfare state setting with strong goals of equalization, the allocation gain of decentralization is less clear-cut. Local governments operate to a wide extent as agents for the central government and must follow national welfare policy guidelines. In this design, vertical fiscal imbalance is not necessarily seen as a problem. Expenditures are high when local governments are the main producers of the welfare services, and revenues are organized by the central government mandating and regulating the welfare services. In the literature, this system has been described as administrative federalism (Schwager, 1999) and partial fiscal decentralization (Brueckner, 2009; Borge et al., 2014). Optimal vertical fiscal imbalance is discussed by Boadway and Tremblay (2006).

The concerns about vertical fiscal imbalance are related to fiscal discipline and local accountability. Vertical fiscal imbalance is at odds with the benefit principle of taxation that serves as the basis of most thinking in fiscal federalism – those who benefit from a service should also pay the cost. When the linkage between beneficiaries of services and those who pay (also called the ‘wicksellian connection’) is broken, the beneficiaries will have little incentive to control volume and cost. In a system of fiscal federalism, this transmits into a spending pressure towards the central government – with demand for more services everywhere. It will be difficult to defend hard budget constraints and thus set up good incentives for local government allocation and production. Rodden et al. (2003) discuss this mechanism of fiscal indiscipline and the

experiences of vertical fiscal imbalance across the world. National studies indicate that the question of discipline is important even in systems with fairly hard budget constraints.

Vertical fiscal imbalance and the associated regulations reduce autonomy at local government level, with respect to both leeway in local decision-making and influence on local revenues. In the following we will concentrate on the revenue side. Limited local tax resources and limited control of taxation are compensated for by central government grants. The situation is often called grant dependence, and the concept refers to the dependence on central government funding. Local governments are oriented towards the central government instead of primarily being accountable to its own citizens. The understanding of grant dependence is not thoroughly elaborated on in the literature. The share of revenues made up by grants (as opposed to local revenue sources) is the typical measure of the imbalance. The concern is that the lower local autonomy and accountability reduce the incentive to apply cost control and efficient allocation and that they encourage strategic interaction with central government. Marquez-Vazquez and Sepulveda (2012) discuss the broad implications.

Attempts to strengthen local accountability with centralized financing have sought to establish autonomy at the margin. The argument is developed by McLure (2000). Local tax discretion at the margin is assumed to promote fiscal discipline and reduce the common pool problem. The argument is best understood in the context of the Brennan-Buchanan-approach. The role of tax discretion influences the relationship between local and central governments. Tax discretion can help local governments take more responsibility for the services they provide and reduce the spending pressure towards central government.

The emphasis on autonomy at the margin assumes that the tax share of local government revenue is of little importance. However, in a political context the tax share may be important. Jackman (1988, p.7) notes that proposals of less tax financing and less ambitious tax equalization "... has been attacked by political scientists on the ground that distinguishing the total from marginal expenditures is confusing in a political context, and thus may undermine the political preconditions for democratic accountability".

Carlsen (1994, 1998) offers theoretical models to capture strategic interactions and arguments for regulation in this setting. The strategic interaction can be understood as a bailout problem, as analyzed by von Hagen and Dahlberg (2004). Fiscal autonomy of a local government serves as protection against bailout for central government. Local governments that finance spending out of own taxes are expected to make stronger adjustments to shocks. Central government control will weaken fiscal autonomy at the local level and reduce the central government's protection against bailout.

Central governments all around the world struggle to control the level of local taxation. Two alternative strategies can be observed. One alternative is to have local tax discretion and let local governments be fully responsible for the local tax level. The other alternative is top-down control of the local tax level. The role of controls is dealt with in a comprehensive literature on tax limits. Preston and Ichinowski (1991), and Reuben (1997) offer representative analyses on US data, where regulations vary across states. They conclude that regulations do help to reduce the growth of tax revenues, total revenues, and total spending in local governments. Reuben and Poterba (1995) take a look behind the overall local public growth effects to study how regulation of the property tax has affected employment and wages in the local public sector. They find that regulations have been effective, in particular by keeping down the growth of local government employee wages. Regulation also is a way of avoiding tax competition. The tax regulations should be seen in relation to regulations regarding deficits and debt, as argued by Rattsø (2002).

Given these mixed arguments for local tax discretion and central government control it is not surprising that all Nordic countries have a mix of discretion and control. Local governments in all countries have the freedom to set income tax rates, but local discretion varies across countries and time. And tax equalization systems redistribute large revenues. A common feature, though, is that equalization is combined with substantial tax financing (through the income tax) to limit the vertical fiscal imbalance.

4.4. Incentive issue I: Tax equalization and local economic development

Income tax generates substantial local revenue and seems to be a necessary part of financing when the local public sector is as large as in the Nordic countries. The income tax base is not equally distributed among local governments; differences between top to bottom is about 2.5:1 in Sweden, Denmark and Norway, and even more in Finland and Iceland. Differences in local government revenue at this level will generate large and unacceptable differences in welfare services across each country. The concern for distribution motivates central government interventions and disturbs the local autonomy and accountability. The distribution problem fundamentally results from differences in the private income tax base across local governments. This is influenced by both the size structure of local governments and the geographic pattern of economic activity. The tax equalization systems affect the incentives of local taxation and reduce the local autonomy of taxation.

The main goal of tax equalization is political, to ensure horizontal equity, in particular equality in service provision across municipalities. The main tradeoff concerns the incentive to stimulate local economic development. If tax equalization is complete, so that local governments with the same (income) tax rate receive the same per capita revenue everywhere, local governments will receive no extra revenue from improving the tax base. Similar arguments can be made with respect to incentives for tax collection and tax assessment when this is decentralized.

Tax equalization also addresses the tax competition problem associated with income tax. The countries have solved this problem by combining income tax financing with an ambitious tax equalization program. The tax equalization weakens the relationship between the local tax base and local government revenue. Söderström (1990, 1998) emphasizes how tax equalization 'solves' the tax competition problem. The advantage of the tax equalization is that it offsets most of the variation in the tax base. This must be balanced against the disadvantage that incentives to achieve economic development are distorted.

Technically, the balance between equalization and incentive is affected by the choice of tax rate compensated for. If local governments are compensated at their actual local tax rate, their tax increases are subsidized when their tax base is low. On the other hand, if a tax rate norm is

compensated for, local governments will not receive much equalization at the margin. Tax equalization also provides insurance against reductions in tax revenue. Losses of tax revenue due to economic shocks are compensated in the tax equalization. A high level of compensation means high insurance, but also a small incentive. The Nordic countries have chosen different solutions to the tradeoffs involved.

The role of tax equalization is to make per capita tax revenues more comparable for local governments using the same tax rate. The scheme may be designed in different ways. A rather general formula is the following:

$$TE^j = a \cdot t^* \cdot (TB^R - TB^j) \quad t^* = t^j, t^R \quad (1)$$

where TE^j is the tax equalization grant to local government j , TB^j is its per capita tax base, TB^R is the reference tax base, t^* is a tax rate, and a the rate of compensation. The reference tax base is typically defined as the average tax base or a fraction thereof. The tax rate t^* could be either the local government's own tax rate (t^j) or a standardized tax rate (t^R) determined by the national government.⁶⁵ The Nordic countries use standardized tax rates for tax equalization. The rate of compensation determines the fraction of the difference in (calculated) tax revenues that are equalized.

A first alternative is to raise the bottom level by providing grants to local governments with a per capita tax base below the reference level and to set the tax equalization grant equal to zero for those with a tax base above that level. The tax equalization is asymmetric in the sense that equation (1) only applies to local governments with a per capita tax base below the reference level. Another alternative is a more symmetric tax equalization scheme where equation (1) applies to all local government. Local governments with a per capita tax base above the reference level will then be contributors, i.e. they receive negative grants. For a given rate of compensation, a symmetric equalization will be more ambitious than an asymmetric one.

Tax equalization raises several problems that may distort efficiency. As mentioned above, tax equalization weakens the incentives for local de-

⁶⁵ The standardized tax rate could for example be the average tax rate in the country.

velopment policy by weakening the relationship between the local tax base and the local government revenue. It is evident from equation (1) that the national government will “punish” a successful development policy.⁶⁶ The impact of a change in the tax base on local government revenue (the sum of taxes and tax equalization) can be calculated as follows:

$$\frac{\partial(TR^j + TE^j)}{\partial TB^j} = t^j(1-a), t^* = t^j \quad (2a)$$

$$\frac{\partial(TR^j + TE^j)}{\partial TB^j} = t^j - at^R, t^* = t^R \quad (2b)$$

It follows from equations (2a) and (2b) that the increase in local government revenue, following a successful local development policy, is lower the higher the compensation rate. When the equalization is based on the local government’s own tax rate, local government revenue will always increase as long as there is less than full tax equalization ($a < 1$). However, when a standardized tax rate is applied, revenues may be reduced for local governments with a low tax rate. If $t^j - at^R < 0$, the increase in tax revenues will be smaller than the reduction in the tax equalization grant.

The possibility of a negative relationship between tax base and revenues is often considered a disadvantage of using a standardized tax rate in the tax equalization. However, the implicit assumption underlying this argument is that the only objective of local development policy is to increase local government revenue. If private income is also of importance to policy makers, it is less clear that the use of a standardized tax rate in tax equalization is particularly harmful for economic development. If we assume that the local tax is an individual income tax, the effect of a change in the tax base on net community income per capita, defined as local government revenue and net private income ($PI^j = (1-t^j)TB^j$), can be calculated as follows:

⁶⁶ A successful development policy is a policy that increases the per capita tax base (TB_j). A successful policy could alternatively be defined as a policy that increases the population size without affecting the per capita tax base. It should be emphasized that tax equalization does not provide weaker incentives for this type of policy.

$$\frac{\partial(TR^j + TE^j + PI^j)}{\partial TB^j} = 1 - at^j, t^* = t^j \quad (3a)$$

$$\frac{\partial(TR^j + TE^j + PI^j)}{\partial TB^j} = 1 - at^R, t^* = t^R \quad (3b)$$

It is evident from (3b) that with a standardized tax rate, the effect on net community income is independent of the local government's own tax rate. A low (own) tax rate may create a negative effect on local government revenue, but this is counteracted by larger positive effects on the private sector (only due to the low tax rate). As long as there is less than full tax equalization ($a < 1$), a successful development policy will increase net community income.

It is important to emphasize that it is the interplay between tax equalization and the degree of tax financing that determine the incentives for local economic development. It is evident from equations (2a), (2b), (3a), and (3b) that the incentive effect depends on both the tax rate and the rate of compensation in the tax equalization scheme. The incentive effect is stronger the higher the tax rate and the lower the rate of compensation. An immediate implication of this result is that systems with very different degrees of revenue decentralization may have similar incentive effects. A country with a low tax share⁶⁷ and a low rate of compensation may experience the same incentive effect as a country with a high tax share and a high rate of compensation. Sweden is an example of the latter. It is one of the OECD countries with the highest share of taxes in local government revenue, but because of a very ambitious tax equalization scheme, the incentive effect as captured by equation (3a) and (3b) is rather low.

In addition to equalizing tax revenues, tax equalization also provides insurance. A negative shock to the local tax base is (partly) compensated for by grants from the national government. The quantitative importance of the insurance mechanism can be illustrated by utilizing equation (1) to calculate the sum of tax revenues and equalization grants:⁶⁸

⁶⁷ For given responsibilities a low tax rate will be associated with a low tax share.

⁶⁸ For simplicity it is assumed that the tax rate t^* in equation (1) is the local government's own tax rate.

$$TR^j + TE^j = t^j[(1-a)TB^j + aTB^R], t^* = t^j \quad (4a)$$

$$TR^j + TE^j = t^R[(1-a)TB^j + aTB^R] + (t^j - t^R)TB^j, t^* = t^R \quad (4b)$$

It is evident from equation (4a) that the effective tax base with tax equalization based on own tax rate is a weighted average of the local government's own tax base (TB^j) and the reference tax base (TB^R). With a standardized tax rate, the same is true only when the local government uses the standardized rate. In both cases the insurance against shocks to the local tax base is higher the higher the rate of compensation. If the rate of compensation is high, the tax equalization scheme in effect creates a national insurance pool. The revenues of an individual local government are primarily affected by the national tax base, while the development of its own tax base only plays a minor role.

When the national government provides insurance through the tax equalization scheme, the need for precautionary actions by local governments is reduced. In particular the incentives to build up rainy-day-funds to handle periods of low tax revenues are reduced.

4.5. Incentive issue II: Tax equalization and distorted tax decisions

Tax equalization can be interpreted as a subsidy on local tax increases which may lead to too high tax rates. The key concept in understanding these incentive effects of taxation is the marginal cost of public funds (MCPF), which measures the direct and indirect social costs of taxation. MCPF provides a measure of how the marginal cost of a public project is affected by the financing. In a first best situation (head tax) the MCPF is 1. Social costs of tax financing raises MCPF above 1.

We use this concept in a simple model to discuss the effects of tax equalization. The role of MCPF is analyzed by Dahlby (2002, 2008) and Smart (1998). We follow the discussion of Dahlberg and Rattsø (2010). The incentive effects of tax equalization depend on the response of the tax base to changes in local taxes. The model includes the local government tax base (TB), tax revenue (TR), and tax rate (t), and superscript j refers to a particular local government. With no tax equalization, local government revenue is determined by the tax rate and the tax base. The standard formula of marginal cost of public funds with no tax equalization is:

$$MCPF^j = \frac{TB^j}{\frac{\partial TR^j}{\partial t^j}} = \frac{TB^j}{TB^j + t^j \frac{\partial TB^j}{\partial t^j}} \quad (5)$$

The social cost of increasing the revenue is determined by the response of the tax base to the change of the tax rate. As seen from equation (1), any fall in the tax base due to a higher tax rate increases MCPF to above 1. If the tax base response is strong enough, the local government tax revenue may even go down (ref: the Laffer curve).

The tax equalization influences the change in local government revenue following a change in the tax rate. With tax equalization the expressions for MCPF are modified to:

$$MCPF^j = \frac{TB^j}{\frac{\partial(TR^j + TE^j)}{\partial t^j}} = \frac{TB^j}{TB^j + t^j \frac{\partial TB^j}{\partial t^j} + a(TB^R - TB^j) - at^j \frac{\partial TB^j}{\partial t^j}}, t^* = t^j \quad (6a)$$

$$MCPF^j = \frac{TB^j}{\frac{\partial(TR^j + TE^j)}{\partial t^j}} = \frac{TB^j}{TB^j + t^j \frac{\partial TB^j}{\partial t^j} - at^R \frac{\partial TB^j}{\partial t^j}}, t^* = t^R \quad (6b)$$

When equalization is based on own tax rate, the tax equalization affects MCPF in two ways (the final two terms in the denominator in equation (6a)). The first term captures the fact that the tax equalization grant (for a fixed tax base) depends on the local government's tax rate. If the tax base is low ($TB^j < TB^R$), a higher tax rate will increase the tax equalization grant. Such subsidization of a local tax increase works to reduce MCPF for the local government, and will lead to too high taxes. If the tax base is high ($TB^j > TB^R$), the effect is the opposite. In this case a higher tax rate is "punished" through increased contribution to the equalization system. The second term captures the fact that the tax equalization compensates for the reduction in the tax base associated with a tax increase. This effect reduces MCPF and leads to too high taxes.

Equalization based on a standardized tax rate removes the first of these distortions since the tax equalization grant (for a fixed tax base) is in-

dependent of the local government's own tax rate. However, the second distortion remains (see the last term in the denominator in equation (6b)), implying that compensation based on a standardized tax rate reduces MCPF and leads to too high tax rates.⁶⁹

In the aggregate, both equalization schemes will lead to higher tax rates, and the effect is stronger with equalization based on own tax rate.⁷⁰ The higher the compensation rate, the more of the tax base reduction is compensated for, and the lower is the marginal cost of financing as seen from the local government. Our normative assessment that tax equalization leads to too high tax rates implicitly assumes a first best economy that is distorted by tax equalization only. In other situations, when imperfections in the economy already exist, the evaluation of tax equalization may be different. Smart (2009) shows the possibility of an improvement in the social resource allocation with tax equalization when there is tax competition. Tax competition represents a pressure downwards in local tax rates, and tax equalization may counterbalance this tendency towards a too low tax level.

The hypothesis that tax equalization leads to higher tax rates has been investigated in a number of studies, notably Buettner (2006) for Germany and Smart (2009) for Canada. The main finding from these and other studies is the existence of a positive relationship between tax equalization and local tax level.

Buettner (2006) studies tax equalization in German local governments where the grant can be described by an inverse relationship to the tax base of a local tax base. The tax base is defined by national rules, and tax collection is national. It follows that the local tax decision concentrates on the size of the rate. Buettner calculates a variable that measures how much the tax equalization grant is reduced when the tax base increases. He finds a positive and statistically significant relationship between this variable and the rate of the local business tax. The more local governments are compensated for loss of tax base, the higher the local tax rate is set. The size of the effect is of economic importance.

⁶⁹ In principle the second distortion can be removed by basing the equalization on calculated tax bases, assuming that all local governments use the same standardized tax rate. We are not aware of any real world equalization schemes with such a design.

⁷⁰ Assuming that the tax equalization is not fully symmetric.

Smart (2009) analyzes the effects on several different taxes in the 10 Canadian provinces over a period of 30 years (1972-2002). The most important tax in terms of revenues is a personal income tax, but the study also includes a business tax, a sales tax and various alcohol taxes. To identify the incentive effect, Smart exploits reforms of the equalization system that change the degree of compensation and uses a difference in difference model. He shows that an increase in the compensation leads to an increase in the tax rate level and concludes that tax equalization implies subsidization of tax increases.

4.6. Alternative tax financing regimes

We summarize the paper by discussing three alternative designs of tax regimes. The three models displayed in Table 4.1. differ with respect to degree of tax financing and degree of tax equalization, and consequently they perform differently with respect to revenue dispersion, vertical fiscal imbalance, tax rate distortions, and incentives for economic development. The first model is a decentralized model characterized by a high degree of tax financing and little tax equalization. The advantage of the model is that it provides vertical fiscal balance, strong incentive for economic development, and small tax rate distortions, while its disadvantage is substantial variation in revenues.

Table 4.1. Alternative tax financing regimes

	Decentralized model	Nordic model	Centralized model
Tax financing	High	High	Low
Tax equalization	Low	High	Low
Revenue dispersion	High	Low	Low
Vertical fiscal imbalance	Low	Medium	High
Tax rate distortion	Low	High	High
Incentives for economic development	High	Low	Low

Local governments in the Nordic countries are responsible for redistributive services such as education, health, and social services. Moreover, it is widely agreed that the variation in the provision of these services should be reduced to the widest possible extent. The Nordic model thus

combines substantial tax financing with ambitious tax equalization schemes. The tax equalization contributes to relatively low revenue dispersion, but comes at a cost in terms of tax rate distortions, weak incentives for economic development and a higher degree of vertical fiscal imbalance than does the decentralized model. Both the tax rate distortion and the weak incentives for economic development are caused by tax equalization. The tax base distortion reflects the fact that the tax base loss of a higher tax rate is compensated for, and the weak incentives for economic development reflect that successful policies are punished by a reduction in the tax equalization grant.

The third alternative in Table 4.1. is a centralized model with a low tax share and less ambitious tax equalization. In the Nordic context, this model could be achieved by replacing most of the local income tax with a central government income tax, and using the increased central government tax revenue to finance intergovernmental grants. Although local governments become more grant dependent in this model (a high degree of vertical fiscal imbalance), it can be made (almost) identical to the Nordic model in terms of revenue dispersion, tax rate distortion, and incentives for economic development. For revenue dispersion and incentives for economic development this is quite obvious; the effects of less tax financing and less tax equalization cancel each other out (see section 4 for incentives for economic development). With respect to tax rate distortion, one first impression may be that the distortion is reduced because less ambitious tax equalization means that tax increases are subsidized to a less extent. However, the tax rate distortion remains more or less the same. The reason is the vertical fiscal externality (Hansson and Stuart, 1987; Johnson, 1988) that arises when local and central governments tax the same base. Because the local governments do not take into account the reduction in the central government's tax base caused by a higher local tax rate, the vertical fiscal externality contributes to too high tax rates. The externality and the tax rate distortion are larger the higher the central government's tax rate. Consequently, a move from the Nordic to the centralized model means that reduced subsidization of local tax increases is replaced by a larger vertical fiscal externality.

The centralized model can be improved with respect to tax rate distortions through a reform of tax assignment. Instead of relying on income tax, local governments could be assigned a (small) tax where the verti-

cal fiscal externality is less severe. One candidate is the property tax, which may be an exclusive local tax in the sense that it is not shared with the central government. Although some vertical fiscal externalities will persist, it is not unreasonable to assume that a shift from a shared income tax to an exclusive property tax will reduce the vertical fiscal externalities.

The choice between the Nordic model and the highly decentralized model (or a move in the direction of the highly decentralized model) involves a familiar trade-off between efficiency and distribution. More tax financing and/or less tax equalization will reduce tax distortion and improve incentives for economic development, however at the cost of increased variation in revenues and service provision. Moreover, in the Nordic context a move to a highly decentralized model would be in conflict with preferences for equal service provision. It is not unlikely that these preferences would then come into effect in other parts of the system (e.g. earmarking and more detailed regulation of services), and possibly create a more distortive system of financing.

The choice between the Nordic model and the centralized model is less straightforward. From a narrow economic perspective that focuses on incentives on the margin, the Nordic model (with substantial tax financing and ambitious tax equalization) seems unnecessarily complicated. The same marginal incentives (regarding tax rate distortion and incentives for economic development) can be achieved by a combination of less tax financing and less ambitious tax equalization. Moreover, tax rate distortion may be reduced by proper tax assignment. On the other hand, the centralized model increases vertical fiscal imbalance and reduces local autonomy.

4.7. Concluding remarks

The general trade-off between efficiency and distribution occurs in complicated ways in the area of fiscal federalism. Locally funded local governments can arrange efficient allocation under the supervision of own taxpayer-voters. This is the textbook model, and distribution issues are excluded from theory. In practice, the income basis of local governments varies between regions, and modern states must have systems to redistribute revenue among them. Even more so when local governments are responsible of welfare services that are instruments in national redistribution policy and go beyond efficient local revenue sources, like in the

Nordic countries. The solution is to establish linkages to a large income pool, the income tax, and equalize the revenues. The incentives involved in this design of income tax revenue sharing and tax equalization have been addressed in this article, in particular incentives to develop the local tax base and tax distortions. The Nordic model has been compared to more decentralized and centralized alternatives. The future performance of the model will be determined by its ability to control incentive problems in equalization and to avoid strategic interaction in a situation with large dependence upon central government grants.

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