

Chapter Summaries

Chapter 22: Efficiency and Equity Issues with Mobile Resources

Chapter 22 begins with some introductory remarks about the implications of people moving in response to differences in the mix of public services and taxes across communities, and the models that economists use to analyze the implications. The literature mostly focuses on the movement of people among localities within a region.

1. Charles Tiebout conjectured that federalism would lead to more efficient government for two reasons: the ability to move to new localities would remove the free rider problem for externalities and nonexclusive public goods because people would “vote with their feet,” and there would be better matches between people’s desired public service/tax mix and the public service/tax choices provided by the localities.
2. Subsequent research has shown that Tiebout was overly optimistic. The ability of people to move in search of a more desirable public service/tax mix provides an avenue for additional inefficiencies; may make it more difficult for society to achieve end-results equity; and may not even generate an equilibrium in which no one wants to move to another locality. If there is no equilibrium, then the efficiency and equity properties of a given assignment of people across localities at any given time are irrelevant.
3. The literature on the movement of people across localities is voluminous and varies along a number of dimensions. The variety is so great that it is difficult to draw specific conclusions from the literature. The text noted eight dimensions, with the most common variations noted:
 - a. The governments’ objectives: Pareto optimality; social welfare maximization; maximize the profits or rents of developers and landlords.
 - b. The types of goods provided by the governments: from private to nonexclusive goods.

- c. The types of taxes used by the governments: equal head taxes; income taxes; property taxes.
- d. The political process within the localities: one-person, one-vote democracies; representative governments; landlords or developers making all the decisions.
- e. How income is earned: endowment income that people take with them as they search among localities; wage income earned by the citizens who produce private and public goods within the town; labor is the only factor of production, or is combined with capital and/or land, which also receive income from production.
- f. The market for land: land is scarce and commands a rent; land is so plentiful that it is free.
- g. The costs of moving from locality to locality: costless to costly in varying degrees.
- h. The sophistication in the assumptions about how other localities respond to a locality's decision: from no response – a locality takes the other localities' decisions as a given, to various degrees of response.

The text then presents two well-known models in the literature, one by Joseph Stiglitz and one by Mark Pauly, to illustrate the range of modeling that exists.

The Stiglitz model comes first. It has the following features: the N citizens within a locality each provide one unit of labor to produce output that can be either a private good, X , or a nonexclusive public good, G (e.g. public safety), with production exhibiting diminishing returns to labor; the private good must be produced in batches of N units so that each citizen receives a unit of the good; all citizens have the same preferences; movement from locality to locality is costless; land is so plentiful that it is free – there is no limit to the number of people who can live in one locality.

The main results of the model:

4. With costless mobility and identical preferences, everyone must have the same utility in equilibrium no matter where they live. Horizontal equity is the equilibrium condition. Therefore, the only goal is the efficiency goal, which amounts to maximizing individual utility.
5. The Samuelson condition holds for the nonexclusive good. It is provided such that $NMRS_{X,G} = MRT_{NX,G} = 1$.
6. As the number of people N in a locality increases, the maximum utility available to each person first rises and then falls.
7. If the rise and fall of utility as N increases is symmetric, then there can be a Pareto-optimal equilibrium characterized by an equal number of people in each locality and utility at its maximum.

8. If the rise and fall of utility as N increases is asymmetric, then anything can happen, for example: a Pareto-optimal equilibrium that is unstable; a stable equilibrium with unequal numbers of people in each locality and utility below its maximum; multiple equilibriums; and all people moving to one locality with utility below its maximum. Tiebout's hopes for federalism are easily undermined.

The Pauly model lies at the opposite end of the spectrum from the Stiglitz model along many of the dimensions noted above. Its characteristics are: a region that is fully developed such that there are a given number of towns, L , and a fixed number of house lots within each town, with the total number of housing lots in the region equal to the total number of people searching among the localities in the region; people bring endowment income with them as they search and use their income to buy an all-purpose private good, X , whose price is 1, a good G provided by each locality that has the properties of a private good and costs g per unit to purchase (e.g. education), and to pay the rent, R , for a house lot; people have different preferences over X and G ; the amount of G is determined by direct democracy with the median voter decisive; each locality, l , is characterized by an amount or quality of the publicly provided good, G_l , the number of house lots in the locality, H_l , and the rent for house lot, R_l , assumed to be the same for each lot in the locality.

The main results of the model:

9. Two equilibrium conditions must be satisfied as people choose among the localities:
 - a. The utility maximizing condition: Each person must choose the town whose combination G_l, R_l yields the highest utility.
 - b. The overall search equilibrium condition: The number of people who most prefer town l must equal the number of housing lots, H_l in the locality, for all localities $l = 1, \dots, L$.
10. The overall search equilibrium condition may not be achieved, in which case someone always wants to move to a new locality. And if the overall search equilibrium happens to be achieved, any small change, such as a change in tastes for G in one of the localities, can lead to an unending search for a new equilibrium.
11. The market for land plays a key role in establishing equilibrium if one exists. For example, if both rich and poor people are searching among the localities, then everyone would want to live with the rich because the rich pay a higher share of the property taxes to pay for education. The only possible equilibrium is if land rents are higher for the rich in rich-only communities than in mixed rich-poor communities, and if land rents are higher for the poor in mixed rich-poor communities than in poor-only communities. That is, the differences in land rents have to compensate for the desire to live among the rich.

The next section of the chapter considers inefficiencies that arise with *mobile capital*. Here the focus of the literature is often at the national level since capital can move easily across national borders. The assumption in this section is that the supply of capital is perfectly elastic to a nation.

12. As shown in Chapter 19, a tax on the returns to capital (on the demand for capital) when the supply is perfectly elastic leads to a movement of capital out of the nation and lower production. The return to capital rises by the full amount of the tax, and the full burden of the tax is passed on to consumers or labor.
13. The incentive for a nation under these conditions is to reduce the tax on capital and raise it on labor, which is less mobile than capital. But this ignores an externality from the tax, the gains to other nations as capital moves to them. Therefore, there is an incentive to set taxes on capital too low on efficiency grounds. There may even be a race to the bottom in the taxation of capital as nations compete for capital.
14. The countries in the EU that have high taxes on capital want the rates to be harmonized at a high level to avoid losing capital to the low-tax nations, but that policy has not been accepted as of 2008.

The chapter concludes with some implications of the movement of people on society's quest for *end-results equity*. Once again the focus is on the local governments.

15. If a locality wants to redistribute income, the movement of people can make it difficult to do so. This is the competition problem described in Chapter 21.
16. The worst case for local redistributions occurs if mobility is costless, as in the Stiglitz model, so that equals must be treated equally in equilibrium (there is horizontal equity). Suppose one locality adopts the Atkinson social welfare function and assumptions described in Chapter 5 and can use non-distorting lump-sum taxes and transfers. Then it will level everyone to the mean. Everyone with income above the mean income in the redistributing community will move to another community, and everyone with income below the mean income in other communities will move to the redistributing community. The mean income in the redistributing community falls. If the state (provincial) government does nothing, then eventually only people with the lowest incomes live in the redistributing community. If the state (provincial) government transfers resources to the redistributing community from the other communities, then the mean income in the redistributing community rises, but incomes will still stratify by income levels across communities that redistribute and those that do not redistribute.
17. Mobility is undoubtedly costly, which gives local governments some leeway to redistribute income. But there is still a worry that mobility in response to local redistribution policies can lead to a race to the bottom in transfers to the poor.