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RELAXATION OF BARRIERS TO FACTOR MOBILITY AND INCOME REDISTRIBUTION*

by

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Abstract

Factor mobility is increasing over time due to reductions in transportation and communication costs. Political and other institutional barriers to factor mobility are also falling. Changes in factor markets change the market environment within which redistributive policies operate. In general, governments have a limited ability to redistribute among mobile factors. Redistribution may occur between mobile and immobile factors, and migration itself may generate fiscal benefits or costs that accrue to immobile factors. Attempts to redistribute income between mobile factors may ultimately affect primarily the income of immobile factors. Income redistribution with mobile factors also produces interjurisdictional fiscal externalities. This may make it desirable to shift more redistributive functions to higher-level governments. On the other hand, greater factor mobility may constrain rent-seeking, and greater centralization of redistributional powers may therefore be inappropriate. These issues arise both within existing federations such as the US and among the countries of the EC and of Europe more generallly.

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RELAXATION OF BARRIERS TO FACTOR MOBILITY AND INCOME REDISTRIBUTION

I. Introduction

The problem of income distribution lies at the heart of many of the great debates of the present century. Major and enduring political divisions within the democracies of the West have been founded, to a substantial degree, on differing views about economic inequality and about the desirability and efficacy of state intervention in the economy aimed at changing the distribution of income. Distributional considerations are important not only for policies that are explicitly redistributive in nature, such as tax policy or income support programs for the poor or elderly, but for health, education, housing, labor, agriculture, trade, transportation, and public utility and regulatory policy – in short, for almost all of domestic economic policy. The growth of government in the West over the past half-century or so is largely attributable to an increase in the scope and extent of the redistributive role of the public sector. Distributional issues also underlie some of the major international economic and political issues of our time. The competition between the economic systems of the East and West arose in part from differing views about income distribution in market economies and about the distributional consequences of pervasive state intervention in the economic system. The problem of "economic development," that is, the problem of raising the standard of living in poor countries, is also fundamentally a distributional issue on the international scale, arising essentially from the disparities in income and wealth between developed and less-developed countries. These and other distributional problems will remain central in domestic and international economic policymaking for decades to come.

It appears, however, that the economic framework within which distributional issues arise, and within which redistributive policy is made, is changing in significant ways. In particular, there are powerful economic forces that are leading to greater integration of factor markets and greater geographic mobility of factors of production over time. In a host of ways, direct and indirect, reductions in transportation and communications costs have made it easier for the owners of capital and for workers to relocate the valuable resources that they own. First, the direct pecuniary costs of moving one's assets or oneself from place to place fallen over time. As important, the informational cost of discovering factor market conditions in other locations and the cost of contracting in those markets have also been reduced markedly. The electronic and print media have played a major role in spreading information about factor returns (including, in the case of labor, information about all aspects of living standards in different regions or countries) as well as knowledge of social and economic institutions, including language

and commercial practice.

Changes in economic policy and political institutions also seem to be raising the degree of factor mobility over time. One conspicuous example of this is the increasing integration of the economies of the European Community. The principle of free mobility of labor for citizens of member states was established in the Treaty of Rome at the founding of the EC. In practice, various barriers to mobility continue to exist (for example, occupational licensure) but they are gradually eroding. The recent expansion of the EC to include Greece, Spain, and Portugal has increased the mobility of both labor and capital within Europe. The 1992 Single Market initiative is not itself primarily directed toward a lowering of the barriers to factor mobility. However, by facilitating commodity flows and the growth and establishment of commercial links of all kinds among the member states, it will indirectly increase the incentives for movement of both capital and labor across international boundaries.

In several cases, developed countries are experiencing substantial inflows of labor due to legal or illegal migration from developing countries. Canada's immigration policy clearly is deliberately designed to facilitate the migration of wealthy individuals and people with entrepreneurial talent. Immigration from Mexico to the US provides one important example of illegal migration of significant magnitude. [1] France has absorbed large numbers of immigrants from North Africa and elsewhere, and Germany continues to host substantial numbers of Turkish workers. Although migration of this sort could no doubt be reduced by stricter enforcement of border controls or by imposing harsher penalties on illegal migrants, these countries have so far been unwilling to take such steps, at least in an effectual manner. Recently, Turkey has applied for membership in the EC and, if admitted, its citizens would acquire the right to migrate freely within the EC countries. (Exclusion of Turkey from the EC provides one means by which existing member states might attempt to maintain a barrier to further immigration.) This same issue will arise if East European countries apply for EC membership. Indeed, even if they do not apply, the problem of migration from the East may nevertheless arise in an acute form as a consequence of deteriorating economic conditions and political unrest in the East, including the Soviet Union. In such an eventuality, the West European countries could try to enforce border controls, but whether they would choose to do so

[1] See Borjas (1990) for a recent discussion of US immigration experience and policy, and for references to additional literature. Chiswick (1988) also discusses some of the policy issues associated with immigration in the US.

remains unclear.

German unification offers a somewhat different perspective on factor mobility. As long as border controls between East and West Germany were enforced, labor and capital mobility between the two was virtually non-existent. Once (or as) the border collapsed, movement of people from East to West increased substantially. But in some relevant respects, the "mobility" of labor in the German case was really brought about by the "migration" of the political boundary of (West) Germany. East Germans became like West Germans in their eligibility for West German social insurance, their responsibility to pay West German income taxes, and their access, as German citizens, to the labor market (and other markets) of the EC. It should be noted, incidentally, that migration of people of German ancestry from Eastern Europe and the Soviet Union into Germany, where according to the German constitution they are accorded full citizenship, can be expected to continue as travel restrictions in the East are eased. Factor mobility is critically important for income distribution and redistribution for two reasons. First, mobility affects factor supplies, factor prices, and thus the gross distribution of income. Second, mobility affects the market response to policy interventions, and thus the equity and efficiency impacts of redistributive policies. This raises a host of issues for policy and for economic research. Some of these are outlined in the following sections.

II. The Incidence of Redistributive Policy with Mobile Factors

As a general proposition, factor mobility makes factor markets larger than they would otherwise be. Factors that cannot migrate to other locations can have (net) prices that differ from factor prices elsewhere, whereas spatial arbitrage works to equalize net factor returns for mobile factors. This has several implications for policy. Consider, as an example, a policy of income redistribution from high-income to low-income workers undertaken within a given jurisdiction. (Think of high-income workers as having more education or better skills than low-income workers.) In order to focus on the implications of factor mobility, suppose that relative commodity prices are unaffected by such redistribution (for example, because the jurisdiction is small relative to external markets on which such goods are traded)and that individual labor supplies are perfectly inelastic (so that distortion of the labor/leisure margin can be ignored). In the absence

of factor mobility, such a policy would simply entail a lump-sum transfer from high-income taxpayers to low-income beneficiaries. When workers are mobile, however, an increase in taxes may induce high-income households to leave the jurisdiction, while an increase in benefits for the poor may lead to immigration of poor households from other jurisdictions.

The outflow of high-income households reduces the availability, within the jurisdiction, of the labor that they supply. This results in an increase in the price of high-skilled labor, raising the gross income of high-skilled workers. Their departure from the jurisdiction entails a loss to the public sector of the net fiscal contribution that they would otherwise make. If they are costlessly mobile, migration must continue until their net incomes are equal to those attainable externally. If the jurisdiction is small, this external net income is almost unaffected by outflow of high-income households, which is to say that the taxpayers in the jurisdiction ultimately bear almost no burden from the tax imposed on them. These conclusions may be mitigated to some extent by (differential) migration costs. [2]

The story is quite similar if the beneficiaries of an income redistribution program are mobile. With expanded redistributive benefits, the jurisdiction becomes a more attractive location for potential beneficiaries from other jurisdictions. If the beneficiaries are participants in the labor market, the inflow of new workers would tend to depress the wages of low-income households. In some situations (depending on the type of redistribution program under consideration), beneficiaries might not be members of the labor force. Nevertheless, there could be non-traded consumption goods (such as

[2] As will become clear, the assumption that regional wages adjust in response to factor-supply adjustments depends essentially on the presence of some immobile factors of production. Many studies of income redistribution with mobile labor have assumed that wages are exogenously fixed and do not vary as migration occurs. This is true, for instance, of studies in the tradition of Mirrlees (1971) optimal income taxation, such as Wilson (1989a,b) and others (see Bhagwati and Wilson [1989]). Another context in which the assumption of exogenously-given wages has been used is in the analysis of centralized vs. decentralized redistribution by authors such as Pauly (1973) and Brown and Oates (1987). As a final example, Diamond (1981) uses the assumption of exogenously-given wages in his analysis of adjustment to trade shocks. When factor prices are exogenously fixed, factor migration driven by spatial arbitrage opportunities does not equalize factor returns, and migration is complete unless equilibrated by rising costs of migration at the margin.

housing) whose prices would be driven up by an inflow of low-income households, so that the real income of low-income households, gross of transfers, would still be reduced by immigration. In any case, if migration is costless, immigration would proceed until net incomes were equalized across locations. If the jurisdiction is small, the gross (real) income of low-income households within the jurisdiction would fall by almost the amount of the transfer since the net income of these households, both within the jurisdiction and externally, is essentially unaffected by the redistributive transfers. The inflow of beneficiaries would increase the expense of the transfer program for the government.

Note that if both types of workers are freely mobile and the jurisdiction is small so that the net incomes of both types of workers are exogenously given, the only factor return within the jurisdiction that can be affected by the redistributive policy is the return to the immobile factor – even though, in this example, the redistributive policy, in a statutory sense, has nothing to do with the immobile factor, involving only a transfer from some owners of mobile factors to others.

To formalize this argument slightly, suppose that total production in a given jurisdiction, measured in value terms, is equal to $f(l_1, l_2)$ where l_1 and l_2 denote the numbers of mobile high-income and low-income employed in the jurisdiction and where f is strictly concave in these two arguments, reflecting the presence of some immobile factors. Suppose that the jurisdiction is small and that migration is costless, so that the net incomes of each type of labor, ω_1 and ω_2, are taken as exogenously given from the jurisdiction's viewpoint. Suppose that a tax per worker of t is imposed on type-1 workers and a subsidy per worker of s is paid to type-2 workers. Assuming marginal-productivity factor pricing, the equilibrium levels of employment of each type of worker are determined simultaneously from the conditions that

$$f_1 - t = \omega_1 \tag{3}$$

$$f_2 + s = \omega_2, \tag{4}$$

where subscripts on f denote partial derivatives. These conditions can be solved for $l_1(t, s)$ and $l_2(t, s)$. The budget constraint linking the tax and subsidy levels is

$$tl_1 = sl_2,$$

which can be used to solve for s implicitly as a function of t. The net income accruing to the immobile factor of production is simply $Y_1 \equiv f - f_1 l_1 - f_2 l_2 = f - (f_1 - t)l_1 -$

$(f_2+s)l_2 = f-\omega_1 l_1-\omega_2 l_2$. Now, consider a balanced-budget increase in the level of tax t on the income of type-1 workers, accompanied by an increase in the subsidy s paid to type-2 workers. Let dl_1/dt denote the total derivative of l_1 with respect to t, showing the total effect of this policy change on the equilibrium number of type-1 workers in the jurisdiction, and similarly for dl_2/dt. Then

$$\begin{aligned}\frac{dY}{dt} &= (f_1-\omega_1)\frac{dl_1}{dt} + (f_2-\omega_2)\frac{dl_2}{dt} \\ &= t\frac{dl_1}{dt} - s\frac{dl_2}{dt.}\end{aligned}$$

Provided that an increase in the amount of redistribution causes emigration of taxpayers (i.e., $dl_1/dt < 0$) and immigration of low-income households (i.e., $dl_2/dt > 0$), it is clear that $\frac{dY}{dt} < 0$ except when there is no redistribution ($s = t = 0$). In other words, the owners of the immobile factors are harmed by an increase in the extent of redistribution among mobile factors. [3]

There are several important points to note about this simple exercise. First, one effect of redistributive policy is to widen the difference between the gross incomes of the high- and low-income households. [4] Second, if the jurisdiction is small and if migration costs are low, the redistributive policy cannot have much impact on the net incomes of original residents. Third, the effect of migration is to reduce the resource

[3] The intuition behind this result is fairly straightforward. The tax/transfer policy for mobile factors is analogous to a tariff/subsidy policy for traded goods. It is a standard trade theory argument that a small jurisdiction cannot raise the welfare of a representative household – here, the owners of immobile factors – by trade distortions. The same general conclusion would hold if one assumes high-income households to be mobile and low-income households to be immobile. Under this assumption, taxes on the rich used to finance benefits for the poor end up harming the latter. An analysis of the impact of state income taxes in the US based on this approach (Wildasin, forthcoming) indicates that low-income households could bear a burden from income tax revenue collected from high-income households as high as 25–50% of incremental revenue in some states. These numbers should only be regarded as illustrative, but as such, they indicate that the long-run distributional impact of redistributive policies may be quite perverse.

[4] In the notation of the simple model just described, the gross wage differential is $f_1 - f_2$; by equations (3) and (4), this is equal to $\omega_1 - \omega_2 + t + s$, which must rise as t and s are increased.

base from which redistribution is financed (l_1 in the model) and to raise the population of beneficiaries (l_2). Thus, the tax contribution per high-income household required to finance a given level of benefit per recipient household is higher than it would be in the absence of migration. Fourth, to the extent that the policy does alter net incomes, it does so not just in the jurisdiction within which the policy is implemented, but in all other jurisdictions which are linked to it through migration. That is, the net impact of redistribution on the mobile factors "spills out" of the jurisdiction undertaking the policy. [5] Fifth, the policy affects the efficiency of resource allocation by providing fiscal incentives for migration. If markets are otherwise functioning efficiently, the introduction of taxes and transfers creates wedges between private and social marginal returns to factors in the jurisdiction carrying out the redistribution. The private return to high-income households residing in the jurisdiction is the after-tax wage, which is lower than the value of such a household's labor in production, while the private return to a low-income household residing in the jurisdiction is its income inclusive of transfers received, which will exceed the value of the household's labor in production. Finally, other immobile factors will be affected by migration. Generally speaking, the effect of increased redistribution is to reduce the net returns to the immobile factors.

Note that the above remarks apply essentially without change when discussing redistributive policies involving factors of production other than labor. For instance, a tax on capital, the proceeds of which are used to make transfers to labor, could be analyzed in an identical fashion. Furthermore, the policy in question need not involve

[5] The fact that a redistributive policy within one small jurisdiction may have a large effect on the prices of immobile factors and a small effect on the prices of mobile factors does not mean that the latter are "negligible" for all purposes. The effect on factor prices, though small, accrues to all factor owners in the rest of the economy. The total effect of the redistributive policy on factor incomes is thus the product of a change in the prevailing wage (which is small) times the total number of affected workers (which is large); this total effect will generally be of the same order of magnitude as the amount of tax revenues collected and transfers paid in the jurisdiction where the redistribution is undertaken. (Bradford (1978) uses an argument of this type to show that a property tax imposed on mobile capital in a single small jurisdiction lowers aggregate net capital income by an amount that is approximately equal to the tax revenue collected.) In short, a small jurisdiction's tax/transfer policy really does bring about a redistribution of income from one group of factor owners to another, but since most of the factors are employed outside of the jurisdiction where the policy is implemented, most of the redistributive impact is external to that jurisdiction as well.

explicit transfer payments to beneficiaries. Suppose, for example, that both high- and low-income households are subject to income taxation at a proportional rate. A move to a progressive rate structure that would raise the tax burdens on the rich and lower the tax burdens on the poor would be functionally equivalent to the original proportional tax combined with a supplementary tax on the rich that would finance transfer payments to the poor. The policy change would therefore give rise to the effects described above. Note further that the provision of public goods and services financed by taxes can give rise to similar effects. Elementary and secondary education in the United States has historically been provided by local governments whose main source of revenue (other than transfers from higher-level governments) has been a local property tax. Consider a community with both low- and high-income households that provides education on a uniform basis to all residents. If education is paid for through a per-student charge, its provision entails no cross-subsidy from high- to low-income households (ignoring the possibility of peer-group effects, for simplicity). However, if the education is financed with property tax rates levied at uniform rates within the jurisdiction, low-income households (who, empirically, consume less housing than the rich) will pay less and high-income households will pay more relative to the situation with a fixed per-pupil charge. The provision of public goods financed in this way thus becomes a form of income redistribution. [6]

III. Implications of Factor Mobility for Redistributive Policy

[6] Some have argued, in the US case, that this gives rise to exclusionary zoning in which (small or multiple-occupant) houses desired by low-income households are prohibited in jurisdictions inhabited by high-income households, resulting in an equilibrium in which cross-subsidies are eliminated and the property tax is effectively converted into a per capita user charge (Hamilton (1975)), though the extent to which this strategy is successful remains subject to debate. There has been in general considerable discussion of the equity implications of property tax financing for education. State governments now finance a substantial amount of local expenditure on education through systems of grant assistance to localities. For further discussion of some of these issues and references to the literature, see Mills and Oates (1975), Wildasin (1986), and Mieszkowski and Zodrow (1989). Recently, Epple and Romer (1991) have presented a model of local income redistribution in which (in one central case) residents can use property taxation to appropriate rents to land owned by others.

The interconnectedness of jurisdictions linked by markets for mobile factors has major implications for income redistribution policy. Factor mobility means that redistribution entails interjurisdictional externalities. It also means that the effect of redistributive policies within any one jurisdiction on net factor prices is reduced. When factors are immobile, the distribution of income within each region or jurisdiction can be controlled using policy instruments that do not affect the distribution of income in other regions, in effect making income redistribution a "local" public good. However, when factor market barriers are reduced or eliminated, net factor returns become linked and the redistribution of income becomes a public good whose benefits are as extensive as the enlarged factor markets themselves.

Some authors see in this an argument for moving the redistributive function of government from lower-level to higher-level governments. For example, Stigler (1957), Oates (1968), and Musgrave (1969) all view redistribution as inherently a central-government responsibility. Barring complete centralization, grants from a central government to lower-level governments could support the redistributive policies of the latter. Such grants can relieve lower-level governments of some of the fiscal burden of redistribution, offsetting the costs imposed by inflows of households that impose net fiscal burdens and losses suffered by outflows of those that are net fiscal contributors. They can also internalize the fiscal externalities associated with income redistribution. If income redistribution is a public good, then the fact that the impact of redistribution spills over to other jurisdictions when factors are mobile suggests the need for corrective subsidies in order to insure socially-efficient levels of redistribution. Finally, grants can mitigate the locational inefficiencies associated with interjurisdictional *differentials* in the amount of income redistribution. [7]

Other authors, however, reach quite different conclusions. (See, for instance, Brennan and Buchanan (1980) and McLure (1986).) The centralization of the redistributive function implies the centralization of government power. Restricting the authority of

[7] See, for example, Buchanan (1950, 1952), Boadway and Flatters (1982), Gramlich (1985), and Wildasin (1986, 1991a) for discussion of the efficiency and equity effects of intergovernmental grants and further references to relevant literature. Peterson and Rom (1990) have recently argued the case for further centralization of assistance to the poor in the US.

the central government to redistribute income limits the extent to which such power can be exercised arbitrarily. Put in somewhat different terms, "competition" among decentralized governments for factors of production can help to insure that taxes assessed on them correspond more closely to the benefits that they receive – that is to say, taxes cannot be used as readily to provide benefits for others, which is the essence of redistribution. Oates and Schwab (1988) analyze a model in which the free mobility of capital induces the immobile residents of a jurisdiction to choose a zero tax on capital, and to bear all the costs of local provision of amenities (in their model, improvement of environmental quality) from their own incomes, an outcome which is socially optimal.

Sorting out these conflicting views is not easy. Redistribution, after all, involves the use of the coercive power of government. If redistribution serves broadly-shared public objectives, this coercive power may simply be the means by which free-riding behavior in the provision of a public good is circumvented. While there is much scope for debate about the desired degree and methods of income redistribution, few would dispute that some redistribution – from rich to poor – is an important social goal. Relaxation of barriers to factor mobility may thus inhibit redistribution of income to an undesired degree.

On the other hand, much redistribution does not transfer income from rich to poor. Many policies transfer resources in the opposite direction, or from rich and poor to the middle class, or from society at large to workers or owners of capital employed in particular industries. Factor mobility may constrain such rent-seeking and redistribution of income in the "wrong" direction. To the extent that this is true, the reduction of barriers to factor mobility may result in a more equitable distribution of income precisely because it limits the ability of public sector authority to transfer resources from the politically weak to the politically powerful. [8]

Enhanced factor mobility can also be important in providing a form of "market

[8] In this connection, it should be recalled that income redistribution is a socially-costly activity because it distorts economic behavior in many ways, and rent-seeking itself is also socially costly. Greater openness of factor markets may save resources and improve resource allocation by reducing redistribution and thus the magnitude of these efficiency losses.

insurance" in a world of uncertain incomes. In a market economy, the incomes of workers in different regions, industries, and occupational groups are constantly changing due to a host of random shocks. A popular rationale for many forms of government intervention in the economy (including, with varying degrees of plausibility, progressive income taxation, unemployment insurance, general education, job-training policies, and many forms of industry-specific interventions such as tariff restrictions) is that these policies can offset or weaken the impact of such shocks, providing a form of social insurance. [9] But when barriers to factor mobility are reduced, the market itself provides greater insurance against a variety of shocks, since mobile factors can migrate and thus escape adverse shifts in factor prices. It may well be the case, therefore, that the desirability (or the power of political constituencies) for at least some types of redistributive policies diminishes as factor markets become more open. [10] Lawrence and Litan (1986) have argued that effective movement toward freer trade (i.e., toward reductions in tariffs, quotas, and other barriers to free commodity trade) requires that provision be made for support, retraining, and reallocation of workers who may be displaced by trade shocks. Perhaps one advantage of augmenting a customs union to allow free factor mobility in addition to free commodity flows (i.e., an advantage of having what Wooton (1988) calls a "common market" rather than just a "customs union") is that freer factor mobility can provide "protection" for workers from what might otherwise be rather large negative quasi-rents associated with trade adjustment

[9] See Varian (1980), Eaton and Grossman (1985), and Staiger and Tabellini (1987), for example. It is not always clear why private insurance markets cannot adequately insure some or all of the risks covered by these public policies. That is not the main issue for present purposes, however.

[10] Boadway and Wildasin (1990) examine optimal income redistribution policy in a model where workers are initially assigned to one of two risky industries or regions; ex ante, employment in either sector offers the same expected utility. If migration from one sector to the other is costless, then utilities must be equalized ex post as well, and there is no need for redistribution of income from workers in a sector with a favorable shock to those in a sector with an unfavorable shock. On the other hand, if migration is costly, real income differentials do arise ex post in the absence of redistribution, and redistributive policies may then be desirable (in the sense, for instance, that they raise ex ante expected utility). The point here is that part of the social benefit from redistribution is lost when factors become increasingly mobile, since mobility itself insures the net incomes of the factors. Indeed, the empirical findings of Topel (1986) and LaLonde and Topel (1991) support precisely this conclusion.

– "protection" of a kind that promotes rather than inhibits efficient resource allocation.

Of course, in the short run, the gainers and losers from migration may be more or less identifiable. Insurance contracts are supposed to be written before uncertainty is resolved. One can imagine that when the Treaty of Rome (establishing the EC) was written, few anticipated large migratory flows of workers from one EC country to another, at least within a short time horizon. The longer-run consequences of factor mobility, particularly the distribution of gains and losses associated with it, were difficult to foresee and so there was, perhaps, a "veil of ignorance" in this respect. Under such conditions, there might be little reluctance to write the "insurance contract" of free factor mobility into the EC. On the other hand, when Portugal, Spain, and Greece applied for membership in more recent years, the immediate potential for migration seemed more apparent to many observers, and there was more uneasiness about incorporating such countries into the EC. The same is true, to an even greater extent, with respect to Turkey and some of the North African countries. In these cases, allowing free factor mobility with the EC countries might be unattractive on "adverse selection" grounds. Rather than providing further insurance to existing residents of EC countries, admission of new members may entail a costly redistribution of income away from current member states.

While greater factor mobility may call for increased centralization of the redistribution function of government, there are in some cases – especially when barriers to factor movements are suddenly and unexpectedly reduced – no obvious institutions through which such centralization can occur. Europe provides an obvious example. Jacques Delors, the President of the Commission of the EC, frequently advocates the strengthening of European institutions. [11] The existing EC fiscal institutions, such as they are, are indeed designed to facilitate income redistribution. The Common Agricultural Policy certainly redistributes income, but (like US agriculture policy) it is quite costly. The European Regional Development Fund and the European Social Fund are scheduled to increase their expenditures in the coming years. Their programs are targeted at

[11] See, for example, Delors' remarks in the Preface of Padoa-Schioppa *et al.* (1987). This study contains some discussion about the possible development a system of equalizing transfers among the EC countries.

low-income regions within the EC and at workers who are unemployed or low-skilled. Expansion of these programs, according to EC official pronouncements, is supposed to maintain "solidarity" as the Single Market and other integration efforts proceed. What this appears to mean is that these funds are to protect targeted groups from disadvantageous shocks as the European trading system is liberalized – very much in the spirit of the social insurance argument mentioned above. An important question is whether or not these programs will achieve these objectives, especially when one takes into account possible offsetting policy adjustments by beneficiary governments (Wildasin, 1990). So far, empirical research on this issue is lacking.

Even if the EC provides a framework within which existing member states could centralize their redistributive policies, it is not obvious that they would benefit very much from doing so. First, it might be possible to achieve the most important fiscal benefits of centralized government through negotiation or even individual action. Suppose for instance that a given high-wage jurisdiction provides generous social benefits to its workers, and that its border with a low-wage neighbor is opened. Incentives exist for residents of the low-wage jurisdiction to migrate to the high-wage jurisdiction. Such migration is harmful to workers in the high-wage jurisdiction if they supply labor of a type that is highly substitutable with that of migrants. If the migrants are net fiscal beneficiaries of the tax/transfer/public services system of the high-wage jurisdiction, then those who support that system – the initial (net) taxpayers – are also harmed by immigration. How can the residents of the high-wage jurisdiction protect themselves from the adverse effects of such immigration?

The obvious option is to close the border, but this may not be possible. Another option is to try to negotiate with the low-wage jurisdiction to reduce some of the incentives for migration. for example, by asking the low-wage jurisdiction to provide greater social benefits for its own (potentially mobile) residents, at the expense of its immobile factors of production. Even if this is not possible, it may actually be in the self-interest of the high- wage jurisdiction to make unilateral transfers to the low-wage jurisdiction in order to limit the amount of migration that would occur. Such transfers, if provided in a form that raises the net income of mobile workers in the low-wage jurisdiction, could actually enable the factor owners in the high-wage jurisdiction – owners of both mobile and immobile factors – to obtain higher net incomes than would otherwise be the

case. [12] Central government institutions do often bring about net transfers of resources from one region of a jurisdiction to another, the Canadian system of inter-provincial equalizing transfers through the central government providing one conspicuous but by no means isolated example. However, it is certainly possible to carry out intergovernmental transfers without such an apparatus present.

Second, the benefits from centralization (or negotiated coordination of policy) might not, as an empirical matter, be very large. These benefits depend both on the extent of factor mobility and on the extent to which mobile factors impose net fiscal burdens, or make net fiscal contributions, to the jurisdictions that they enter or exit. To return to the US case for a moment, both capital and labor are highly mobile, but the fiscal impact of such mobility could be relatively small (though not negligible) since state and local governments may not engage in much redistribution. More empirical research is necessary to measure accurately the net fiscal impact of factor migration within the US. Of course, the fiscal impact of factor movement among the states and localities of the US might be small precisely because there is a central government that undertakes primary responsibility for redistribution. In other words, the US may be in a policy equilibrium in which the main benefits from centralization have been realized, and in which factor mobility limits the degree of income redistribution that is carried out by lower-level governments.

In the European case, labor migration is more limited than in the US but appears to be increasingly important. Capital mobility is extensive. Taxes and expenditures in Western Europe are quite high and support extensive programs of redistribution. In such circumstances, immigration of net fiscal beneficiaries and emigration of net fiscal contributors could easily have a large fiscal impact. However, it appears that little

[12] This argument is developed in more detail in Wildasin (1991b). An interesting related finding, in what appears at first sight to be a completely unrelated context, is provided in Sinn (1988). Sinn shows that transfers of foreign aid away from those living in the Sahel toward those living in neighboring regions may actually raise living standards in the Sahel. In Sinn's analysis, this possibility arises because land in the Sahel is assumed to be a common property resource. In Wildasin (1991b), the possibility of gains from transfers to another jurisdiction arises because of the fiscal benefits that immigrants can capture – which are, themselves, analogous to a common property resource.

empirical research has been undertaken so far that would quantify, especially in any reasonably comprehensive way, the fiscal impact of migration of either capital or labor in Europe. [13]

The benefits of a central governmental institution appear to depend partly on the number of jurisdictions involved. Prior to unification, West Germany began to undertake large transfers to East Germany in order to limit the amount of migration to the West and thus to ease pressure on the labor and housing markets in the West. Since unification, the same policies have continued; unification has undoubtedly facilitated more effective policymaking but was not a *sine qua non* for interjurisdictional redistribution. The situation facing Western Europe as a whole may be quite different. Economic distress in Eastern Europe and the Soviet Union, coupled with the relaxation of travel and emigration restrictions in the East, may give rise to substantial East-West migration (of labor). If such migration were to materialize, the Western European countries might find it difficult to absorb large numbers of immigrant workers and households into their labor and housing markets and their health, unemployment, income maintenance, and public pension systems. In contrast to the situation facing Germany before unification, the number of agents (jurisdictions) on each side is relatively large. No single West European country can effectively provide inducements for workers to remain in the East.

The West, collectively, might find it advantageous to do so, but coordination of

[13] To see how this might be done in the case of public pension programs, consider a worker that is potential migrant from one EC country to another. Suppose that this worker earns an average wage and will live to life expectancy. Given the worker's age, and given the parameters of the public pension program (contribution rates, benefit formulas) it is in principle possible to calculate the net present value of participation in the public pension program, both in the origin country and in a country to which the worker might migrate. How large would this present value be? Preliminary analysis suggests that workers could easily experience changes in the present value of lifetime income on the order of tens of thousands of dollars – amounts equal in some cases to one or two years' worth of earnings – by moving from one country to another. (I hope to report these results elsewhere soon.) This is not really surprising, given the magnitude of public pension programs in most advanced industrialized countries. (See Bovenberg *et al.* (1991) for a recent discussion of pension programs in the Netherlands.) But the numbers suggest that the fiscal incentives for migration among EC countries, and the fiscal impact of migration, could certainly be substantial.

policy among the EC member states, the Nordic countries, and (presumably) the US and Canada (and Japan?) to bring this about could be most difficult. Perhaps the EC will provide an institutional framework or at least a sort of institutional reference point within or around which greater cooperation among the Western European countries may develop. The development of any such institutions, of course, is highly speculative.

IV. Conclusion

Increasing factor mobility poses a host of questions for research in public economics. The discussion here has touched upon a few that are directly related to income redistribution policy. Many important complexities have been suppressed in order to provide some overall perspective. In closing, some of these complexities, and some of the other fiscal issues raised by factor mobility, should be recalled. The taxation of capital income, for example, is an extraordinarily complex undertaking in modern economies. The tax treatment of corporations in a multi-national setting involves tax crediting and tax deduction arrangements, transfer pricing, and apportionment rules. Tax, transfer, and expenditure policy toward households raises questions regarding aging, education, health care provision, unemployment insurance, public pensions, and housing policy. The tax treatment of capital income at the personal level affects the fiscal benefits and costs of migration for workers since such capital taxes are ordinarily levied on a residence basis, thus creating an interesting linkage between capital tax policy and labor markets. It can be useful to abstract from these and other complexities in thinking about the broad implications of factor mobility for income redistribution. But simple models applied to complex problems must be interpreted with care.

The issue of policy coordination among governments has been discussed briefly but deserves more attention than it has been given here. Is there a need to harmonize or coordinate tax and transfer policy among jurisdictions that trade goods or factors with each other? Clearly, the fiscal externalities associated with factor mobility suggest that some types of coordination could be beneficial. However, little analytical attention has been devoted so far to investigation of the potential gains from harmonization of individual income tax structures, public pension plans, health care systems, or other aspects of social and economic policy among jurisdictions that are linked by factor

mobility or goods trade. Are there compelling reasons to try to harmonize such policies, and if so, in what respects would harmonization be most advantageous?

Harmonization or coordination of policy does not involve only distributional issues. Recently there has been considerable discussion about whether the countries of the EC may have to harmonize their VAT rates with the lifting of fiscal frontiers, and the introduction of the Goods and Services Tax in Canada has raised concern there about the phenomenon of cross-border shopping. Proper investigation of these problems requires analysis of how jurisdictions set policies when they act in a decentralized way, that is, of what happens in the absence of harmonization. Some commentators have argued that explicit coordination of policy is unnecessary and that governments themselves will make the proper adjustments to policy when confronted with open borders. Modelling the behavior of independent governments is difficult, however. This is especially true when the number of jurisdictions is small, since in this case the decentralized outcome involves strategic interplay. These issues go beyond the scope of the present paper. It should be noted, however, that recent work on strategic models of fiscal competition has opened up promising lines of inquiry on these topics.

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