# Irish Migration: The Search for the Efficiency and Equity Basis of a European Regional Policy

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## I INTRODUCTION AND MOTIVATION

In the US and Canada a federal system of government is used, i.e., there exist a number of tiers of government with different functions assigned to each level. Government intervention in these countries, as in many other western democracies, is often justified by the existence of public goods. Some public goods, however, convey benefits that are local, i.e., limited to a sub-region of the nation. It can be argued that the benefits and costs of a local public good are more likely to be registered correctly if the decision regarding its provision is taken by those residing in the region serviced by the good. This argument can in turn be used as a rationale for a federal or tiered system of government (Broadway and Wildasin, 1984, p. 498).

The European Community conforms to the general structure of a federal system of government. It differs from its North American counterpart in that, at least historically, the highest tier is not perceived to be as powerful. The 1992 process and the growth in constraints on independent action by member governments will tend to move the European federation more towards its North American counterpart.

Discussion of the fiscal aspects of the 1992 process has tended to focus on specific measures such as the approximation of VAT rates. This is unfortunate as it distracts attention from the more fundamental alteration in the nature and scope of national-EC level fiscal relations.

Given the possible future direction of EC fiscal relations it is important to incorporate the lessons from the North American fiscal federalism literature into our policy discussions. In a synthesis of the efficiency aspects of a federal system of government, Broadway and Flatters (1982) conclude that:

> — it cannot be assumed that migration decisions taken by individuals in a decentralized federation will result in an efficient allocation of labour across regions;
> — self-interested regional governments, acting on behalf of their residents, have an incentive to take budgetary actions that, from the federation's point of view, lead to inefficiencies and inequities; and
> — the federal administration, when faced with such inefficiencies and inequities, will be justified in using a system of equalization payments as a policy instrument in pursuing federal equity and efficiency.

The message from this literature is that inefficiencies of the migration process contribute to the sub-optimality of a decentralised system of government and provide a rationale for government intervention. Net migration from Ireland has been positive and substantial for the last 100 years. This trend was reversed in the 1970s but emigration has re-emerged in recent years. In the past, Irish economists, historians and sociologists have devoted much effort to quantifying the extent of migration, identifying its determinants, and assessing the social impact of this phenomenon. We believe that a useful perspective on migration can be achieved by analysing the phenomenon in the context of a European federation. We accept that this will amount to ignoring the substantial flow of emigrants to non-EC countries. However, by limiting ourselves to the European context, we can identify practical policy responses to migration which are suggested by theory.

In the next section the efficiency of the migration process is considered. We use a number of simple models to illustrate: how migration can give rise to costs for the other residents of the migrant's countries of origin and destination; how, even in the absence of migration costs, congestion in the use of public goods and inappropriate taxation can give rise to a sub-optimal distribution of labour; and how national redistribution policies can lead to well paid people leaving poor countries. The implications of this type of analysis for European policy are developed. We also argue that the rationale for the type of intervention proposed can be made on equity grounds even

when migration is absent. Conclusions and a direction for future research are identified in Section III.

## II MIGRATION AND EFFICIENCY

There is a popular perception in Ireland that emigration is a "bad" thing. The ill effects are variously considered to fall on the emigrants themselves or to be borne by the country. Clergymen, for instance, speak of "pressing a few pounds into the hands of emigrants". Some economists have suggested a possible deleterious effect on the country's rate of growth if the more entre-preneurial should emigrate. There has been an absence of any formal work considering the efficiency implications of migration. Irish work on migration has concentrated on attempts to quantify the phenomenon and to assess the importance of such determinants as income/wage differentials. In the context of a European environment where mobility barriers of all types are to be reduced we believe that it is time to address directly the optimality of the migration process.

In what sense, if any, does labour migration "harm" the country of origin or the country of destination? Will decentralised migration decisions lead to an efficient allocation of labour between countries in a European federal system? To what extent do national and European policies contribute to or detract from the achievement of such efficiency? Are there alterations in the current policy arrangements that can improve on the current outcome? It is important that formal analysis of these questions be undertaken. The questions sum-marised above form a research programme. In this section we will limit our-selves to reviewing the literature and to an illustration of the types of models that can address these questions.

### (a) Public Property and Migration

Who gains and who loses on account of migration? A possible answer is that no one gains or loses except for the migrant himself. If the migrant has been receiving the value of his marginal product in his country of origin and will be paid the value of his marginal product in his country of destination then for a small order of migration the rest of the population in both countries will neither gain nor lose while the migrant himself may gain if the value of his mar-ginal product is higher in his country of destination. This is what Usher (1977) refers to as the standard case. In his paper, Usher outlines the way in which migration may lead to costs or benefits to other residents of the migrant's country of origin or country of destination by surveying and developing "exceptions" to the standard case.

Usher's most significant contribution is to develop the implications for

the costs and benefits of the migration process of the existence of publicly owned property. In most societies a significant proportion of the nation's capital is publicly owned. This includes not only items such as public housing, roads, parks, and nationalised industry but also the public's share of private property which is acquired through taxation. When a person leaves one country for another he forfeits his share of this property in his country of origin and acquires a share of such property in his country of destination. The full income forgone by an emigrant in his country of origin includes both his wage (the value of marginal product) and his share of public property, which will be a share of the excess of average over marginal product. Usher demonstrates how, when there is public property, migration can result in a loss of income for the original residents of the country of destination.

This model can be adapted to analyse the costs of migration between two regions. We do this and interpret the regions as Ireland and the UK. A corollary to the existence of public property is the existence of public obligations. An external government debt is an example of such an obligation. This raises a question: to what extent does the acquisition of a debt induce inefficient migration and who will lose if such migration occurs? In particular, is it possible for the original residents in the country of destination and the non-migrants in the country of origin to lose?

Consider a simple model where we have two countries (Ireland and the UK). The total labour force is of fixed size and it can migrate freely and costlessly between countries. Irish output is used as the numeraire. We abstract from price effects and unemployment by assuming that migration has no effect on the price of UK output and that labour is either employed in Ireland or the UK. In each country labour is combined with specific capital to produce output using linearly homogenous production functions. Assume that each of these functions is differentiable and has positive but declining marginal products for each input. In return for its input labour is remunerated according to the value of its marginal product.

In the absence of public capital, labour migrates between countries until the value of marginal product is equalised. This gives rise to an efficient allocation of the population between the two countries. This is illustrated by $N^*$ in Figure 1(a). In this figure the total labour force is measured by the length of the horizontal axis. Labour in Ireland is measured from the origin $O_{IRL}$ while labour in the UK is measured from the origin $O_{UK}$. The vertical axes are used to measure wage and full income in terms of units of the Irish good. In this case the full income of labour is just the wage.

Let us now introduce public capital. Of the total capital stock in a country some will be privately owned either domestically or by foreign sources while some will be publicly owned. Usher (1977) calculated the share of public

Figure 1(a)
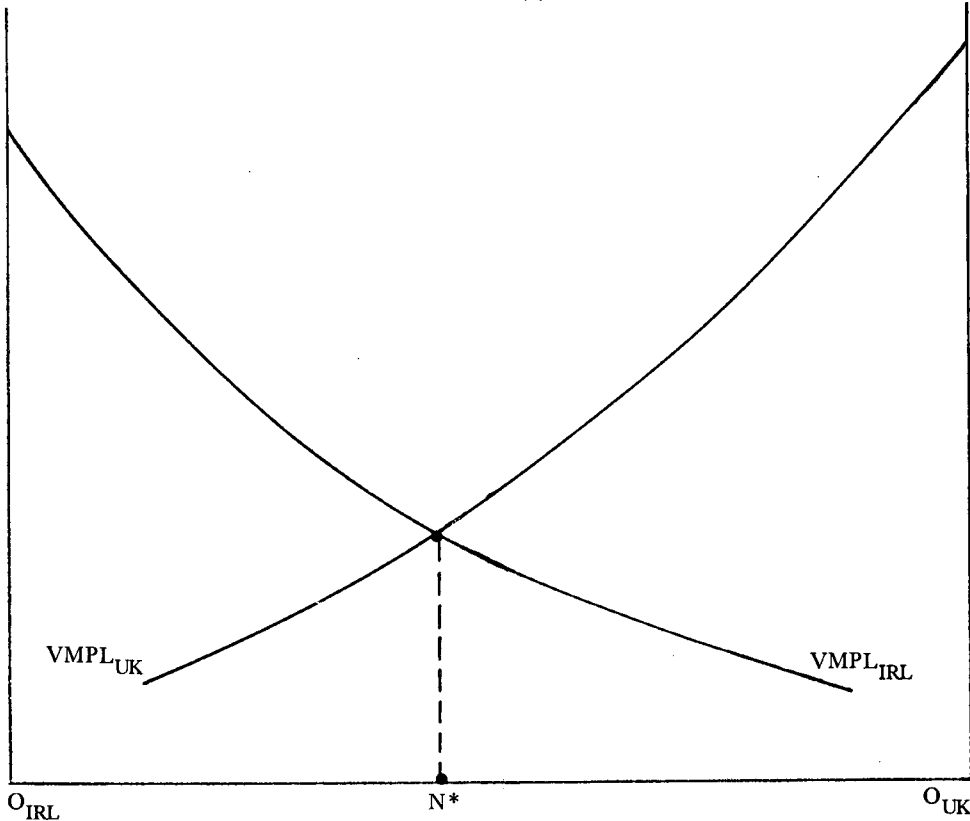


assets in total assets as 58 per cent for the UK in 1974. Defining this share as $\theta$, the remuneration of labour will be made up of the value of marginal product and $\theta$ times the difference between the value of average and marginal product.[1]

The VAPL, VMPL, and remuneration curves for Ireland and the UK are drawn in Figure 1(b). The entitlement to a share in public property does not, of necessity, lead to inefficiency in the distribution of labour. Labour will migrate across countries until full income is equalised. This equalisation could occur at the optimal population distribution, $N^*$. In general, of course, we must conclude that there is no presumption that the market equilibrium will produce an efficient outcome. To aid simplicity in the next step of our argument let us assume that the introduction of public property in both countries does not induce inefficient migration. This case is illustrated in Figure 1(b).

1. People often claim that the "quality of life" in Ireland compensates for other areas in which the country is lacking. In theory one could capitalise this factor and add it to public capital and thereby increase $\theta$.

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Figure 1(b)



$$R_i^o = VMPL_i + \theta_i(VAPL_i - VMPL_i)$$
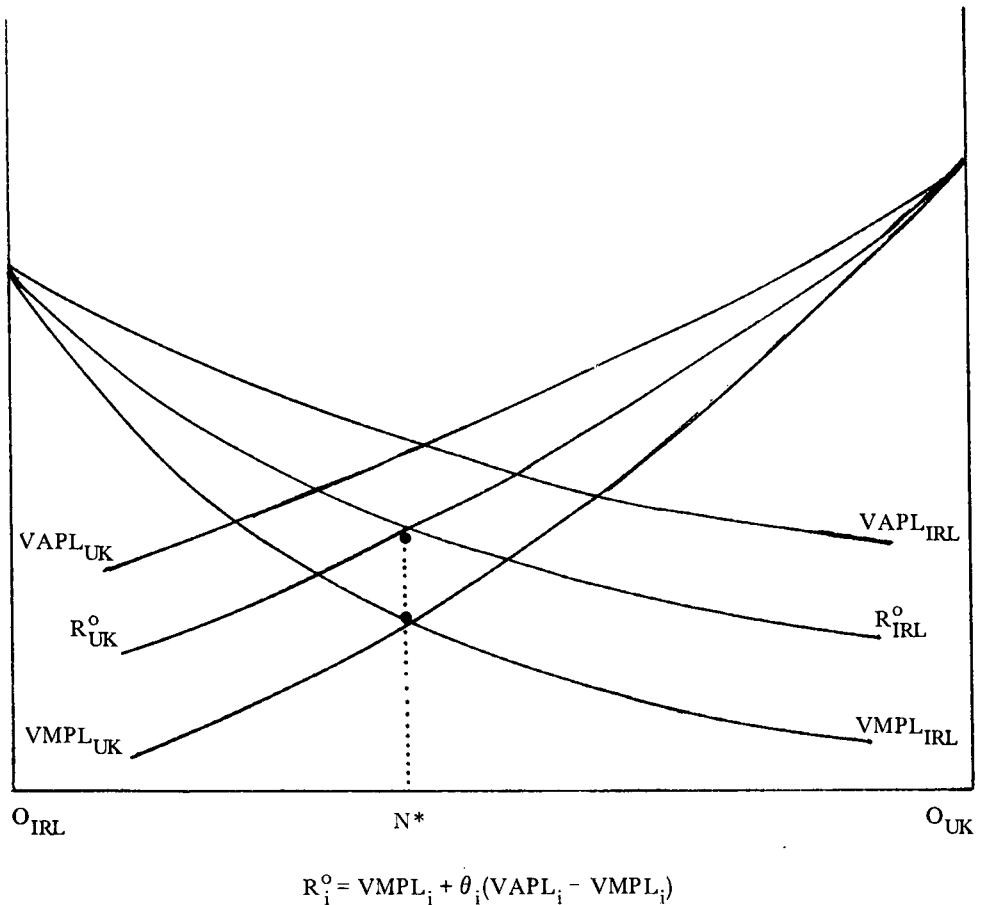
Let us now suppose that Ireland acquires an external debt. This must be subtracted from public capital and so the value of $\theta$ for Ireland will fall. For ease of exposition let $\theta$ fall to zero. The remuneration curve for labour working in Ireland is no longer $R_{IRL}^o$. It is instead the $VMPL_{IRL}$ curve. At the distribution N* labour is being remunerated at a higher rate in the UK than it is in Ireland. There is therefore an inducement for people to leave Ireland. A quantity of labour $N^1N^*$ emigrates from Ireland to the UK. By comparing the value of marginal product forgone with the contribution to product in the UK, we can deduce that the inefficiency in the migration process induced by the debt gives rise to a deadweight loss of area a b c.

Figure 1(c)
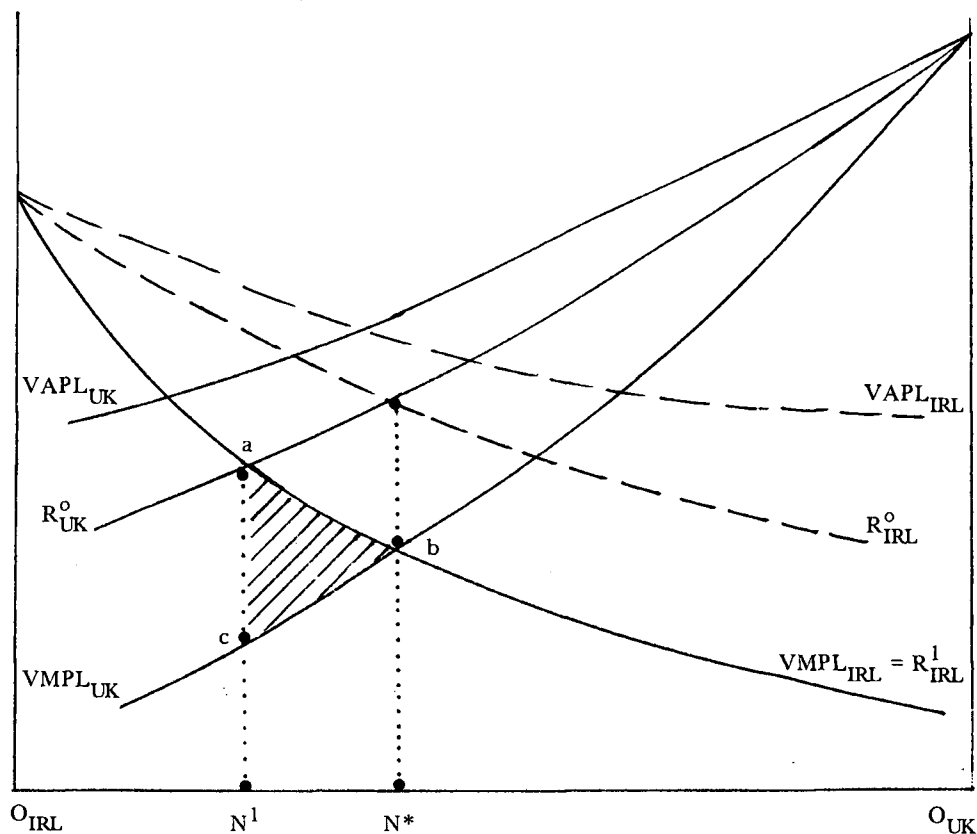


The loss to the original residents of the UK from the immigration is illustrated in Figure 2(a). This depicts the information for the UK contained in Figure 1(c). The loss to original residents will be given by the excess of full income of migrants over their contribution to product — the area iklj. We can demonstrate using Figure 2(b) that the non-migrants left behind in Ireland will also lose. In the absence of migration, the acquisition of the debt will reduce incomes in Ireland. However, the emigration that is induced leads to further loss for those who do not migrate. It is given by the excess of the loss of product over the income of departing migrants and is depicted by the area a b e.

Figure 2(a)
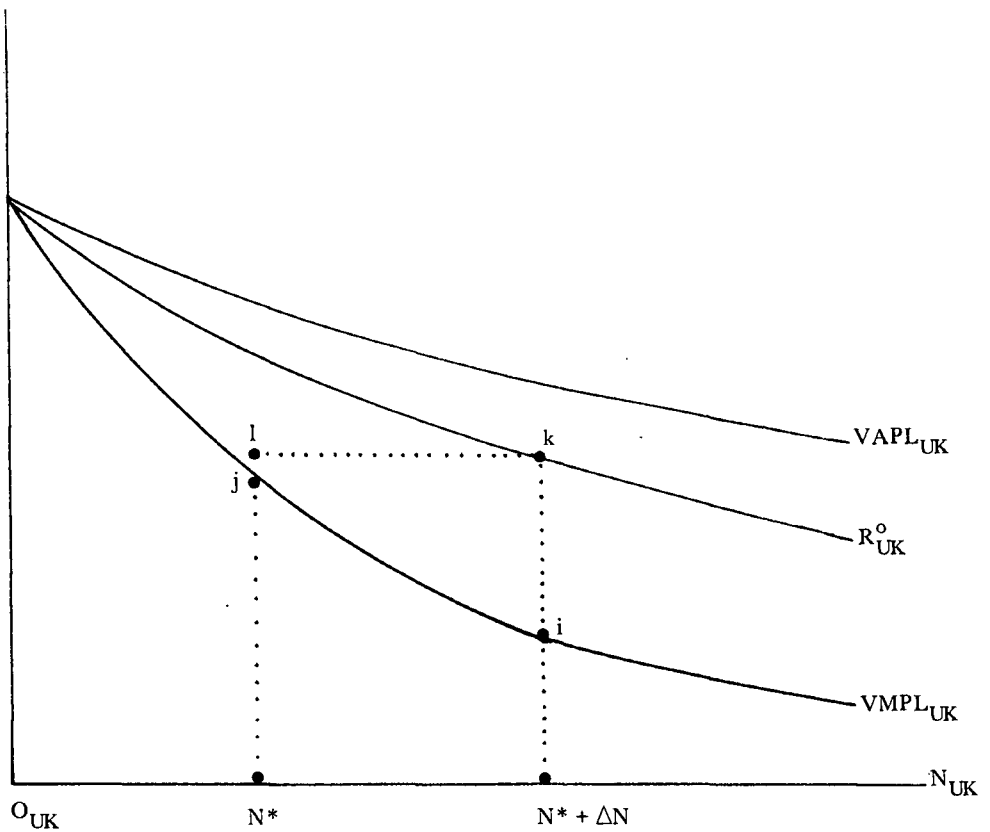


This example illustrates that the acquisition of a public liability, such as an external government debt, can lead to inefficient migration which results in non-migrants losing in both the country of origin and the country of destination. This raises the question: if the liability for the debt was shared between the UK and Ireland, could these losses be reduced? A manipulation of Figure 1(c) which involves the rotation of both remuneration curves so as not to induce migration suggests that it is theoretically possible that the answer to this question is in the affirmative.

The argument above is suggestive. In general it would be necessary to take account of the likely inefficient incentive for acquiring liabilities that the

Figure 2(b)
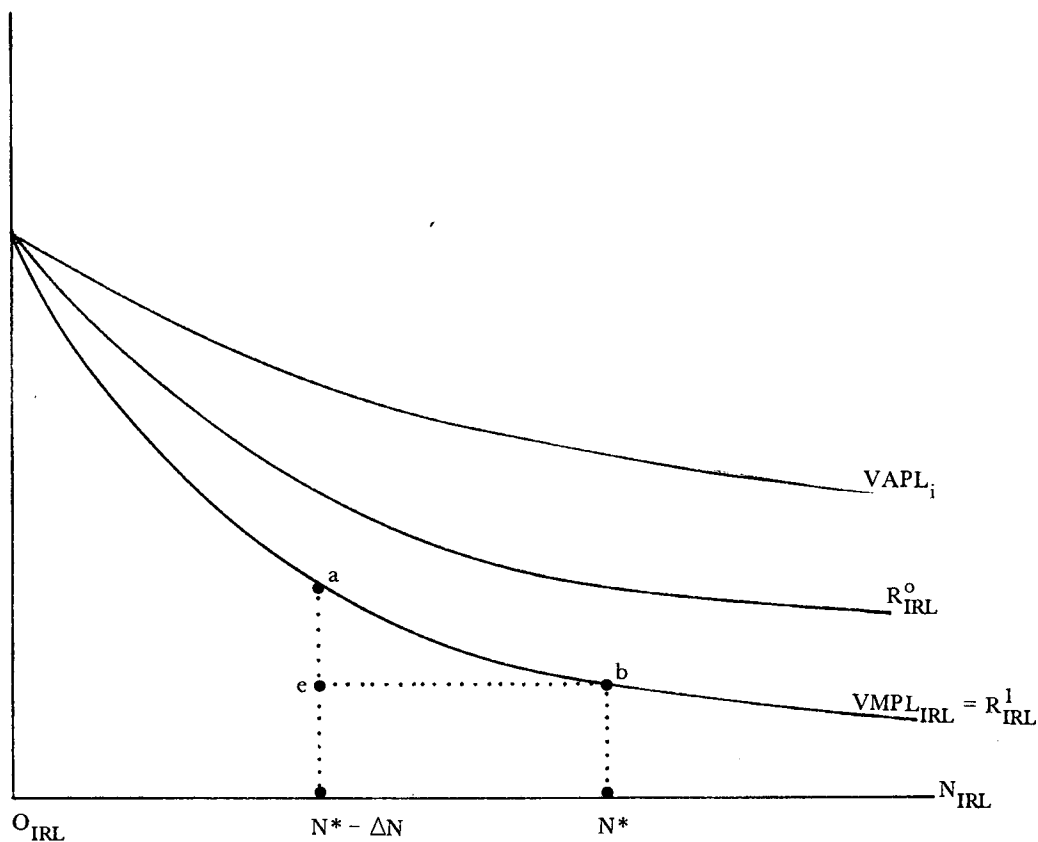


sharing policy may induce. The sharing policy involved a sort of "equalising" of public capital deductions. As a practical policy option it would need to be approached with caution. However, the general concept of equalisation is one that is well worth considering further. In Canada "equalisation payments", that are directed at equalising fiscal capacities across provinces, are a very important part of their federation. In the following subsections we will illustrate the general rationale for such payments.

(b) *Fiscal Externalities and Migration*

We illustrated above how an entitlement to a share in public property could affect the migration process. The modelling was incomplete in that it did not take account of the decision making process of lower levels of government in

a federation. As a consequence there was no explicit discussion of the decision
to provide and pay for local public goods. It turns out that the fiscal actions
of lower levels of government can introduce socially inefficient incentives for
individuals to migrate between jurisdictions of a federation. The framework
for the type of model that can be used to discuss these issues has been described
by Hartwick (1980). Important results are contained in, among others, papers
by Flatters, Henderson and Mieszkowski (1974), Wildasin (1980), and Boad-
way and Flatters (1982). The basic point is that the taxing and expenditure
decisions of national[2] governments can give rise to externalities (which are
called fiscal externalities) that cause socially inefficient migration. The extent
of the externality will depend on how "public" are local public goods and the
extent to which local taxes are "residence based" or "source based"[3] (Boad-
way and Wildasin, 1984, p. 503).

    The structure of the model used to analyse these issues is as follows (we
follow the structure adopted by Boadway and Flatters, 1982). Assume a
Ricardian specification for the aggregate production function of each nation.
A national government decides on the level of public good provision that
maximises utility of a representative citizen which in turn is a function of the
per capita consumption of the private and public good.[4] Units of the private
good are used to produce the public good. The national government is assumed
to behave myopically in that it is assumed to ignore the influence of migration.
This is not restrictive since, as Boadway (1982) has shown, nations can do no
better by behaving otherwise. The optimisation will yield the familiar Samuel-
sonian condition for optimal public good provision (an extended discussion
of this can be found in Atkinson and Stiglitz, 1980, pp. 522-528).

    In order to characterise the migration equilibrium define the maximum
value function in labour (L) associated with the national government opti-
misation problem described above as $V_i(L)$, where i designates the nation.
An equilibrium for a two nation federation is illustrated in Figure 3.[5] Indi-
viduals migrate between nations until $V_i(L)$ is equalised — $L^0$ in Figure 3.

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    2. We will use "national" to represent the lower tier of government. This is intended to relate to the
tiered structure of the European Community. For simplicity we will confine the discussion to two
levels of government with "federal" designating the upper tier.

    3. Residence based taxes are contingent upon residency so that a person can avoid them by migrat-
ing. On the other hand, source based taxes are levied in the locality where income is generated without
regard to the residency of the owner.

    4. This latter term can be represented by $G/L^a$, where a=0 for a pure public good and a=1 for a
private good. The parameter a can then be used to define the degree of publicness of the public good.

    5. We assume a stable interior solution. There is nothing in what we have said that will guarantee this
(see Atkinson and Stiglitz, 1980, for a general discussion of this issue). It turns out that the presence
of migration costs can justify an internal solution even in seemingly unstable cases (for a discussion of
this point, see Boadway and Flatters, 1982, pp. 619, 20).

Figure 3



$L^0$ = Pre-Equalisation Distribution
$L^*$ = Post-Equalisation Distribution
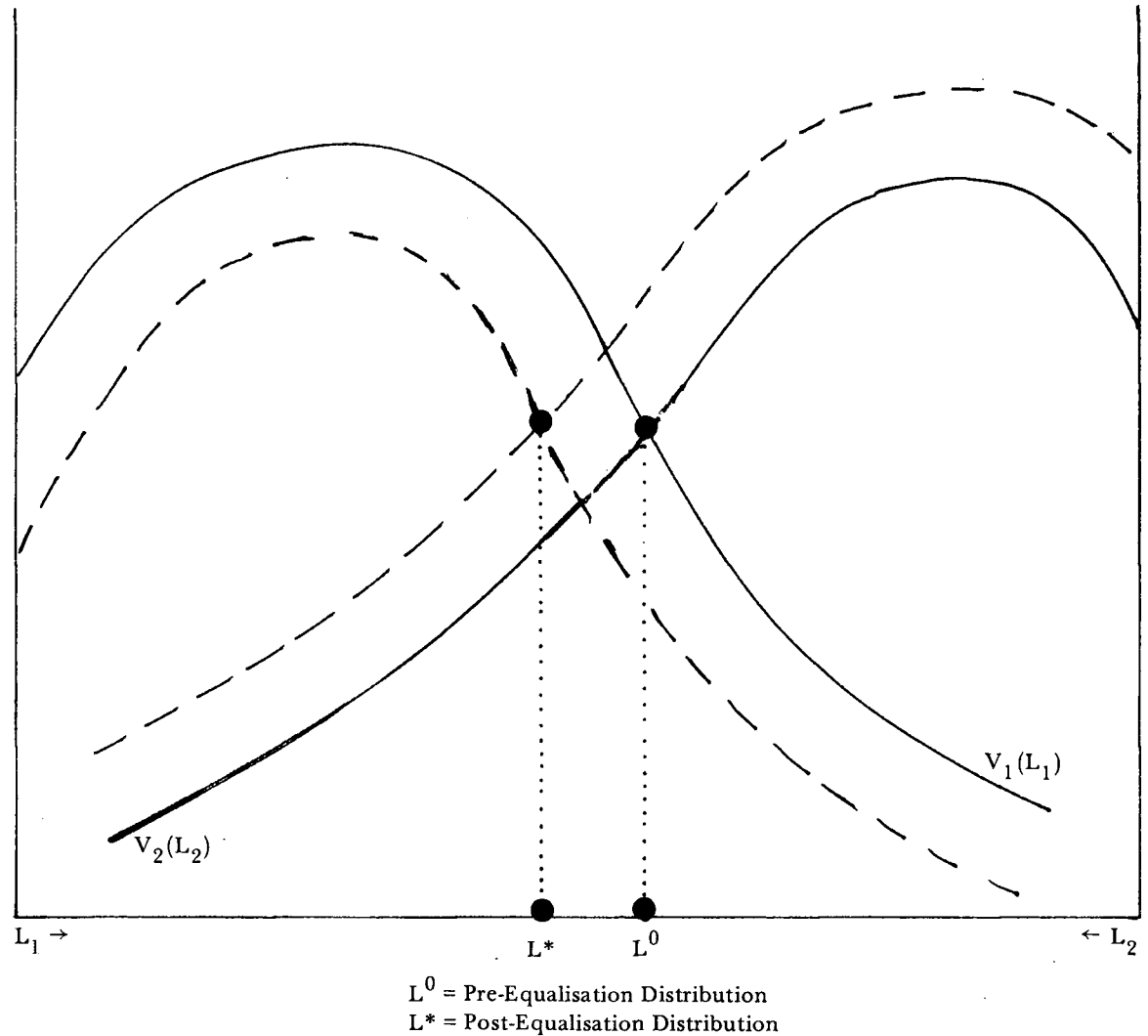
    Will this equilibrium be efficient? In order to answer this question we must
compare the marginal social benefit of having an additional resident in one
nation compared to what it would be in the other. The marginal social benefit
will be made up of two components — a fiscal externality term and a rent
sharing term. The fiscal externality is the difference between the migrant's
tax payment and the congestion he introduces in the consumption of the
public good. The rent sharing term relates to the extent by which the new
migrant reduces the rent of existing residents. An optimal population distri-
bution is one in which these marginal social benefits are equalised. There is

no mechanism guaranteeing that the migration equilibrium described in the previous paragraph will conform to this optimum.

We must therefore presume that the outcome for a federation will be sub-optimal. This gives a rationale for federal intervention. The structure of the federation's optimisation problem is to choose the population distribution and an interprovincial transfer such as to maximise the utility of a representative province subject to the constraint of equal per capital utilities across provinces. Solution of this programme results in the specification of an optimal transfer. In Canada these transfers are called "equalisation payments". The formula for the structure analysed here will be related to the difference in fiscal externalities and rent sharing effects weighted by population sizes. The effect of the transfer is illustrated by the shifting of the $V_i(L)$ curves in Figure 3.

The model above was very simple. We could complicate it by adding other factors of production and explicitly considering alternative national taxation instruments. This has been done by Boadway and Flatters (1982). The effect will be to complicate the equalisation formula.

In general efficiency of the migration process requires that the "correct mix" of residence-based and source-based taxes be used when local public goods are not "pure". Does this call for a constitutional assignment of types of taxes? In the EC this would involve national governments being limited in their taxing powers. This in some sense is what is involved in the approximation of VAT rates. It is clear to see that this has been a major point of contention. The analysis of fiscal federalism does not require such a constitutional assignment. As Boadway and Wildasin (1984) point out, the inefficiencies introduced by the wrong mix of taxes can be overcome by appropriate inter-governmental transfers of the type described above.

(c) *Equity and Migration*

National governments may also introduce inefficiencies into the migration process by redistributive policies. This raises the question as to what level of government ought to engage in redistribution policy. This is a big question which we cannot consider here. Instead we will illustrate how local fiscal action may result in likes congregating together. There is a significant migration of skilled labour from Ireland (Sexton, 1987). This example will be instructive in thinking about this migration.

Consider a two nation federation where each nation initially differs in its share of high paid to low paid workers.[6] You can think of the high paid as skilled and the low paid as unskilled. Assume equal population sizes but that there are twice as many unskilled as skilled in the poor country and the oppo-

6. This argument was first outlined by James Buchanan. We adapt our example from Boadway and Wildasin (1984).

site is the case in the other country. A proportional tax system is used in each country with the proceeds being used to provide public services on an equal per capita basis. This will involve an implicit redistribution in each country. Consider a situation in which a proportional tax rate of 20 per cent is used in each country. Assume that skilled can earn £30,000 in each country while unskilled can earn £10,000. The net fiscal benefit (defined as per capita tax payment less per capital public expenditure) of the skilled in the rich country is -£1,333 while it is -£2,667 in the poor country. The skilled, therefore, have an incentive to leave the poor for the rich country.

Again the question arises as to whether constitutional assignment of taxing powers is required to prevent this migration if it is inefficient. This could be done and there is some element of this undertaken. However, equalisation payments can also be used. Since the migration identified above arose due to the differences in tax bases, such equalisation policies would be directed towards redressing this imbalance. EC documents speak in high tones about helping the poorer regions of the community. It is proposed to spend large sums of money via the structural funds to achieve this objective. These funds are not to be used to fund projects normally undertaken by national governments. However, the argument above would suggest that this is ideally what they could be used to do.

The EC countries do not seem to have an integrated labour market. Within the EC the Irish labour market seems to be well integrated only with that of the UK. On this basis one might argue that the arguments above are irrelevant to the community as a whole. However, it is possible to construct an equity argument for equalising transfers even when migration is not perfect. If we wish to apply the principle of horizontal equity to the European federation then it could be argued that two similar people should be treated equally by the sum of government action no matter where they reside in the community. If labour migration is not perfect, because of mobility barriers such as language, linkage and culture, then the independent action of national governments may result in horizontal inequity to the extent that the net fiscal benefits of likes differ across the community. This introduces a rationale for federally administered transfers between countries of the type discussed previously.

## III CONCLUSIONS

The analysis of Irish migration in this paper has been preliminary and only of a suggestive nature. The re-emergence of emigration and the prospect of a huge inflow from the EC structural funds are the issues that are likely to dominate public debate in the near future. The importance of each is of course related to the extent of our unemployment problem. Our objective has been to attempt to illustrate how the problem of Irish emigration can be framed in a

European context and to show how this in turn has implications for the nature and structure of EC level policy.

At a policy level we are concerned that there is a rush to acquire and spend huge sums of money without regard to efficiency and equity issues. Future work will need to go beyond our discussion of equalisation payments to consider what basis there exists for, say, subsidising employment in poorer regions of the community. It will also need to consider the appropriate structure of such policies. Discussion of the appropriate shadow prices of factors to be used by the federation has been discussed by Boadway and Flatters (1981) and Marchand, Mintz and Pestieau (1984). The application of this type of analysis to the Canadian case is contained in Boadway and Flatters (1981) and Purvis and Flatters (1980).

In regard to long-term equalisation within the community we believe that the discussion of inter-governmental transfers discussed here is of primary importance. It is not entirely clear what public pronouncements about equalisation across the community means. It is important that this be made clear so that economists can analyse the logic of policy proposals.

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