THE SPATIAL DISTRIBUTION OF THE EFFECTS OF ECONOMIC INTEGRATION SCHEMES

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1 — Introduction

The aim of this paper is to provide a framework within which the spatial effects of economic integration schemes can be analysed. Following a suggestion in Andic, Andic and Dosser (1971) the effects of economic integration schemes are separated into beneficial and harmful components and an attempt is subsequently made to determine how these constituent parts of the effects of economic integration are distributed among the areas forming the integration bloc. In this respect the approach followed here deviates from the orthodox theory of economic integration and particularly its customs union branch which regards all trade creation as beneficial and all trade diversion as harmful. The welfare implications of the various effects of economic integration were not left without challenge (Bhagwati, 1971; Choi and Yu, 1984). This challenge, however, was with regards to the nature of the welfare effects (harmful or beneficial on balance); not with the way that the harmful and the beneficial components are distributed inter-regionally.

This paper identifies the beneficial and harmful effects associated with different levels of integration (customs union, factor market integration, monetary and fiscal union) and examines the factors that determine the distribution of these components among the areas forming the integration bloc. A simple demand oriented regional growth model is utilised to examine the spatial impact of asymmetrical tariff cuts and money wage convergence. In the final section the paper looks into the structural effects of inter-regional fiscal transfers within an economic union where absolute rather than comparative costs determine the pattern of inter-regional specialisation. The framework developed in this paper provides a link between the static allocative effects of integration and the longer term developmental impact of the integration process.

Throughout the analysis we concentrate on the effects of complete economic integration, i.e. the simultaneous liberalisation of intra-union movements in goods, services and factors of production as well as the adoption of a common currency and the creation of a fiscal union. In this way it becomes easier to trace the implications of the transition from the status of an independent decision making unit in trade, monetary and fiscal matters to the status of a region of an integrated area where trade, monetary and fiscal affairs are the prerogative of either a central government or of a federated administration.

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2 — The spatial impact of a customs union

A customs union has several effects on both the integration bloc and the rest of the world. These are distinguished into static allocative effects (namely, trade creation, trade diversion and, in the presence of economies of scale, trade suppression with each one of these encompassing both production and consumption effects), static technical efficiency effects (X-efficiency), and dynamic allocative and technical efficiency effects (including investment creation and diversion). Some of these effects are amenable to economic analysis; others are more difficult to subject to more than qualitative analysis. The distribution of these effects among the partners of an integration bloc is a matter that requires more systematic treatment in economic analysis. We start this inquiry by taking the case of an integration scheme involving two partners forming a customs union. The questions to be raised refer to the factors that determine the distribution of costs and benefits from the formation of the customs union.

We start first with the trade creation effects of customs unions (Lipsey, 1970; Robson, 1980).

The question of the inter-regional distribution of the gains from trade creation does not arise in the orthodox theory. The partner where (intra-union) imports are substituted for domestic production benefits by the resulting savings in the real costs of previously produced domestic goods and from the substitution of lower cost for higher cost means of satisfying local demand. The second partner whose increased exports satisfy the domestic demand of the first partner also benefits from the expansion of its own domestic production and the opportunities for specialisation according to its comparative advantage. When one takes this view of the nature of the trade creation effects, it is apparent that the issue of their inter-regional distribution becomes irrelevant. This view of the trade creation effects can be challenged for a number of reasons.

Implicit in the analysis of the trade creation effects of the orthodox theory of customs unions is the assumption that the factors of production released by the cessation or decline of the inefficient production are put to other uses, particularly to production of exports. Once the importance of this assumption is recognised then it is easy to see that the process of trade creation may generate certain short-term and, in a few instances, long term costs which are likely to affect differently the countries and regions participating in a customs union. Let us see what these costs are and what factors determine their spatial distribution within the customs union.

The first source of cost is the short-run adjustment cost of channelling the productive factors from inefficient production to other, relatively more efficient uses. The inter-regional distribution of this burden of adjustment depends first on the differences in the pre-union level of tariffs that each partner imposed on the other's trade (in other words, on the size of tariffs to be eliminated on intra-union trade), secondly on the size of the new external tariff of the union in relation to each partner's pre-union tariff rates vis-a-vis the rest of the world and thirdly on the partner's 'reallocative ability in the form of response

to profit opportunities' (Linder, 1961). Regions with an ability to reallocate factors of production will tend to maximise the gains from trade creation and to accumulate them faster over time. The less developed partner of a customs union is likely to have a higher tariff regime. Furthermore, if its bargaining in setting the common external tariff is weak then the new tariff level vis-a-vis third countries will be closer to the rates and structure of the tariff of the stronger partner. The latter happens especially in cases of customs union extensions. It follows therefore, that the size of adjustement will be larger for the more protected and the smaller of the partners. There will thus be a certain asymmetry in the extent of tariff dismantling. This asymmetry is all the more important first because the capacity for industrial restructuring is often lacking in the less developed economies where the quality of entrepreneurship and labour imposes considerable inflexibilities and secondly because lack of speedy adjustment will aggrevate the balance of payments constraint under which the development process often operates. In this case inability to reap the static allocative benefits from trade creation may well lead to an adverse effect on economic growth.

The market inflexibilities of the pre-union state of affairs are also expected to intensify as a result of the process of economic integration. If integration increases market rigidities then the industrial adjustment and restructuring required may proceed at a slower pace thus making the balance of payments constraint (in the absence of compensating expenditure flows) even more binding on the growth process. As Morgan (1973) has shown the constraints restricting the normal ways in which a market economy adjusts to changes in suplly and demand are more serious within countries than between them. These integration induced rigidities will appear in a stronger form in cases of complete economic integration. Some of the factors giving rise to these market rigidities are examined in subsequent sections. A brief mention is also made here. Labour market rigidities are strengthened because union-wide relativities are getting increasingly important in wage settlement bargains. Having access to centralised capital markets regions can finance the excess of expenditure generated from a deficit without having to incur higher interest rates, as would probably have been the case in an international context. In an integrated area rigidities may also appear in the product markets. As customs union production is increasingly carried out by multiplant firms operating branches in many areas flexibility of prices between regions will be progressively hampered. Multiplant firms tend to charge uniform prices regardless of the region in which the product is manufactured. Let us now see how the prospects of regional growth are affected from the relatively heavier burden of adjustment faced by regions experiencing asymmetrical tariff dismantling. For this purpose we use a demand oriented model of regional growth utilising the mechanism of the Harrod trade multiplier. The model is further based on the idea that if a region using a common currency with other regions experiences an excess in the planned rate of growth of imports over the planned growth of exports it will suffer income depressing effects in the same way as an excess of savings over

investment (McCrone, 1969a; Thirwall, 1979; Thirwall, 1980). To concentrate on the regional implications of pure trade creation effects we take the case of two regions trading so far as independent nations with their own tariffs and deciding to form a customs union by an immediate dismantling of their tariffs on each other's trade. We also abstract from capital movements and therefore we focus basically on the current account of the balance of payments. The regions concerned are region r and region s. For region r the initial balance of payments equilibrium is defined as:

(1) $$P_rX = P_sM$$

where P_r = the price of exports
P_s = the price of imports
X = exports
M = imports

Taking rates of change of the variables in equation (1) we have (with lower-case letters standing for small rates of change).

(2) $$P_r + x = P_s + m$$

If the regional balance of payments was initially in equilibrium then a moving equilibrium through time can be maintained if the rate of growth of exports equals the rate of growth of imports.

We can now specify more precisely the export and import demand by a multiplicative form of function as follows:

(3) $$X = \left[\frac{P_r(1+T_s)}{P_s}\right]^{\eta} . Z^{\varepsilon}$$

(4) $$M = \left[\frac{P_s(1+T_r)}{P_r}\right]^{\psi} . Y^{\pi}$$

where

T_r = ad-valorem tariff imposed by region r on products imported from region s
T_s = ad-valorem tariff imposed by region s on products imported from region r

(we assume $T_r \neq T_s$)

Z = income of region s
Y = income of region r
η = price elasticity of the demand for the exports of region r ($\eta < 0$)
ψ = price elasticity of the demand for imports from region s ($\psi < 0$)
ε = income elasticity of demand for the exports of region r
π = income elasticity of demand for the imports from region s

Taking rates of change of the variables in equations (3) and (4) we have:

(5) $\eta(p_r + t_s - p_s) + \varepsilon(z) = x$

(6) $\psi(p_s + t_r - p_r) + \pi(y) = m$

As t_r and t_s are the rates of change of the mark-up expressions $(1 + T_r)$ and $(1 + T_s)$ it follows that if:

$$T_r > T_s \text{ then } t_r < t_s$$

We can now substitute equations (5) and (6) into (2) to get:

(7) $p_r + \eta(p_r + t_s - p_s) + \varepsilon(z) = p_s + \psi(p_s + t_r - p_r) + \pi(y)$

The rate of growth of income of region r consistent with balance of payments equilibrium (y^B) will be determined by the following expression derived from (7)

(8) $$y^B = \frac{(p_r - p_s) + (\eta t_s - \psi t_r) + \varepsilon(z) + (\eta + \psi)\ (p_r - p_s)}{\pi}$$

If trade is completely liberalised between r and s and in the absence of any supply constraints the new equilibrium income growth rate of region r consistent with balance of payments equilibrium ($y^{B'}$) will differ from the pre-union rate (y^B) by the expression $(\eta t_s - \psi t_r)$
Assuming $\eta = \psi$ then

$$\text{if } t_s > t_r \qquad y^{B'} < y^B$$

Thus assuming that the price elasticities of the demand for exports and imports do not differ, the region where the pre-union level of tariffs was higher will experience a fall in her income growth rate consistent with balance of payments equilibrium. When elasticities differ

$$y^{B'} < y^B \qquad \text{if } |\eta t_s| > |\psi t_r|$$

Several writers have argued that the emphasis of the theory of customs union on the static resource reallocation effects does not help us in understanding the developmental impact of customs union and in particular their spatial dimension. The Harrod trade multiplier model as developed by Thirwall (1980) can be adapted — as shown above — to link together the short-run and the longer-run effects of a customs union. The link here is the impact of the dismantling of tariffs on the balance of payments equilibrium of the participating regions and the constraint imposed by the balance of payments equilibrium on the growth rate of regional income.

The constraints imposed by the regional balance of payments under the conditions described above are to some extent smoothed out, at least in the short-run, as a result of the compensatory financial flows that may become accessible as a result of economic integration. If the formation of a customs union is accompanied by the formation of a monetary union as well, then the

short-run balance of payments adjustment mechanism is likely to be more efficient because of the higher degree of integration of the banking system and the relative ease with which debt can be raised in highly integrated securities and capital markets in such a union. Howewer, the relatively easier acess that a region of an integrated market has to compensatory financial flows is not sufficient to eradicate the structural causes of the disequilibrium generated from differential tariff dismantling effects. The smootheness of the short-run adjustment mechanism of the regional balance of payments does not guarantee that the long-run adjustement mechanism is necessarily less painful and shorter. The long-run adjustment mechanism of the regional balance of payments may in fact be slower because, for one thing, the affects from the reduction in the stock of money in the region as a result of its deficit position will not cut very deep thanks to the existence of a highly integrated banking system and to the limited variations in the prices of the financial assets due to the high degree of integration of the financial markets over the domain of the whole union (Ingram, 1959; Allen, 1976). The adjustment process may further be slowed down because in a unified state or a federation the cost of supporting unemployed labour shifts to taxpayers located in other jurisdictions.

As already mentioned an implicit assumption of the orthodox customs union theory is the local existence of alternative uses to which factors from activities that ceased operations or declined as a result of trade creation are put. A further implication of this assumption is that inter-regional patterns of production specialisation are determined by comparative advantages. The fact that regional depopulation and declive have continued in many cases for a long time indicates that regional patterns of specialisation may be determined by absolute rather than relative costs (Nevin, 1972). If absolute and not relative advantage determines trade between regions then a region forming part of an integrated market may find it difficult to establish prices at which it can sell its products to the other regions if its resources are inferior or is unable to gain economies of scale (McCrone, 1969b). Thus dislocation of production from trade creation effects may entail in the long-run a relocation outside the region of the labour and other (mobile) resources released from the cessation or decline of production. The dependence of regional specialisation on absolute advantages is not a direct consequence of the customs union. Rather, it is the result of factor market integration that leads to inter-regional equality in factor earnings. Both the freer inter-regional movement of labour and the development of union-wide collective bargaining practices are conducive to this development. How strong is the evidence that comparative advantage is not relevant in determining inter-regional patterns of specialisation? Most of the empirical analysis in this field is handicapped by the lack of appropriate data. The resort to various proxies and surrogates to measure the relative factor intensity of industry and the relative factor abundance of a region yields often contradictory results (Moroney and Walker, 1966; Moroney, 1975; Dixon and Thirwall, 1975; Smith, 1975; Swales, 1979; Norcliffe and Stevens, 1979). The possibility of factor intensity reversals, the problem of excluded variables (notably natural

resources) and differences in the quality of essentially heterogeneous factors further complicate the issue and render the results of such investigations inconclusive. Dixon and Thirwall (1975) suggest that absolute advantage determines regional specialisation in those activities where resources are industry specific. If resources are regional specific then regions will continue to specialise according to their comparative advantage. Resources are industry specific if they are highly mobile across regions. Norcliffe and Stevens (1979) have found evidence (by studying the patterns of trade between Quebec and Ontario) that the Heckscher-Ohlin hypothesis is addressed only to industries that have some locational flexibility (i.e. are footloose). Industries with rigid locational requirements (i.e. resource-oriented and/or market-oriented) are not influenced in their locational choice by the relative abundance of capital and labour. The distinction made by Dixon and Thirwall suggests that in so far as integration encourages resource mobility (either actual or potential) it will tend to increase the number of resources which will become industry specific and in this respect make regional specialisation dependent upon absolute cost differences. In such cases, the more industry specific a region's resources become the lower will be its ability to adjust if its other (natural) resources are of inferior quality.

It is possible that a region may be characterised by adequate reallocative ability and regional specific resources and yet incur costs from trade creation. This may occur if the (positive) externalities of the activities that ceased operations were higher than the corresponding externalities of the new activities that replaced them. The integration induced resource reallocation is brought about through changes in market price signals. There is no reason to expect that social costs and benefits will be properly reflected in market prices. It is thus possible that the potential for generating agglomeration economies may be smaller from the new activities that the economy is directed to specialise. This development is of course related to the type of specialisation encouraged by the process of integration. This is a question examined in the last section of this paper.

Trade creation that follows from intra-union tariff removals may improve the efficiency of an import substituting industrialisation policy because of the larger market within which this policy can now be pursued (McQueen, 1975). Thus integration acts as a selective outwards looking trade strategy enabling a less developed area to minimise the costs of import substitution policies and to promote export oriented production. Countries that have passed through their first stage import substitution process (Balassa, 1975) face two choices in their trade and development strategies. They can either proceed to extend their inward looking strategies to a second stage import substitution policy (involving further trade protectionist measures to encourage the development primarily for the domestic market of intermediate goods and light machinery products) or to an outwards looking strategy removing the bias against exports by treating sales in domestic and foreign markets equally. In many industrialising countries, particularly those of small or even medium-sized markets, the timely switch

to an outwards looking trade strategy is the key factor in maintaining and enhancing the momentum of growth. The gains from this switch are well documented in practice (Feder, 1983). They include greater capacity utilisation, economies of scale, incentives for trade in differentiated products, incentives for technological improvement and efficient management under the impact of competitive pressures from abroad. Membership of an integration bloc contributes to the removal of the price distorting effects of inwards looking development and trade strategies and it thus enables an industrialising country to reap the benefits of the growth enhancing effects of a closer-to-optimum resource allocation.

In summary, trade creation brings undoubtedly the benefits assigned to it by the orthodox theory of customs unions but it also entails costs of industrial adjustment. These costs of industrial adjustment will be borne differently by the various areas taking part in the integration scheme. Slow progress towards adjustment affects adversely the regional balance of trade. In the absence of an exchange rate policy and in the absence of accommodating financial flows this will tend to bring downwards the growth rate of income consistent with balance of payments equilibrium. The regions that bear the largest share of the cost of industrial adjustment are those with a higher pre-integration tariff on intra-union trade, those with high pre-integration tariffs towards third countries in relation to the post-integration common external tariff and those with a price elasticity of demand for their exports substantially higher than the corresponding elasticity of the demand for their imports. Furthermore, the benefits from trade creation will be captured more by regions with (*a*) a high «reallocative ability» and in particular more flexible factor markets and better entrepreneurial quality, (*b*) a high proportion of resources that are regional specific and (*c*) low absolute costs in activities utilising industry specific resources. What is clear is that there is not automaticity in the inter-regional distribution of benefits from trade creation. A lot depends on the strategic response of firms to changes in the new cost conditions they are faced with.

So far we focused the discussion on the distribution of costs and benefits from trade creation. A few words must be added on the distribution of costs and benefits from trade diversion. The costs of trade diversion are the higher prices at which the product is purchased. The benefits are production gains and increased employment. The effects of a customs union in diverting imports to higher cost sources within the union is larger the higher the proportion of a member's pre-integration external trade with non-union, third, countries. The crucial question in this case is if one region reaps all the benefits whilst another shares only in the costs. If the switch from external sources of supply is to the domestic producers of region *r*, then that region whilst it shares in the losses enjoys all the gains of increased production and employment. If the switch is to region *s* then *r* shares in the losses but reaps no benefits. A switch to the domestic producers of region *r* is likely to occur if the new common external tariff on third countries is higher than the pre-union national tariff. Much depends therefore on the relative bargaining position of each partner in fixing the

common tariff towards non-union countries. The region with the weakest bargaining power in this respect will probably land with no benefits while sharing in all losses from the diversion of trade (Hazlewood, 1975).

A few words now on trade suppression. In this case the possibility of perverse specialisation has been raised. The region with the smallest internal market is likely to suffer more from this effect. The corresponding industry in the region with the largest domestic market would have already reached (before integration) more competitive costs per unit of output not necessarily because of more favourable long run cost conditions but because it would have operated at a larger scale. It is then possible that the region with the less favourable long term cost conditions but the largest pre-union domestic market could suppress the most efficient producers in the long run in the smaller partner-region and thus dominate the whole market in the integrated area (Robson, 1980).

3 — The regional effects of factor market integration

In discussing the regional impact of factor market integration it is useful to distinguish between labour markets and markets for financial assets and capital.

Removal of the various administrative and legal impediments to labour mobility and improvement in the dissemination of information about the state of demand and supply in spatially separated labour markets will increase potential labour mobility. This enhanced labour mobility is expected to lead to convergence — rather than equalisation — in labour rewards and some also argue in regional unemployment rates. There are indeed two channels through which convergence in labour rewards will be brought about. Integration (even in its simplest form of a customs union) increases the intensity of trade between the partners in an integration scheme. As Ohlin, Samuelson and Lerner have shown, freer trade in commodities acts as a partial substitute for the free movements of factors thus reducing intra-union inequalities in factor rewards (Tovias, 1982). A second channel leading to convergence in labour rewards is added when factor markets are integrated. This channel acts through the removal of impediments to labour mobility thereby facilitating such movements across regional frontiers. It is argued that it is not actual mobility that matters but also potential mobility. High potencial mobility makes entrepreneurs susceptible to quit threat/migration in wage negotiations. The real effectiveness of this type of quit threat may not be so important if regions are in a state of chronically excess suplly in their labour markets. That is, the quit threat/migration on wage settlements may be scale dependent in the sense that it becomes ineffective at the inter-regional level.

Far more important are the changes in the frame of reference in pay comparisons that labour market integration brings about. «Reference» group comparisons form an integral part of modern money wages setting processes. Industrial relations studies often point to the importance of external groups in

earnings comparisons (Weddeburn and Crompton, 1972) and tend to emphasise that the frame of reference for judging the work-wage bargain is provided by those labour groups (occupational or regional) with whom the closest and most frequent contacts are maintained. Proximity is regarded as an important factor that encourages consciousness of earnings differences between workers in similar jobs (Hyman and Brough, 1975). Integration increases the sense of belonging to the same broader group, removes communications barriers and improves contacts between groups located at different parts of the integrated area not merely through trade union integration but also through the operations of multiplant, multi-regional enterprises. If in addition to the integration of the labour markets, monetary integration also takes place then the «proximity» factor is further strengthened through the removal of money illusion that the use of different currencies encourages (Pearce, 1973). Perceptions of wage movements are more accurate when a common currency is in use. But even in the absence of monetary integration factor market integration will enlarge the domain of the reference groups in pay comparisons. One factor that contributes to this is the changes in the structure of collective bargaining institutions and procedures.

The geographical extension of the domain of the reference groups in pay comparisons will turn certain labour markets into leading markets and others into markets experiencing wage leadership from other regions. Integration of labour markets changes the process of money wage transmission between different regional markets. Regions which have the more serious structural problems are likely to experience wage leadership from outside their markets in most of their occupations. When earnings increases are transmitted through wage leading markets then money wages will not respond to differences in local labour market conditions thus generating persistent differences across regions in efficiency wages. This will further have consequences on the pattern of regional specialisation and on the emergence of persistent differences in unemployment rates. Social pressures to negotiate for comparability and to introduce uniform social security contributions and taxation payments will lead towards equalisation of factor earnings. They will also make regional production and trade dependent upon absolute advantages (McCrone, 1969b). Interregional differences in efficiency wages and unemployment will be mitigated if money wage levels are inversely and systematically related to distances from leading markets (Anderson, 1976) or if recruitment for at least unskilled jobs can be done without difficulties. In this last case the earnings structure for unskilled jobs will behave differently from the corresponding regional earnings structure of skilled jobs (Hart and Mackay, 1977). Howewer, the ability of firms to cope with and absorb wage increases transmitted via institutional bargaining mechanisms may vary from one regional market to another. Clark (1981) has, for example, found in Canada that labour markets in the Western part of the country display a greater ability to absorb wage-rate increases from leading markets whereas in the eastern provinces of the country wage inflation generates increases in regional unemployment. The difference must be attributed to a capacity to speed up productivity rises — a factor essentially related

to differences in the strategic response of firms to differential increases in factor costs. Leaving aside for the moment the question of alternative strategic responses firms make in situations of differential changes in factor costs, let us see how the process of labour rewards convergence will affect the process of income growth in the region experiencing the impact of wage leadership from other markets.

The model developed in the previous section can be adapted to deal with the present problem. The model is in no way original. It is a Kaldor-type export-led regional growth model similar to the one presented in Thirlwall (1974) and subsequently developed by Swales (1981). What is novel is the application of this model to elucidate the problems arising from the process of labour market integration and money wages convergence. The model starts with the identity of balanced trade equilibrium, namely equation (2) in the previous section. The notation follows the convention adopted in the previous section. Here all rates of change are given a time subscript. s represents the leading labour market, high wage, region, r the market experiencing convergence in money wages towards the levels of the leading market region. Thus, we start with

$$p_{rt} + x_{rt} = p_{st} + m_{st} \qquad (1')$$

The rates of change of exports and imports are related to the differences in the rates of change of the prices of the two competing regions, the rate of change of the income of the importing region (z for region s, y for region r) and the relevant price (η for region r, ψ for region s) and income (ε for region s and π for region r) elasticities of export and import demand, i.e.

$$x_{rt} = \eta(p_{rt} - p_{st}) + \varepsilon x_{t-1} \qquad (2')$$

$$m_{rt} = \psi(p_{st} - p_{rt}) + \pi y_{t-1} \qquad (3')$$

Notice that exports and imports respond to changes in incomes one period earlier. The rates of changes of prices are defined as the difference between the sum of the changes in money wages (w) and profit mark-ups (τ) and the rate of change of productivity (r):

$$p_{rt} = w_{rt} + \tau_{rt} - r_{rt} \qquad (4')$$

$$p_{st} = w_{st} + \tau_{st} - r_{st} \qquad (5')$$

Productivity changes depend on the rate of change of output and an autonomous element (r_a). This relationship is thus described by means of the Verdoorn coefficient (λ) and is explained by the idea of embodied technological progress and the economics of learning by doing. So,

$$r_{rt} = r_{art} + \lambda_r y_t \qquad (6')$$

$$r_{st} = r_{ast} + \lambda_s z_t \qquad (7')$$

Substituing, we get the following difference equation

$$(1+\eta+\psi)\lambda_r y_t + y_{t-1} = (1+\eta+\psi)\,(w_{rt}—w_{st} + r_{as_t}-r_{ar_t} + \tau_{rt}—\tau_{st} + \lambda_s\tau_t) + \varepsilon Z_{t-1} \qquad (8')$$

The equilibrium income growth rate in region r consistent with balance of payments equilibrium (y^B) is derived from the solution to the above difference equation which is

$$y^B = \frac{(1+\eta+\psi)\,(w_{rt}\text{-}w_{st} + r_{as_t}\text{-}r_{ar_t} + \tau_{rt}\text{-}\tau_{st} + \lambda_s Z_t) + \varepsilon Z_{t-1}}{(1+\eta+\psi)\,\lambda_r + \pi} \qquad (9')$$

The question that now arises is how this equilibrium growth rate is affected when money income convergence stimulated from factor market integration via union-wide collective bargaining is taking place. In this case $w_{rt} > w_{st}$. Under the assumption that as a result of factor market integration only the rates of money wage change, with the rate of change of the low wage region rising at a faster pace than the corresponding rate of change in the leading region, we have:

$$\Delta y^B = \frac{\Delta(w_r\text{-}w_s)\,(1+\eta+\psi)}{\pi + (1+\eta+\psi)\lambda_r}$$

where Δ stands for increment in the value of the relevant variable.
If $(1+\eta+\psi)<0$, it follows that y^b will fall if

$$\left|\frac{\pi}{(1+\eta+\psi)}\right| > \lambda_r \text{ and will rise if } \left|\frac{\pi}{(1+\eta+\psi)}\right| < \lambda_r$$

The price elasticities of the demand for exports and imports, the income elasticity of the demand for imports and the size of the Verdoorn coefficient (a measure of the response of productivity to changes in the rate of change of output) will determine how a region can cope with the convergence in money wages brought about through institutional and social pressures.

There are a number of options that firms can follow in order to overcome rising wage costs (Cable, 1983). One route the firm can follow is that of horizontal specialisation. The firm can shift its resources within the enterprise to commodities manufactured with the use of more capital intensive methods. In this case the capital intensity of production will be raised without the undertaking of new investment. Larger firms may follow the route of inter-industry switch whilst others — not necessarily the big ones — could follow upmarket quality strategies channeling their efforts to exports.

Defensive adjustment is the second major option a firm can follow to respond to differential factor cost changes. Rationalisation to cut fixed and overhead costs or investment in capital deepening can be tried. The question may be raised here as to why firms will invest in the face of falling profit rates. Demand expectations are of course crucial here as is the relationship between the scrap value of assets and their profits value (Lamfalussy, 1961). Furthermore, small scale entrepreneurs are likely to judge what is the proper size of

normal profits by reference to the relatively small geographical domain over which they can afford to scan for alternative business ventures. Still a third option is location specialisation. It could involve transfer of plant location to areas with relatively lower wage costs within the economic union, restricting activities to finishing touch assembly operations or reducing into manufacturer importing. Locational specialisation within the economic union implies that labour cost differentials continue to exist. These differentials may not be necessarily in favour of regions with relatively lower money wages. Regions where money wage increases outpace labour productivity rises will suffer from locational specialisation, i. e. it will be the firms operating in these regions that will seek new locations elsewhere in the union.

Regions that experience a deterioration in their efficiency wages may still, in one sense at least, remain «cheap labour» regions. Labour is a quasi-fixed factor of production, not a purely variable one (Oi, 1962). Because of this nature of the labour inputs, firms operating in traditionally tight labour markets prefer to use more extensively the internal labour market rather than the external one. On the contrary, firms operating in labour markets chronically in surplus will use more often the external labour market. Using more intensively the internal market over the course of the trade cycle entails higher costs to the firms. This cost of operating internal labour markets is smaller in regions experiencing traditionally high levels of unemployment. If these are the regions that during the integration process increase their money wages at rates faster than their labour productivity changes then their higher labour costs per unit of output may be mitigated over the period of the business cycle if firms are not forced by circumstances to rely heavily on internal labour markets. Ability to rely on external labour markets may prove an incentive to firms operating in tight labour markets to establish plants in labour markets with chronic excess supply traits.

The integration process may enhance the location specific advantages that multiplant, multi-regional, enterprises can exploit on the basis of the ownership specific advantages they possess and the internalisation incentives they have. This trend will not be general. Indeed opposite cases can be stated. In the table below, we use Dunning's (1981) taxonomy of location specific advantages and indicate (in the right hand side of the table) how the integration process is likely to affect them, i.e. whether it enhances them, or whether it suppresses them. If it enhances them, then investment creation effects will work in favour of the region; if it suppresses them then investment creation effects will work against the region. The table gives on the left hand side the sources of locational specific advantages and on the right hand side the impact of the integration process on them.

The operations of multiplant, multi-regional, interprises will exert a further impact on the region's economy through the opportunity they offer to «transplant» into the less developed region part of the agglomeration economies of the more developed ones. Agglomeration economies are often thought as a kind of immobile «resource». Some of them may not be actually so. For exam-

ple, economies of joint supply (in production, input procurement, marketing, finance, etc.) can reasonably be regarded as a component of agglomeration economies. These economies could still be enjoyed by branch plants of multi-regional enterprises located outside their «home» regions. Furthermore, a branch plant of a multi-regional enterprise has access to inputs such as skilled labour, finance or information even if it is located in a peripheral region. The process of integration can thus be seen as a mechanism for redistributing agglomeration economies. The emergence of the branch plant economies raises however the question of the external control of a region's industry (Firn, 1975).

1 — Input prices, quality and productivity	Convergence in labour rewards reduces the attractiveness of this location specific advantage; however, attraction for operations that can rely on the use of external labour markets will increase.
2 — Spatial distribution of inputs and markets.	Affected by the direction of factor movements, but also the trend for balanced income growth; result uncertain but most likely will work against less developed regions.
3 — Control on imports including tariff and non-tariff barriers.	Liberalisation of intra-union trade makes sites in less developed regions more attractive for export oriented production towards union markets but not for import substituting (domestic market oriented) activities.
4 — Climate for investment, political stability.	Enhanced; increases attractiveness of sites in the developing regions.
5 — Government intervention	Unified government policies lead to reductions in costs of dealing with government departments and thus increase locational advantages.
6 — Infrastructure	Fiscal union may help towards improving infrastructure through the unification of the standards of public services and fiscal transfers.
7 — Psychic distance	As consumer goods markets become more unified, special problems of dealing with markets with different consumer habits and tastes are reduced. Increased attractiveness of location.
8 — Economies of research and development production & marketing.	No impact.

We have examined so far how labour market integration affects differently the regions participating in an integration bloc. Integration of securities and cap-

ital markets will tend to distribute fairly evenly changes in monetary policy rather than limiting them to the initial target-region. Interest rates pressures will be distributed in a balanced way across the integration bloc and so will be the pressures on the goods and services markets (Allen, 1976). Well integrated capital markets also enable the easy financing of the regional short run current account deficits through the capital account thereby reducing the need for adjustment in relative product prices. All this presupposes that the domestic capital markets were not initially compartmentalised (Woolley, 1974).

Morgan (1973) argued that the securities and capital market integration imply centralisation of capital markets — given the externalities from the concentration in space of the institutions supplying financial services. Centralisation of capital markets may make certain regions enforced exporters of capital. What Morgan argues effectively is that whilst capital markets become more centralised, information about the geographical distribution of investment opportunities remains essentially imperfect. Ignorance or prejudice in informationally imperfect markets can lead to a systematic overestimation of the risks in peripheral, less developed regions and to a systematic underestimation of the risks in central, more developed regions. A region which is characterised by a weak demand for its exports and strong domestic demand for imports must experience a depression of its aggregate demand if it is to become a forced lender. This is more so if the region participates in a currency union that rules out exchange rate devaluation.

Monetary integration within a common market will not automatically ensure an equal distribution of the resulting gains and costs. This distribution is crucially influenced by the extent to which a region satisfies the criteria for belonging to the domain of a given currency area (Ishiyama, 1975). On the gains side, small and open regions with a narrow export base and considerably fluctuating export earnings will gain most in terms of economies in the use of foreign exchange reserves and in terms of reducing the misallocation of resources arising from the distortions in the price of raising capital caused by speculative exchange rate movements. Furthermore, by increasing the smoothness of the regional balance of payments adjustment mechanism monetary integration will enhance the positive aspects of trade creation (Robson, 1980). An additional benefit for low wage regions will be the promotion of convergent income growth because monetary integration strengthens the wage emulation phenomena of the factor market integration process as a result of the removal of money illusion from collective bargaining pay negotiations (Pearce, 1973).

However, monetary integration will force inflation rate convergence. Inflation rate convergence may lead to an increasing overall unemployment rate because the deflating region will experience a higher rate of increase in its unemployment rate than the inflating region. Thus balanced income growth could be accompanied by an unequal distribution of the costs of unemployment. The size of the unemployment effects of inflation rate convergence depends on the extent to which regions possess different types of inflation-unemployment trade-offs, and how far these trade-off relationships are stable and different from the

long run natural rate of unemployment. Depending on the situation, inflation rate convergence may lead not only to temporary but also to lasting unemployment effects. Wage emulation encouraged by monetary integration increases labour market rigidities in the regions experiencing these «demonstration» effects in pay comparability norms. This process will shift the region's natural rate of unemployment to a higher level since the long run aggregate supply schedule has its position determined — among other factors — by the level of the real wages. The regions to suffer more from these unemployment effects of monetary integration are those with the stronger wage emulation phenomena (mainly the low wage regions) and with the relatively lower opportunity cost of leisure (Williamson, 1976). Monetary union will lead to a reduction in the inter-regional disparities in wage earnings but at the same time it will fail to equalise unemployment differentials and may indeed raise in some instances the overall unemployment rate of the union. Labour mobility across regional boundaries becomes the main channel to reduce unemployment differentials. In view, however, of the consequences of migration on regional expenditure (since the expenditure financed through the transfers received by migrating unemployed individuals is «taken out» of the region) the efficacy of this adjustment mechanism is seriously doubted (Vanderkamp, 1970). Here, it should also be added that Canadian evidence (Wrage, 1981) further suggests that there is a strong positive relationship between the rate of immigration into a region and the rate of growth of regional productivity.

The regional aggregate demand depressing effects of the inflation convergence process can be mitigated through union-wide fiscal redistribution policies (Denton, 1978). Transfers of tax revenues administered through a central fiscal authority will enable the region experiencing the wage emulation phenomena to balance its current account by offsetting the trade deficit that increased product costs generate (Allen, 1976).

4 — Economic integration and «pre-mature» de-industrialisation

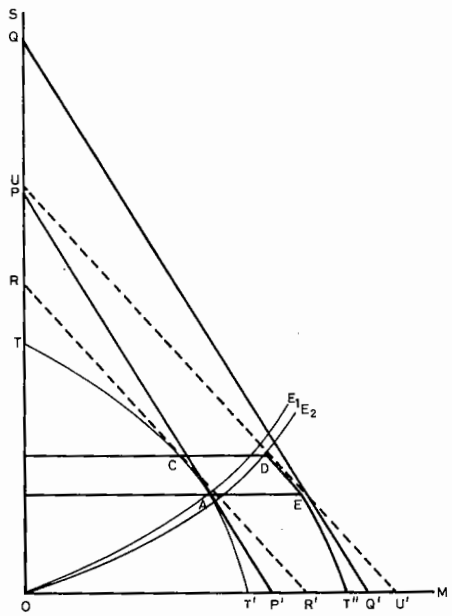
Pressures for money wage convergence will reduce throughout the integrating area using a common currency money wage differences between industries with high and industries with low productivity. As less developed regions have industries with productivity levels below the national average, this convergence process will make it difficult for these regions to continue to produce profitably the commodities they currently manufacture. One way to allow production to continue in a less efficient region is to change the techniques of producing its more labour intensive goods to a level of capital intensity equal to that of the region with the higher productivity level. If the required capital resources are not forthcoming, the move towards the more capital intensive techniques of the leading productivity region will entail a reduction in the level of regional employment (Pearce, 1973). Firms will thus engage in defensive investment with a capital deepening bias. Other responses open to firms have been discussed

in the previous section. Distortions in factor prices induced by the new market rigidities generated from the double impact of factor market and monetary integration will make regional patterns of specialisation dependent on absolute costs — as already emphasised on a previous occasion.

In this section we wish to explore another impact on the regional production structure from the integration process. This is the prospect of «pre-mature» de-industrialisation. «Pre-mature» de-industrialisation can emerge in certain regions of an integration bloc where specialisation takes place on the basis of absolute advantage under the influence of either the fiscal union and the net resource transfers that it redistributes in favour of certain regions or of improving terms of trade vis-a-vis the rest of the integration bloc stemming, for example, from a downwards sloping schedule of imports from the rest of the integrated area.

DIAGRAM 1

Fiscal transfers and production shifts



Let us take first the case of net fiscal transfers. When a region becomes a net recipient of transfers from the central (or federal) government then it can maintain a deficit in the current account of its regional balance of payments. With these receipts from transfers now available the region's consumption possibilities are not any longer restricted by its production possibility frontier (see diagram 1 overleaf — curve *TT'*). In this diagram production and consumption of tradables are measured along the horizontal axis and production and con-

sumption of non-traded goods along the vertical axis. The availability of transfers does not mean that all expenditure arising from their inflow into the region will be spent on tradables. At the initial relative price of tradables (*PP'*) an inflow of transfers will give rise to an excess demand for non-tradables (*S*) and an excess supply of tradables (*M*). As the relative price of *S* increases and the relative price of *M* falls — changing from *PP'* — production will move to the left of the production possibility curve *TT'* at point *C*. Assuming that the productive capacity of the region is unchanged (no shift in the production possibility frontier) then the region receiving an inflow of fiscal transfers will experience over time a structural shift in the form of an increase in the relative share on non-traded goods in its total production and a decline in the share of tradables. If a region's tradables consist principally of manufactures this trend will give rise to de-industrialisation. If this region is at an early stage of development, this can be described as a case of «pathological» development, a «pre-mature» or «early stage» de-industrialisation — a phenomenon similar to the impact on the Spanish economy from the inflow of gold from Latin America. The phenomenon has also similarities with what has become known as the «Dutch disease» (Corden, 1981).

Notice howewer that whilst the effect of net fiscal transfers from outside the region on the production structure is unambiguous, the effect on the pattern of consumption is not (Michaely, 1980). The inflow of fiscal transfers shifts the consumption possibilities curve along *DT''*, horizontally «parallel» to *TT'*, their horizontal distance *CB* (= *AB*) being equal to the transfers. The change in the pattern of consumption will depend on two opposing trends. The inflow of fiscal transfers raises the size of total regional expenditure and this will tend to increase the proportion of non-tradables in total consumption. At the same time, howewer, the fall in the relative price of tradables will tend to push upwards their share in total consumption. Point *D* in the diagram (which lies on the Engel curve that represents income consumption possibilities after the change in the relative prices — E_1) could thus represent either a lower or a higher proportion in total regional consumption.

Faini (1983) has more recently shown that a similar move towards «premature» de-industrialisation can start in an integrated market if a less developed region with a technologically backwards industrial sector is faced with a downwards sloping supply schedule of imports. A region may be faced with a downwards sloping supply schedule of imports if its suppliers from other regions are experiencing economies of scale e.g. in their distribution activities (because of a more efficient utilisation of an already operating sales network as a result of the larger volume of trade generated from the dismantling of tariffs) or in their transportation operations (because freight rates offered to larger users of the transportation network may be falling). Assuming the presence of interregional competition in tradables, these advantages from scale economies will be reflected in a fall in the price of tradables. With the prices of tradables decreasing and the region's terms of trade improving, real incomes

in the region increase and the demand for non-traded goods rises. To maintain equilibrium in the goods market the prices of non-tradables will rise. The increase in the relative price of non-tradables generates a disequilibrium in the market for assets which will subsequently stimulate investment in the non-traded goods sector. Given time, the assets market equilibrium will be re-established through a fall in the relative price of the non-traded goods. The movement from one overall equilibrium (in the goods and assets markets) to another will increase, however, the capital stock of the non-traded goods sector through the relatively faster rate of investment growth encouraged during the disequilibrium period. Most likely, the income and employment share of this sector will also rise.

The growing integration of the regional economy with the rest of the integration bloc may lead, under the conditions described in the two cases analysed above, to a decrease in the relative importance of manufacturing (an important component of the traded goods sector) and therefore to de-industrialisation.

De-industrialisation will not by itself lead to divergent income growth patterns. Income growth associated with non-traded goods activities has often been advancing at a faster pace than income growth generated from activities of the tradables sector. The real problem of the regional growth under de-industrialisation trends is its vulnerability, i.e. the fact that its sustainability rests on a continuation of the inflow of fiscal transfers or (in the other case) of a continuous improvement in the region's terms of trade with the rest of the integration bloc.

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YANNOPOULOS, G. N. — **Distribuição espacial dos efeitos dos esquemas de integração económica**

Este artigo aborda a distribuição interregional a longo prazo do desenvolvimento, por efeito dos esquemas de integração económica. A principal consequência da integração económica em termos de desenvolvimento está ligada ao seu impacte nas restrições da balança de pagamentos afecta à região em desenvolvimento. Um modelo de crescimento regional assente na procura orientada é usado para analisar as repercussões do desarmamento alfandegário assimétrico e igualização dos preços dos factores sobre a taxa de crescimento máximo consistente com o equilíbrio da balança de pagamentos.

Este artigo também demonstra que numa união fiscal onde as vantagens absolutas em vez das comparativas determinam o padrão de especialização inter-regional, podem levar certas regiões a uma desindustrialização prematura.

YANNOPOULOS, G. N. — **The spatial distribution of the effects of economic integration schemes**

The paper is concerned with the inter-regional distribuition of the longer-term, developmental, effects of economic integration schemes. The main developmental consequence of economic integration is linked with its impact on the balance of payments constraint of the developing region. A demand oriented regional growth model is used to trace the repercussions of asymmetrical tariff dismantling and factor price equalisation on the maximum attainable growth rate consistent with balance of payments equilibrium. The paper further demonstrates that in a fiscal union where absolute rather than comparative advantage determine the pattern of inter-regional specialisation, certain regions may experience premature de-industrialisation.