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WORLDWIDE VS REGIONAL INTEGRATION: IS THERE AN OPTIMAL SIZE OF THE INTEGRATED AREA?

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Worldwide vs Regional Integration: Is there an Optimal Size of the Integrated Area?

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A skillful program committee chooses titles for conference papers that deceive in their simplicity, which on close inspection turn out not to be simple at all, and which raise more questions than an author can hope to answer in the 5000 words that they allot to it. They thus lay the groundwork for future research and for future conferences. Certainly the title of this paper is deceptively simple, yet cloaks a problem that goes to the heart of political theory: how should human beings organize their collective endeavors, especially those that require governmental action, so as to best achieve their diverse and often conflicting objectives?

The recent historical origins of the question posed in the title are clear enough. There has been a running debate since the Second World War (with antecedents in the 1930s) over whether the world economy would be better served by full multilateralism or by regional groupings that "discriminate" in favor of members and against non-members. This question arose especially with respect to customs unions and free trade areas, where the principal instrument of discrimination was the import tariff. But it also arose with respect to balance-of-payments policy (with the Sterling Area and the European Payments Union representing the leading examples of regional groupings) and, more recently and more hypothetically, with respect to the range of common currencies--what is the optimal area for a single currency? As usually posed, these questions concern groupings among <u>nations.</u> But similar questions, deriving from a different starting point, have been asked with increasing force about the optimal provision of public goods and services <u>within</u> nations, particularly those with a federal structure, which have shown increasing strain in recent years in trying to provide public goods both efficiently and with sufficient regard for local variations in public desires.

Thus from a theoretical point of view the issue posed in the title goes beyond possible regional relationships among nations. Put more generally, we can ask what is the optimal combination of communities, or regions, for an integrated area? In some cases the answer may involve regional groupings of existing nations; in others it might involve several regions within existing nations. But before proceeding further we should make a few distinctions about the meaning of "integrated area."

Some Important Distinctions Concerning "Integration"

Although a detailed discussion of alternative forms of integration will be covered elsewhere, several distinctions are necessary here before proceeding to a discussion of optimal-integrated areas. First "integration" can refer to the legal and institutional relationships within a region in which economic transactions take place. Or it can refer to the market relationships among goods and factors within the region. This distinction becomes clear when we imagine a nineteenth century laissez faire economy with no government barriers to inter-regional transactions, but with markets not linked because of ignorance or high transportation costs. The regions would be integrated in the first sense but not in the second. This would be true even in the presence of a high degree of inter-governmental coordination between the countries comprising the region. If there are institutional or legal barriers to trade and capital movements, on the other hand, markets of course cannot be fully integrated either, at least in the sense of equal product and factor prices. But these prices may move in parallel with one another, indicating market integration at the margin, i.e. high sensitivity to developments elsewhere in the region.

Before we return to this distinction between institutional and market integration, it is useful to draw a second distinction, between integration as state of affairs and integration as process. Much of the postwar debate on regionalism vs globalism was concerned with process rather than with state of affairs: the advocates of economic regionalism saw it as an effective route to attain some other objective, either economic globalism or regional political unification. The universalism of the Bretton Woods Agreement and of the General Agreement on Tariffs and Trade, both laid down in the 1940s, stood in sharp contrast to the regionalism of the Sterling Area, the European Payments Union, the European Coal and Steel Community, and the European Economic Community. Each of the latter institutions was hotly resisted in their early stages, as an undesirable retreat from the universalism which the architects of the postwar international economic system hoped to achieve. The regional institutions, for their part, were rarely justified as ends in themselves, although occasionally that strand of thought was present. Rather, they were regarded as superior means to achieve more far-reaching ends. Thus Robert Triffin argued persistently that the European Payments Union, with its implied discriminatioh against the U.S.

dollar, represented much the most effective way to achieve currency convertibility and to restore a truly multilateral system of international payments.[1/] Like-minded countries with similar problems would move more quickly together than they could either separately or when grouped with countries facing very different problems. To try everything at once would stymie progress, as the failure of the International Trade Organization seemed to suggest. On this formulation, the objective of both parties to the debate is the same, namely a multilateral world economy; but judgments differ only on the best way to achieve it.

Unfortunately for clarity in the debate, another group, associated with the name Jean Monnet, had quite different objectives, and sought to use the same instruments of economic regionalism to attain their objective of regional political unification. So a confusion was introduced: the probability that economic regionalism would eventually lead to economic universalism was reduced to the extent that it would lead to regional political integration.

Integration as a process involves establishing a situation that is not in long-run equilibrium: partial integration creates new problems which in turn call for further integrative measures, and so on.[2/] One thing leads to another, and eventually political integration captures the minds of the people. On the first version of integration as process, success among a limited group of countries breeds a willingness by others to join in, and eventually the regional approach becomes global. On the second version, it creates durable political bonds within the region. In either of these frames of reference, the "optimal" region for integration is that which best achieves the desired objective rapidly and securely.

We return to integration as a state of affairs. Markets are integrated if one price prevails for each product or factor, after allowance for transportation costs. On this market formulation, the optimum integrated area is the world as a whole, for any artificial interference with price equilibration (except those designed to eliminate market imperfections) will ipso facto represent a source of inefficiency in the allocation of resources. What then is the case for regionalism? It lies, I believe, not in the realm of private goods, but in the realm of public or collective goods, where these are defined broadly to include the nature of the economic regime itself, i.e. the system of property ownership, of contract, of risk-bearing, and the like. Some individuals may not want an economic regime based on markets, and are willing to pay the economic price for that decision. Viewed from the perspective of public goods, "regions" really mean governmental jurisdictions, and the enquiry must begin with the functions of government. The standard list calls on governments to provide public goods, to stabilize the level and growth of income, to redistribute income, and above all to provide a regulatory framework for economic and social transactions. Whether a region is "optimal" then depends on its optimal suitability for performing these various functions. "Optimality" means: best able to serve the various social objectives, where "best" is in the Pareto sense of not permitting closer achievement of one objective without compromising the attainment of some other objective.

The perspective adopted here thus renders irrelevant the classic distinction by Viner between trade-creating and trade-diverting customs unions, and their analogues in the monetary arena. As Cooper and Massell showed a decade ago, in terms of straight national income a unilateral tariff reduction dominates the formation of a discriminatory trading bloc; the formation of customs unions must therefore be rationalized along different lines.[3/] Harry Johnson has provided a more general framework for regarding protection in general and customs unions in particular as devices (perhaps inefficient ones) for the attainment of public goods, i.e. features from which the public at large derives some satisfaction, whether they be nationalism, redistribution of income, or a level of industrial production above what could be sustained by the operation of unimpeded market forces.[4/] In this context the formation of regional groupings on a discriminatory basis might represent the most efficient method for attaining a given objective; but the results would have to be shown in each specific case, for the general optimality of discriminatory trade or payments arrangements cannot be assumed.

The Optimal Provision of Collective Goods

The optimal provision of public goods involves both technological considerations and the accommodation of public preferences. We will first consider the technological side, which considerations generally (but not always) press for enlargement of governmental jurisdiction, while accommodation of public preferences generally (but not always) presses for relatively small governmental jurisdictions.

Three technical factors have a bearing on the provision of public goods: economies of scale, the presence of externalities (including the important special case in which some of the objects of regulation are mobile), and the possibilities for reducing economic disturbances through integrating markets. We will take up each of these considerations in turn, the last especially in the context of economic stabilization.

Economies of Scale Scale economies offer a traditional argument for increasing the size of jurisdictions, at least up to a point. Certain public goods, especially those requiring for efficiency a high degree of specialization, experience strong economies of scale. Examples would be certain forms of scientific research, public health, police investigatory work, the penal system, some aspects of national defense, and flood control and irrigation. Where scale economies are substantial, the governmental jurisdiction (or its functional equivalent in facilities shared among jurisdictions) must be large enough to encompass the scale required, or else its residents will either enjoy lower quality services or pay more than is technically necessary for those services.

The optimum scale for governmental jurisdiction will of course vary from public good to public good. Where jurisdictions can be effectively separated along functional lines, they can be tailored to the requirements of each different good. (Los Angeles and London both offer examples of urban areas with many overlapping jurisdictions, drawn in part along functional lines.) Where as a practical matter that is not possible, the choice of scale of a jurisdiction should (other things being equal) be governed by the minimum cost of the package of public goods that is to be offered. Because of organizational, managerial, and informational costs, the optimal jurisdiction will be well below the global level.

External Effects External effects arise when activities within one jurisdiction affect directly the welfare of residents of another jurisdiction, other than through market prices. External effects can be either positive, as in the case of malarial control, or negative, as in the case of downstream water pollution. In one respect, external effects can be thought of as a more general case of economies (or diseconomies) of scale: once a service (e.g. malarial control) is provided, the marginal cost of additional consumption (enjoyment) of that service is low or zero, and therefore the average cost to citizens is lower, the larger the jurisdiction in terms of taxable population. It is worth while to preserve the distinction between the two considerations, however, since economies of scale normally refer to technical input-out relationships in the production of a well-defined good or service, not to the consumption effects.

A special kind of externality arises from the mobility of the objects of policy action. Here the problem is that the "public good" by community preference may involve unwelcome restraints on certain elements of the community, e.g. its business firms or its radio stations or its high income members. Activation of these regulatory or redistributional policies will then drive the adversely affected parties out of a jurisdiction that is too small relative to their domain of mobility. They will escape the onerous action by leaving the jurisdiction in question.[5/] To prevent this, the jurisdiction must either inhibit the mobility of its residents or become large enough to encompass their entire domain of mobility. The latter course does not necessarily involve enlargement to the global level because as a practical matter persons and firms are not globally mobile. Considerations of economics, geography, language, and culture all limit the actual domain of mobility.

The mobility of factors beyond a government jurisdiction limits the capacity of that jurisdiction to redistribute income. The heavily taxed will move out, and those who are subsidized will move in, both of which movements undercut the fiscal viability of redistributional policies. It is true that even trade in goods and services will affect the rewards to factors of production, as underlined in strong form by the Heckscher-Ohlin-Samuelson theorem concerning factor-price-equalization. But the imposition of tariffs can alter the free-trade distribution of income, and in any case the resulting factor rewards are <u>before</u> allowance for income taxes, which can serve redistributive objectives. It is factor mobility, not commodity movement, that really limits the possibilities for redistribution.

Similar considerations apply to attempts by jurisdictions to regulate business activity, e.g. capital structure, financial disclosure, safety, pollution, and so on. Once the regulations go beyond what is acceptable to the mobile firm, where "acceptability" will be influenced by the competitive environment in which the firm operates, it will depart for a jurisdiction with less onerous regulations.[6/]

Economic Stabilization. A third consideration for the optimal size of an integrated region concerns the objective of economic stabilization on the assumption that policy measures to stabilize the level of income or employment are uncertain in effect or costly to use. Under these circumstances, any arrangement that reduces the macro-economic disturbances to the region in question will be beneficial. For a given region, macro-economic disturbances (that is, disturbances that in the absence of countervailing action would alter perceptibly the level of aggregate income or employment) can arise either within the region or from outside it. Its economy will respond to these disturbances in some well-defined way, which depends among other things on the openness of the region, and it can take steps to compensate for the disturbance with various regional instruments of policy, whose impact also depends on the structure of the regional economy.

How then should the boundaries of a region be drawn from the view-point of maximizing the stability of the regional economy? By boundaries we mean here the limits of application of tariffs or direct controls on inter-regional transactions and/or a single currency or fixed exchange rates between currencies within the region.

First consider the disturbances that create economic instability. If internal disturbances are low compared with those emanating from outside the region, the region should perhaps insulate itself from other regions, using the devices indicated above. This is analogous to risk-splitting in the writing of insurance: a low risk group can gain by separating itself from the rest. In contrast, if internal disturbances are large relative to those emanating from outside the region, the region may gain by amalgamating with other regions and thus in effect export some of its disturbances to the larger area. Finally, if the relative importance of disturbances originating inside the region is about the same as those originating outside, but the disturbances have different patterns, i.e. are less than perfectly correlated, then the interests of each of two regions will generally be well served by joining, since the disturbances will partially offset one another and produce a lower net disturbance in both regions; that is, the regions will engage in risk-spreading rather than in risk-splitting by joining one another in a common region, analogous to enlarging an insurance pool.[7]

If we now take the net disturbance as given, reduced as it may have been through export or through import of partially offsetting disturbances, we can ask how much damage it will do to the region of our interest, and how the region may take policy action to mitigate the remaining damage. Mundell has pointed out that if factor mobility is high within a region, adjustment to some disturbances can take place quite smoothly, as shifts in demand among goods lead to prompt re-employment of any redundant factors. Kenen has made a related point in emphasizing the importance of diversity in an economy, both to reduce the net disturbance through mutually offsetting of uncorrelated disturbances, and to spread the impact widely throughout an economy, thereby reducing the social cost.[8/] In Mundell's formulation, stabilization requirements alone imply as small an area as possible (each with its own floating currency), for that leads as close as possible to a regime of complete price flexibility, and the market will always clear. Efficiency in the use of money leads Mundell's optimum currency area to stop far short of this atomism. Kenen's emphasis on disturbances suggests that even in the realm of stabilization alone the optimum area may be far larger than Mundell's argument implies.[9/]

Moreover, extremely open (small) economies may find themselves bereft of useful instruments of policy to deal with disturbances. McKinnon has suggested that money illusion in an open economy may diminish to the point at which fluctuations in the exchange rate of the region's currency may cease to be effective in influencing patterns of demand, and indeed may simply induce residents to hold "foreign" currencies.[10/] Also, a region may be so open that standard macro-economic fiscal action ceases to be an effective instrument of demand management, because the great leakages abroad vitiate its domestic impact.[11/] This vitiation of policy is a more complicated question than at first meets the eye, because of course the disturbances are also strongly attenuated in these very open economies, and we must therefore ask whether on balance the region is worse off in terms of macro-economic management than it would be with more effective instruments of policy but also with larger net disturbances.[12/]

But the reduced effectiveness of policy instruments limits the region's capacity to compensate for disturbances arising outside the region, at least so long as some social cost is associated with their exercise at more intensive levels.[13/]

Most of the considerations discussed above--economies of scale, external effects, escape from regulation and redistribution, effective economic stabilization--argue for increasing the size of jurisdictions. The entire globe would be the logical limit to this process. Only increasing difficulties of management (diseconomies of scale associated with management and bureaucracy) and, for those regions which can profit by it, risk-splitting,cut in the other direction, toward smaller scale of the optimal jurisdiction. But we have not yet made allowance for the diversity of preferences for collective goods.

Diversity of preferences. Individuals differ greatly in their preferences for collective goods, both of the systemic type (i.e. the fundamental nature of the regime, capitalist or socialist, strong preference for order vs. high respect for individualism, etc.) and for specific public goods (e.g. provision for flood control or parks or scientific research). These strong differences are conditioned by differences in cultural background and in income level. The greater the diversity of preferences within a given jurisdiction, the more difficult it will be, obviously, to satisfy all the demands for public goods by the residents even approximately, since by their nature public goods are provided in roughly equal amount to all residents of the relevant area. There are thus large consumption losses in jurisdictions with a wide diversity of tastes, relative to what would be possible with different jurisdictions each catering more precisely to the preferences of its residents. This consideration thus pushes strongly toward relatively small communities that are homogeneous in their preferences for collective goods; it underlies much of the pressure for greater decentralization of government and more local control.

In a recent book on Size and Democracy, two political scientists pose the trade-off in a slightly different way. They point to the conflict between "system capacity" and "citizen effectiveness," that is, the capacity of the governmental system to deliver the (public) goods efficiently, as against the ability of its citizens to participate effectively in making governmental decisions affecting the level and composition of public goods to be provided. They do at one point seem to suggest a positive value to diversity among the citizenship and to pluralism as such, however, particularly to provide an environment favorable to the dissenting citizen (which on one issue or another will be all of them) and this would suggest enlarging the jurisdiction despite the advantages cited above for having communities with homogeniety of tastes. They do not, however, attempt to weigh this desire for pluralism against the necessary consumption loss on other public goods that arises from diversity in tastes.14/

Considerations of liberty, however, press for smaller, more numerous jurisdictions. Breton has put the point strongly: "the number of levels and sizes of units [of government] should be such that for any level of costs, the power of politicians--defined as their capacity to depart from the preferences of citizens--should be minimized."15/ Those fearful of the coercive powers of the state would set the scale of jurisdictions at a low level, even if that meant sacrificing some economic efficiency, for the sake of keeping politicans under check through competition with other jurisdictions.

Conclusion: What is the Optimal Area:

How are these conflicting considerations to be weighed against one another? That itself is an issue involving the diversity of preferences, for different individuals will be willing to sacrifice differing amounts of income (as taxes) in the form of less efficient provision of conventional public goods in order to purchase some given amount of liberty or national prestige or sense of cultural identity. It is necessary, as Samuelson told us all along, to have a social welfare function that weights not only the provision of goods and services but also the individuals that make up the community. But to say we need a social welfare function, while formally correct, merely passes the question to the agent who specifies that function.

Functional federalism. Compromise among the various considerations is possible. Under a system of functional federalism, the trade-off between scale economies and diversity of tastes is made for each public good separately, leading to many overlapping governmental jurisdictions, each dealing with its own set of highly specialized and closely related problems: police protection, weather forecasting and control, flood control.

Each has its own autonomous decision-making structure and its own citizenry, which may differ from issue to issue. This in a way is the method of specialized international organizations, each established by separate treaties, and it can also be seen in federal countries.[16/] It is an attractive idea, and in practice it will be necessary, at least in some degree. The notion of sovereignty inevitably becomes ambiguous under a system of functional federalism, for there is no Sovereign, only a series of partial sovereignties. But that ambiguity is necessary to achieve the objective of the optimal provision of public goods, unless of course the existence of an unambiguous sovereignty is itself regarded as the over-riding public good.

However, a system of functional federalism with partial sovereignties has its disadvantages as well. In the first place, both technology and tastes are in flux. A pattern of organization that is optimal now will in general not be optimal ten years from now. Yet an on-going bureaucracy develops vested interests of its own and is very difficult to change. Every country is living with outdated but durable--not to say tenacious--governmental institutions. Flexibility would be lost through a proliferation of jurisdictions, none with over-riding authority.

In the second place, a system of functional federalism would inhibit bargaining and political compromise <u>across</u> functional jurisdictional boundaries in the absence of a higher authority willing and able to sacrifice the vested interests in particular jurisdictions. For much of the time it is useful to have each issue operate on its own track, with its own set of conventions and sanctions to influence behavior. But from time to time the inability to bargain across issue areas would prevent communities from reaching an optimal configuration of public goods.

<u>Contemporary Relevance</u>. I will close with some comments on the contemporary relevance of what are otherwise broad and largely inconclusive generalizations.

The pressures for enlargement of governmental jurisdictions are strong and growing in the modern world. Activities in each jurisdiction have impacts on other jurisdictions in an increasing number of areas. Economies of scale and externalities in some activities have been growing as well, so to the extent those activities are desired as public goods, the jurisdiction required to carry them with any efficiency has also increased in size. Not the least of the sources of "spillouts" in the modern world is the fact that governments have become active in pursuit of a variety of social objectives, and these pursuits often vary from country to country, setting up strains, including those arising from the mobility of firms and persons, between different jurisdictions. Even when factor mobility is not present, one hears charges of "unfair" competition from a country that pursues practices somewhat different from one's own. Economic stabilization and income redistribution have become more difficult for countries to achieve acting alone. On all these grounds, therefore, an argument can be made for increasing the size of jurisdictions--for forming regional groupings out of nations.

The European Economic Community is one response to these pressures. The motivations behind the formation of the Community are many, and are mainly political; but at their root was a perception that European nations acting one by one would have a diminishing influence on the course of world events, and hence even on their own welfare, so they joined together to pool their influence and to try to restore some autonomy to their evolution.

The Community is relatively homogeneous by global standards, so the welfare loss associated with "harmonizing" various policies will be less than it would be for a larger and more diverse group of countries. Other successful attempts at economic integration--the Central American Common Market, and on a more limited basis the Andean group of countries--also reflect a high degree of homogeneity relative to the world at large--although we should keep in mind that homogeneity always looks greater from a distance than it really is. The United States has been relatively successful in part because, while very large, it is relatively homogeneous in taste and outlook, and it has a system of decentralized government capable of catering to variations in local preferences. Indeed, the greatest internal difficulties within the United States have arisen when local preferences, e.g. on racial discrimination, offend a national norm.

Growing centralization and bureaucraticization in response to pressures for enlargement have created counter-pressures for greater decentralization in governmental decision-making. These arise partly out of psychological revulsion at the growing distance between the average citizen and his government, partly out of the perception that centralization really reduces responsiveness to local preferences.

The communist countries are committed to such a fundamentally different conception of the basic economic regime that it is difficult to contemplate meaningful integration between those countries and other countries except along highly specialized and functional lines. Many less developed countries are still groping for the appropriate underlying regime for themselves, trying to adapt a colonial legacy to new needs and to indigenous preferences, and until this process is completed it will be difficult to integrate such countries with others whose basic regime is settled and is generally regarded as satisfactory. Once again, integration along specialized functional lines is about all one should reasonably try at this stage, and even there such attempts as have been made are often plagued by difficulties because some countries question the fundamental propositions that others take for granted.

For these various reasons, therefore, regional integration regarding public goods seems to be a more promising route than does global integration. Indeed, there should be no objection to groups of countries getting together to pursue their common interests, so long as neither their intent nor their effect is gain at the expense of other countries. There are numerous opportunities for such "clubs" to form which are not at the expense of other countries, and indeed their activities may be beneficial to others.

I conclude therefore in the same way Alec Cairncross did in his recent discussion of the optimal firm: there is no such thing.[17/] Nor is there such a thing as an optimal region, at least at the high level of generality that has been considered here. Not the least of the difficulties is that close cooperation among nations or within regions builds close ties and more homogeneous preferences as well as reflecting them, a point well perceived by the advocates of the economic route to political unification of Europe. Rather, optimality calls for a much more complex array of jurisdictions, compromising between the desire for greater decentralization and the technical need for greater centralization in decision-making.

Footnotes

1/ For a selection of his numerous articles and memoranda written in the early postwar era, see his The World Money Maze, New Haven: Yale University Press, 1966, especially pp.376-405

2/ On the theory underlying the neo-functionalist approach to political integration, see Ernest B. Haas, The Uniting of Europe, Stanford: Stanford University Press, 1958; and Joseph S. Nye, Peace in Parts, Boston: Little, Brown and Co., 1971, especially pp.48-54

3/ C.A. Cooper and B.F. Massell, "A New Look at Customs Union Theory," Economic Journal, 75 (December 1965), pp. 742-747; and "Toward a General Theory of Customs Unions for Developing Countries," Journal of Political Economy, 73 (October 1965), pp. 461-476

4/ H.G. Johnson, "An Economic Theory of Protectionism, Tariff Bargaining, and the Formation of Customs Unions," Journal of Political Economy, 73 (June 1965), pp.256-283

5/ A recent example of this process was the proposal by the new Labour government in Britain in 1974 to tax the total income of foreign residents in Britain. The proposal was greeted with howls of protest, some foreign residents made their plans to leave, and the British government backed away from its initial position.

6/ For a further discussion of these issues, and of the influence of mobility on the formulation of government policy, see Richard N. Cooper, Economic Mobility and National Economic Policy (The Wicksell Lectures, 1973), Stockholm: Almqvist and Wiksell, 1974

7/ For a more formal analysis of the impact of disturbances on the income levels of different regions, see R.N. Cooper, op.cit, mathematical appendix.

8/ Robert A. Mundell, "A Theory of Optimum Currency Areas," American Economic Review, 51 (September, 1961), pp. 657-64: and Peter B. Kenen, "The Theory of Optimum Currency Areas: An Eclectic View," in R.A. Mundell and A.K. Swoboda, Monetary Problems of the International Economy, Chicago: University of Chicago Press, 1969, pp.41-60

9/ The contrary pulls on regional size of these two factors can be set down in informal mathematical terms as follows:

$U - U^* = H(d,f)$, where U is the regional unemployment rato, U^* is the unemployment rato that is sustainable over time in the absence of disturbances, d represents the average level of net disturbances over a period of time, and f represents the factor market frictions inhibiting immediate absorption of any unemployed labor. It seems reasonable to assume

$$\frac{\partial H}{\partial d} \ngtr o, \quad \frac{\partial H}{\partial f} > o, \quad H(o,f) = H(d,o) = o.$$

Footnotes

9/ Suppose then we want to minimize H by a judicious choice of size (s) for the region, within which trade is free and one currency prevails, and beyond which trade is subject to tariffs and other currencies exist with flexible exchange rates between those currencies and that of our region.

$$\min_s H \rightarrow \frac{\partial H}{\partial d} \cdot \frac{\partial d}{\partial s} + \frac{\partial H}{\partial f} \cdot \frac{\partial f}{\partial s} = o$$

By the arguments in the text, $\frac{\partial d}{\partial s} < o$ and $\frac{\partial f}{\partial s} > o$, so a minimum may be assumed to exist. The resulting region would be "optimal" in this dimension only.

10/ Ronald I. McKinnon, "Optimum Currency Areas," American Economic Review 53 (September 1963), pp. 717-724.

11/ Cooper, op.cit. ; R.I. McKinnon and W.E. Oates, The Implications of International Economic Integration for Monetary, Fiscal, and Exchange-Rate Policy, International Finance Section, Princeton University, 1966, pp 16-17

12/ For a discussion of this issue, see R.N. Cooper, "The Relevance of International Liquidity to Developed Countries," American Economic Review, 58 (May 1968), p.636

13/ This last qualification is necessary because in its absence an instrument of policy could simply be worked at a sufficiently high level of intensity to deal with the problem, so long as it has any impact at all. But in fact there are limits to how hard we can push the use of each particular policy measure.

14/ Robert A. Dahl and Edward R. Tufte, Size and Democracy, Stanford: Stanford University Press, 1973, especially pp. 22-25 and 138

15/ Albert Breton, "Theoretical Problems of Federalism," Recherches Economiques de Louvain, 32 (September 1970), p.114.

16/ For a stimulating discussion of the division of labor among different levels of government, see Mancur Olson, Jr., "The Principle of 'Fiscal Equivalence': The Division of Responsibilities among Different Levels of Government," American Economic Review, 59 (May 1969), pp. 479-487.

17/ A.K. Cairncross, "The Optimal Firm Reconsidered," Economic Journal 82 (March 1972), supplement, pp. 312-320.