The equilibrium approach to optimum currency areas *

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Robert Mundell's (1961) celebrated contribution to the theory of optimum currency areas has given rise to an extensive literature. His original idea was to show the limitations of exchange rate flexibility in restoring internal balance, thus leading to the optimal solution of reshaping currency areas. This accomplishment, which reflected the state of the art based on Keynesian economics, held sway up to our days, even though the pendulum had swung back towards the classical paradigm since the late 1960s.

In the last decade, however, the traditional approach has been subjected to several criticisms. The sundry optimality criteria introduced in the wake of Mundell's seminal essay are all exogenous, consisting in specific characteristics of the economy, detached from an equilibrium mechanism. Optimality then involves the mere verification of such characteristics and therefore reduces to an empirical question. Dwelling on these criticisms, modern contributions have developed an equilibrium approach, pointing out the efficacy of equilibrium forces in achieving the optimum. This strain of thought, emphasizing the endogeneity of the optimum currency area criteria, has turned the concept of optimality upside down.[1]

From a broader historical perspective, the traditional approach appears as a detour from the evolution of economics dominated by the

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[1] For a recent survey see De Grauwe and Mongelli (2005).

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notion of equilibrium. In fact, in the post-war discussion of European economic integration, some distinguished economists anticipated Mundell's theory, though taking a different route consonant with the recent equilibrium approach. In a sense, in half a century we have come full circle because contemporary works have brought the subject again into the realm of equilibrium theory after the long intermezzo beginning with Mundell's classic essay.

The purpose of this paper is to examine these developments, drawing attention to the remarkable achievements of today's research. After critically comparing the early literature on monetary unions with Mundell's contribution (section 1), this article analyses the modern equilibrium approach, showing the sharp theoretical and policy differences from the received view (section 2).

1. Monetary unions and optimality

In the post-war literature, the lack of adjusting capacity in the Bretton Woods system and, in particular, the inconsistency between the overriding target of full employment and fixed parities motivated the call for flexible exchange rates, considered the logical counterpart of employment policies. Mundell thought he had spotted a weak point in this position. As he recalls the genesis of his 1961 article, he was investigating whether exchange rate flexibility might solve regional problems, noting also that the floating Canadian dollar did not cushion Canada from the US business cycle.[2] His research strategy of locating production across countries, together with the Keynesian assumption of price and wage rigidity, put the burden of adjustment on quantity changes. Hence, the limitations of floating rates in adjusting a demand shift readily emerged because virtually all channels of adjustment were

[2] The starting point of his analysis was the possible failure of flexible exchange rates to ensure full employment and a stable price level, not the optimal design of currency areas. "I was not, however, proposing an independent currency for British Columbia; rather, I was beginning to think of the argument as a qualification, if not a refutation, of the argument for flexible exchange rates" (Mundell 1997, p. 31). In the same essay, Mundell tells in detail how subsequent reflection on the idea underlying optimum currency areas heightened his doubts about the case for flexible exchange rates.

precluded but for the innovative solution of reshaping national borders in accordance with labour mobility.

This optimality criterion, however, had already been put forward by Abba Lerner in his analysis of the gold standard (1944, pp. 370-77) and, subsequently, in a debate on the post-war monetary order (1947).[3] Contrasting the output and employment costs of the gold standard adjustment with the smoothness of adjustment inside a country, he pointed to labour mobility as the key explanatory factor. Undoubtedly, Lerner did not elaborate this argument to arrive at a full-fledged analysis of optimality. In particular, he did not explicitly set the macroeconomic benefits of increasing the number of currency areas against the microeconomic losses in terms of higher transaction and information costs. Yet he anticipated the basic principle underlying Mundell's contribution and, more importantly, arrived at this result by an entirely different route. While Mundell focused on a failure of exchange rate flexibility to re-establish equilibrium *between* countries, Lerner emphasized the efficacy of adjustment *within* a country, where the exchange rate is irrevocably fixed.

These analyses suggest opposite conceptions of currency area optimality. For Mundell (1961, p. 658, n. 6), labour mobility is the solution to inadequate international adjustment, which ultimately hinges on the postulate of interregional factor immobility, with regions spanning the country borders. For Lerner, instead, factors are mobile within a country, which accounts for the effectiveness of interregional adjustment as distinct from the international gold standard.[4] The main point of these contrasting views relates to the meaning and impact of the country border on interregional adjustment, considered to be a barrier dividing two sides of a region in the first interpretation, or the

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[3] For a detailed reconstruction of the origins of the theory of optimum currency areas see Cesarano (2006).

[4] If all obstacles to trade and factor mobility were removed, Lerner argued, the gold standard would be immune from adjustment costs, thus providing a sound monetary system. "Tariffs and quotas interfere with trade, and the movement of people from country to country is seriously limited. It is only because of these restrictions that a rigid enforcement of fixed exchange rates between the values of the currencies of different countries can be so very harmful. If there were complete freedom of movement of goods, investment, and people, an international currency system would be as sound as a single monetary system for a country within which the three freedoms of movement are realities, and a properly managed gold standard system might be one way of arranging this" (1944, p. 376).

defining factor of efficacious interregional adjustment in the second. This divergence of opinion could not emerge more clearly than from Mundell's argument that, contrary to Lerner's hypothesis, intranational adjustment and international adjustment in the gold standard are alike, involving the same problems and high costs[5] (see the striking contrast between the quotations in footnotes 4 and 5).

Lerner's contribution went unheeded. Indeed, it is never mentioned in the vast literature on the subject. He did not start from a policy problem, but analysed a purely theoretical issue. In the 1950s, however, the process of European economic integration set in motion the debate on monetary unions. Actually, the study of optimum currency areas and of monetary unions displays a dual nature in that it tackles the same class of problems from different perspectives: search for the optimality criteria with a view to redesigning currency areas or, alternatively, given a certain number of countries, deploy those criteria to assess the optimality of circulating a common currency. Not surprisingly, in the latter context the main issues analysed by Mundell had been discussed earlier by other economists.

Independently of Lerner, Meade and Scitovsky pointed out factor mobility as one of the key properties enhancing the effectiveness of intranational *vis-à-vis* international adjustment. Thus, contrasting the gold standard approach with the integration approach to monetary unification, Meade (1957, pp. 384-88) contended that full employment and a stable price level could be achieved only in the latter, involving both a common currency and supranational fiscal policy tantamount to a federal government, because goods, labour and capital could move freely as between the regions of a single country. Likewise Scitovsky, while stigmatizing the impossibility of pursuing full employment in the gold standard, noted

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[5] "[I]f the arguments against the gold standard were correct, then why should a similar argument not apply against a common currency system in a multiregional country? Under the gold standard depression in one country would be transmitted, through the foreign-trade multiplier, to foreign countries. Similarly, under a common currency, depression in one region would be transmitted to other regions for precisely the same reasons. If the gold standard imposed a harsh discipline on the national economy and induced the transmission of economic fluctuations, then a common currency would be guilty of the same charges; interregional balance-of-payments problems are invisible, so to speak, precisely because there is no escape from the self-adjusting effects of interregional money flows" (Mundell 1961, p. 660).

> "that the condition of a common currency is the presence of market forces able automatically and without the aid of deliberate economic policy to obviate balance-of-payments difficulties" (1957, pp. 18-19).

For Scitovsky, such forces include, besides labour mobility, capital market integration and employment policy, both playing a key role in ensuring the effectiveness of intranational adjustment.

These analyses take the geographical extension of the currency area as given and therefore arrive at the optimality principles through a reverse route, stemming from the dual nature of the subject yet yielding the same results as Mundell's seminal paper. Interestingly, these very principles were also expounded by Milton Friedman in a footnote to his classic essay on flexible exchange rates.[6]

The important point is that all these authors ascribe the efficacy of intranational adjustment not only to economic policies but especially to market forces underlying the classical adjustment model. However paradoxical it may appear, in the heyday of Keynesian economics it was a commonplace to consider Hume's specie-flow mechanism the theoretical blueprint of monetary union. Thus Scitovsky, while rejecting the gold standard for its unemployment effects, noted:

> "We must beware, however, of throwing the classical theory out altogether. Its mechanism, if limited, is still effective, at least in interregional relations. The flow of funds from one region to another affects the reserve ratios of banks that operate in only one and not both of the regions and causes these banks to contract and expand credit respectively. The influence of this on the balance of interregional payments is similar to that of classical monetary policy on the balance of international payments but much more limited. It is more limited, first of all, because the leverage of commercial-bank expansion and contraction is much smaller than that of central-

[6] Discussing the operation of fixed exchange rates between the members of the sterling area as distinct from the different regions of a country, he observed: "The key difference for present purposes between the different states of the United States, on the one hand, and the different members of the sterling area, on the other, is that the former are, while the latter are not, all effectively subject to a single central fiscal and monetary authority – the federal government – having ultimate fiscal and monetary powers. In addition, the former have, while the latter have not, effectively surrendered the right to impose restrictions on the movements of goods, people, or capital between one another. This is a major factor explaining why a central monetary authority is able to operate without producing serious sectional strains" (Friedman 1953, p. 193, n. 16).

> bank expansion and contraction; and secondly, because the credit policy of commercial banks is partly under central-bank direction and only partly governed by their own reserve position. Furthermore, no such regional expansion or contraction can occur in a country all of whose banks operate on a national scale, with regional branches that serve merely as collecting stations for deposits and loan applications" (1957, p. 21).[7]

The essential difference with Mundell's analysis (see footnote 5 above) does not consist in considering the border of the currency area to be fixed, but in deeming interregional adjustment to be highly effective. As already argued, Mundell's case of disequilibrium is constructed on the assumption that regions overlap the countries' borders, so that the solution of labour mobility is an exogenous characteristic depending more on geography than on economics because it is not the outcome of an equilibrium mechanism driven by market forces.[8] This deficiency mars many of the further optimality criteria developed in the wake of Mundell's essay. All of them represent exogenous features of the economies considered, resulting from a static analysis removed from the realm of equilibrium theory. A sheer antinomy therefore emerges with the theory of monetary unions, based on the classical model, developed by Lerner and, subsequently, by Friedman, Meade and Scitovsky. As Scitovsky observed:

> "[T]he classical theory [...] is a dynamic equilibrium theory; dynamic, because it deals with a process of adjustment over time; equilibrium, because it asserts the existence of a tendency toward balance-of-payments equilibrium" (1957, p. 19).

Besides these criticisms of a general character, several specific strictures can be levelled against the received view. Mundell's solution is an application of Tinbergen's (1952) approach to economic policy, using the instrument of fixing national borders according to some predetermined criterion, and is thus subject to the Lucas critique. Furthermore, the traditional approach arrives at a plurality of optimality criteria, each supposed to yield the optimum, which poses an uneasy prob-

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[7] Analogous arguments were also used by Meade (1953, pp. 39-41 and 1957, p. 386).

[8] As McKinnon observes: "Mundell demonstrates that it is necessary to ask *what economic characteristics* determine the optimum size of the domain of a single currency" (1963, p. 717, italics added).

lem of choice, especially in the case of conflict between them. And, even sticking to a single criterion, say labour mobility, the optimum would merely reduce to an empirical question, as Mundell (1961, pp. 661-62) himself recognized. Finally, the fulfilment of a given optimality criterion in a dynamic setting would require a frequent redrawing of the border, which is not only impracticable but also theoretically weak since it would multiply the number of solutions tantamount to a *reductio ad absurdum*.

With the publication of the *Werner Report* in 1970, the revival of European monetary integration again drew attention to monetary unions. Research focused on the counterpoint between the microeconomic benefits of a common currency and the macroeconomic costs of forsaking monetary sovereignty underlying the calculus of participation (Corden 1972, Ishiyama 1975, Tower and Willett 1976, Hamada 1977). However, progress along these lines was scanty because the lack of advancement on the microeconomic front left the only option of investigating the macroeconomic side.[9] Apart from some attempts to define the conditions for viability of monetary unions (Cesarano 1985), a weaker and more slippery concept than optimality, this meant the mere multiplication of optimality criteria,[10] exacerbating the shortcomings of the traditional approach shown in the preceding paragraphs. This development, therefore, made the topic even more elusive, giving the impression of presenting a series of special cases rather than a comprehensive, fully-fledged theoretical framework. Hence Niehans remarked: "Optimum currency areas are still a concept in search of a theory" (1984, p. 294).

The preparation of the *Delors Report* and the signing of the Maastricht Treaty gave a decisive impulse to European monetary unification, propelled by the new classical macroeconomics rather than the slow progressing theory of optimum currency areas. The paradigm shift in macroeconomics – the analysis of expectations formation, ex-

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[9] As Paul Krugman noted: "We have some suggestive phrases – reduced transaction costs, improvement in the quality of the unit of account – to describe what we think are the benefits of fixed rates and common currencies. We even have a loose-jointed theory of optimum currency areas that stresses the tension between these hypothesized benefits of fixity and the more measurable costs of lost monetary autonomy. What we do not have, however, is anything we can properly call a model of the benefits of fixed rates and common currencies" (1993, p. 3).

[10] Tavlas (1993, pp. 666-67) lists no fewer than nine optimality criteria, from similarity of inflation rates to political willingness to adhere to monetary union.

change rate determination and the time inconsistency problem – cast the subject in a new light, but did not displace the traditional approach. Certainly, the mainstream opinion tilted in favour of currency union, stressing the benefits of "tying one's hands", and the meaning of some important tenets changed: similar inflation rates, interpreted as a condition for optimality in the early literature, were now considered a result of monetary union (Tavlas 1993, p. 673). Nonetheless, the theory of optimum currency areas still pivoted on correspondence of the economies to given, exogenous criteria. Bayoumi and Eichengreen (1997, p. 762) thus observed: "The theory has advanced only minimally since the seminal contributions of Mundell (1961), McKinnon (1963) and Kenen (1969)".

2. Optimum currency areas and equilibrium

That the received view remained so highly influential a quarter of century after the renaissance of classical economics witnesses the momentous and lasting impact of Mundell's seminal article. In this connection, Willem Buiter deems the theory of optimum currency areas "one of the low points of post-World War II monetary economics" (2000, p. 222), pointing out two basic faults – the failure to distinguish between short-run nominal rigidities and long-run real rigidities and the failure to consider capital mobility.[11] Buiter's assessment may appear excessively disparaging, yet his conclusion must be shared:

> "[T]he debate on the merits of monetary union and other exchange rate arrangements in the first decade of the new millennium tends to be conducted with the intellectual apparatus of the 1960s. It is out of date and a misleading guide to policy" (2000, pp. 222-23).

Not all economists, however, were mesmerized by the traditional approach. Beginning in the late 1990s, several contributions shifted the

[11] The pre-Mundellian literature was immune from these shortcomings. In relation to the first, Friedman pointed out that "the ultimate adjustment to a change in external circumstances will consist of a change in the allocation of productive resources and in the composition of the goods available for consumption and investment" (1953, p. 182), thus assigning to exchange rate flexibility only the function of absorbing the initial impact of adjustment. As regards the second, Scitovsky (1957) underlined the key role of capital mobility in ensuring the viability of currency union.

analysis in a radically different direction. Although they tackled the subject from various perspectives, these works, as with Robert Merton's independent multiples in scientific discovery, all arrived at the same innovative hypothesis: optimality does not derive from exogenous, pre-existing characteristics of the economy, but is endogenous, i.e. the outcome of an optimizing process. The modern approach stems from the rational expectations hypothesis and its basic corollary, the Lucas critique, underlying the new classical macroeconomics, which not only renders empirical verification of optimality criteria on the basis of historical data quite meaningless, but overturns the very concept of optimum currency area. While in the traditional approach optimality boils down to the empirical question of verifying the existence of factor mobility or other optimality criteria, in the equilibrium approach it is the operation of a common currency that, impinging on the behaviour of agents, sparks the emergence of the optimality criteria.

The notion of endogeneity of optimum currency areas has been developed in various ways. Concentrating on trade integration and cross-country correlation of business cycles, Frankel and Rose (1998) argue that these optimality criteria are not independent, i.e. that an increase in international trade relations is accompanied by more closely correlated business cycles across countries.[12] As the authors themselves recognize, these results are empirically controversial, given a number of previous findings linking trade integration to higher specialization in production. However, the main message is theoretical rather than empirical, because the authors make the important point that the optimality criteria stem from the working of monetary union and are therefore endogenous. Alesina and Barro (2002), besides recognizing the effects of lower transaction costs on trade and output, focus on the benefits of commitment to price stability which, given the difficulty of stepping out of a monetary union, is more credible than in other fixed exchange rate regimes. Once account is taken of the other variables influencing the decision to join a currency union – the size of countries,

[12] In a subsequent paper, they show that a currency union triples trade with the other members without creating trade diversion and, in the long run, expands output (every 1 percent increase in total trade, relative to GDP, raises per capita income by one-third of a percent or more; Frankel and Rose 2002, p. 461). They find no evidence, however, that the enhanced monetary stability stemming from currency union has a significant positive effect on output. The reader is also referred to related works by Bayoumi and Eichengreen (1997) and Fatás (1997).

the distances between them, the correlations between shocks, the feasibility of transfers – the country with the strongest incentive to renounce monetary sovereignty is one with a history of high inflation and close, in various respects, to a large country with stable money (Alesina and Barro 2002, p. 435).

This succinct exposition does not do justice to these contributions, but it does show the emergence of a new approach to optimum currency areas grounded in the equilibrium model of the new classical macroeconomics. Like all policy measures, the establishment of a currency area affects individual behaviour in that agents evaluate its implications and adjust their decisions. The endogenous character of optimality stems from this general principle (Cesarano 1997).

In this respect, it is important to distinguish a monetary union among countries that maintain their national borders and sovereignty from a common currency with political unification. In the latter case, the coincidence of monetary union and political union substantially increases the agents' information set, not merely statistical data but the dispersed bits of information referred to by Hayek as "a body of very important but unorganized knowledge [...]: the knowledge of the particular circumstances of time and place" (1945, p. 521). A larger information set sharpens individuals' reactions to changes in circumstances, increasing the efficiency of the price system and reducing the macroeconomic costs of adjustment. The role of information is therefore crucial not only in Hayek's microeconomic argument but also in the new classical macroeconomics. Any obstacles to the availability of information – and national borders are surely a serious impediment as shown in the seminal papers by McCallum (1995) and Engel and Rogers (1996) – would tamper with this communication network, eventually leading to sub-optimal solutions. Hence, while a monetary union between countries severed by borders may be impaired by many kinds of barriers, political union disposes of these interferences, establishing both a common institutional and legal framework that widens agents' information set and a sole economic policy authority with extensive powers. These general principles impinge on a variety of equilibrium mechanisms inside a currency area so that most of the optimality criteria found in the literature are the outcome of an equilibrium model.

First, the absence of a border and deeper knowledge of labour market rules makes the decision to migrate to another region less risky and less costly, thus increasing labour mobility. Moving from Seattle to

Miami, for instance, may well be easier and more advantageous than migrating to Vancouver, just a few miles away but across the border. Second, a common institutional setting has an immediate impact on trade integration; otherwise, regulations and non-tariff barriers constitute substantial obstacles. An eloquent example is the EMU, where despite the completion of the single market program in 1993 market segmentation and price discrimination are still present (Gil-Pareja 2003). Third, the use of fiscal transfers to smooth adjustment and overcome disruptive shocks is patently easier for a central government. Recalling Hartland (1949), factor mobility and fiscal transfers greatly mitigated the impact of the Great Depression in the United States. Fourth, as regards the similarity of shocks and cycles, the evidence is more ambiguous, as output and employment trends seem to diverge more at the regional than at the national level, a stylized fact that has long been theorized (Krugman 1991; De Grauwe and Vanhaverbeke 1993, p. 125, n. 10). Political union would therefore intensify such divergences and the occurrence of asymmetric shocks, seemingly running counter to optimality.

The agglomeration effects and polarization of economic activity relate to the real aspects of regional development, facilitated by the unchecked forces of monetary adjustment. Intranational adjustment, however, is enhanced by labour mobility, trade integration and fiscal transfers, witness the fact that no country in history, even the largest, has ever split its domestic monetary circulation into various currencies. A most conspicuous example is the United States which, Krugman conjectured, "would be better off with a half-dozen regional currencies" (1993, p. 22), yet has never even considered it. The reason is not merely political. That so huge a currency area could thrive for more than two centuries is indicative of the operation of an equilibrium process enhancing optimality. By contrast, designing optimum currency areas on the basis of pre-existing exogenous features, as the traditional approach suggests, is a meaningless exercise in comparative statics: indeed, no one would contend that the United States was set up as an optimum currency area because it had the property of labour mobility or trade integration.

The equilibrium approach does not of course imply that any country is an optimum currency area. In fact, monetary unions have often been established but, until recently, were limited to particularly tiny countries – Andorra, Liechtenstein, Monaco and the like – which invariably adopted the currency of a large neighbour. This stylized fact

simply shows that there is a lower bound below which the costs of setting up a currency are not offset by any advantage from monetary independence. As Mundell (1961, section V) argued, there is an upper limit on the number of currencies above which the functions of money fade away. Setting the benefits of multiplying the number of currency areas – the stabilization argument – against the increase in transaction costs associated with such multiplication, he recalled that, for the classics, the stabilization argument was irrelevant and, thus, the optimum currency area was the world.[13]

Actually, the analysis of optimum currency areas, as an applied topic in the field of money, reflects the state of the art of monetary theory and, particularly, two fundamental issues: the essential properties of money and monetary policy effectiveness. As put by Mundell, optimality hinges on the tension between these opposing forces. The result of course depends on the characteristics of the model and, especially, on the second aspect intimately related to the adjustment problem. The extreme assumptions distinguishing the classical model, envisaging a frictionless economy with a large information set, from the Keynesian model, featuring various sources of disequilibrium and limited information, lead to polar solutions: a world money and the designing of currency areas according to some exogenous optimality criterion. Yet both hypotheses go to extremes and, above all, disregard the impact of national borders on the availability of information and, thus, on agents' maximizing behaviour.

The classical solution highlights the information-producing role of money, which finds a counterpart, at the macroeconomic level, in the ineffectiveness of monetary policy under complete information: monetary autonomy is quite useless and international adjustment is very smooth. In fact, Hayek (1937) called for the gold standard because it is a truly international monetary system in which, in contrast with other arrangements characterized by a developed banking sector and the presence of central banks, money flows are the result of individual behaviour as between the regions of a single country. However, if we do not live in a world of complete information, a one-money world is not optimal. The modern equilibrium approach, albeit akin to classical

[13] This ideal was almost realized under the gold standard which, as Friedman remarked, "came very close to being a unified currency" (1965, p. 268). In his Nobel lecture, Mundell (2000, p. 338), stretching the case for fixed exchange rates, envisaged the possible introduction of a world money.

thought, does not lead to the one-money solution inasmuch as it highlights the impact of national borders. Unless borders do not matter at all and the equilibrium model is stretched to the extreme, envisaging a frictionless, perfectly adjusting world economy, the classical solution does not hold.[14] An important stream of literature (McCallum 1995, Engel and Rogers 1996, Helliwell 1998, Laidler 2006) points in this direction so that, save for very tiny countries, the viability of monetary unions is enhanced by political union, which triggers several adjustment channels. Hence, between the polar cases of a one-money world and monetary unions involving only very tiny countries, optimality may ultimately be related to the fixing of national borders and the consequent emergence of endogenous optimizing criteria, as suggested by the equilibrium approach.

The everlasting "one-country one-money" configuration, therefore, is not just the outcome of politics but of economics. That throughout three millennia of monetary history sovereign countries have issued and maintained their own currency is a stylized fact explained by economic theory. As nature abhors a vacuum, economics abhors unexploited gains. If, on the one hand, very large countries like the United States did not break down into sundry currency areas or deliberately decided such a division and, on the other hand, most countries, excepting very small ones, seldom formed successful monetary unions (Bordo 2004), there must have been an equilibrium mechanism grounded in agents' optimizing behaviour, and supported by domestic policies, that ensured the viability of national monies. The recently developed equilibrium approach to optimum currency areas, highlighting the impact of the country's border on individual maximizing behaviour, points out the role of information and of market forces in enhancing interregional adjustment, thus upholding this result.

3. Conclusions

The traditional view of optimum currency areas is embedded in the Keynesian paradigm, denying the self-adjusting nature of the economy

[14] This argument was clear to Lerner (see footnote 4 above) and provided the basis for his rejection of the gold standard.

and making the case for full employment policies. Introducing specific assumptions, like price and wage rigidity and interregional factor immobility, this view implicitly posits the inherent inefficacy of the economy's equilibrium properties, considering optimality as the outcome of exogenous features.

The paradigm shift brought about by the new classical macroeconomics has recently led to a novel approach, setting the optimality problem in a dynamic equilibrium context, in which agents rationally respond to the extension of the currency area. This is simply an application of the Lucas critique. The notion of optimality is therefore endogenous in that the very operation of a common currency heightens those features underlying the optimality criteria. The equilibrium approach thus turns the received view of optimum currency areas on its head. The areas do not stem from pre-existent optimizing features; rather, the features themselves are the product of an equilibrium process set off by the introduction of the common currency.

Information plays a key role in that a larger information set consequent on the fixing of national borders enhances adjustment and thus the optimality criteria. Monetary unions among sovereign nations may lead to non-optimal solutions since both the adjustment mechanism and the range of policy instruments may be wanting. In this connection, EMU is an interesting experiment, whose success will depend on a high degree of factor mobility and a tight link between trade integration and cross-country cycle correlation, notwithstanding the maintenance of national borders and the lack of a supranational fiscal policy. Otherwise, EMU may be the worst of two worlds, destroying the flexibility of monetary independence without generating the full benefits of a common currency issued by a sovereign state, i.e. a truly single market for goods and factors, a common institutional and legal framework and one fiscal authority, all elements heightening interregional adjustment.

All in all, the equilibrium approach to optimum currency areas can be viewed as an ideal type of equilibrium proposition like the Tiebout hypothesis and the Coase Theorem, whose validity is subject to certain restrictions, the absence respectively of barriers to mobility and of transaction costs. To make an analogy with the Coase Theorem, just as externalities can be solved, in the absence of transaction costs, through individual contracting independent of the initial allocation of legal entitlements, so adjustment within a currency area is at-

tained through an equilibrium model based on rational behaviour independent of the initial geographic set-up (Cesarano 1997, p. 55). Of course, as with all 'pure' equilibrium propositions, applicability must be tested against the actual availability of information. In any case, on theoretical grounds, the equilibrium approach can boast the momentous achievement of having changed the theory of optimum currency areas from the search for exogenous criteria into an endogenous process.

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