Optimum currency area: an epistemological view

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Abstract

This paper aims to provide a critical analysis of the evolution of the optimum currency area theory. The motivation for this paper arises from the fact that there are many studies that make references to the OCA theory, providing various insights for it. In the first part of the paper I will address the foundation of this theory through the contributions of Mundell (1961), McKinnon (1963), Kenen (1969) and the subsequent development, which has not been a smooth one. The contributions brought to the OCA theory have been market by some paradoxes, but there has been a reconciliation among those which led to a renewed interest into the subject. The second part refers to the empirical phase in which we focus mostly on the European integration experience due to the various data and research that it provides. Thus, there is a need to distinguish between the OCA theory and the EMU, the latter referring to a question regarding timing and modalities of creating a currency union. The merit of the OCA theory is that has brought together a large amount of research on monetary integration.

Keywords: currency area, optimality, endogenous criteria

1. The founders of the OCA theory

The subject of debate in this paper considers the theoretical feature of the currency areas analysis offered by the optimum currency area theory. This theory refers to complex and interconnected aspects at the core of international macroeconomics. Its applicability can be found, mainly, in three areas: choosing an exchange rate, analyzing the relations between countries, regions and currencies and the European monetary integration.

The origins of the optimum currency area theory are usually identified with the contributions brought by Mundell (1961), McKinnon (1963) and Kenen (1969), even though various insights were previously offered by Lerner (1947), Friedman (1953) and Meade (1957).

Mundell's contribution to the optimum currency area theory is fundamental. It also represents the main reason for which he received the Nobel Prize in 1999. Robert Alexander Mundell was born in Canada and he completed his undergraduate studies at the University of

British Columbia. He then followed studies in Economics at the London School of Economics and at the Massachusetts Institute of Technology; the latter conferring him the PhD title in 1956.

In addition to the activity carried at the International Monetary Fund, Robert Mundell has taught at Stanford University, the Johns Hopkins Bologna Center of Advanced International Studies, and the University of Chicago. Since 1974, he has been a professor at Columbia University and in 2002 he received the title of University Professor.

At the beginning of 1960, while he was working in the research department of the IMF, Mundell began his macroeconomic analysis of exchange rates and their effects on monetary policies. In 1961 he started a theory which suggested that a single currency could be viable in an economic region or an optimum currency area, in which there was free movement of labour and trade. His work substantially contributed to obtaining the Nobel Prize in 1999, at the award ceremony being stated that it is offered: "for his analysis of monetary and fiscal policy under different exchange rate regimes and his analysis of optimum currency areas"[1]. This prize is fully deserved and, in many opinions, too long delayed.

There were many controversies regarding the merits of Mundell for the initiation of the optimum currency area theory. In my opinion, there is no doubt that there were previous papers that anticipated the work of Mundell, but he created the concept and gave a definition for it. At a conference held in Tel-Aviv in 1997, Mundell offered a clear explanation of the genesis of his article and he mentioned all the other economists which provided previous insights. James Meade was his dissertation coordinator; Lerner was the one who criticized him at a conference for not having talked enough about optimum currency areas and Milton Friedman's ideas surrounded him, especially during his post-doctoral fellowship in political economy at the University of Chicago.

The second important contribution to the substantiation of the optimum currency area theory was made by another Canadian economist, Ronald McKinnon. He is an international economy professor at Stanford University and he is best known for his essay in which he formulated the criterion of optimality.

The triad of economic optimality criteria was completed by Peter Kenen, Professor of Economics at Princeton University. He was born in Cleveland, Ohio in 1932 and he obtained his bachelor degree at Columbia University and his PhD title at Harvard. He taught at Columbia University between 1957 and 1971, were he was the director of the department of Economics and the Provost of the University. He was the director of the international finance department at

[1] Connolly Michael, *Robert A. Mundell: A Profile,* Review of International Economics, 9(4), 2001, p. 585

Princeton between 1991 and 1999. As McKinnon, he is known especially for his contribution to the optimum currency areas theory.

2. The evolution of the optimality criteria

Before any real practical debate on monetary unions, Mundell posed the question "What is an Optimum Currency Area?". Andrew Rose considers that an important feature is that his answer has remained largely intact. Even more striking is the fact that the model used to frame the debate in both academic and policy circles remains essentially Mundell's original intellectual framework. The concept of an optimum currency area (OCA) is one of Mundell's greatest triumphs. [2]

Optimum currency areas theory, first introduced by Mundell (1961), became known especially thanks to the cost-benefit analysis of the monetary integration. Thus, the theory is based on the idea that the advantages of joining a currency area depend on how much those countries are able to form a monetary union.

As we previously stated, Robert A. Mundell, professor at the Columbia University in New York, is the founder of the optimum currency area and named the intellectual father of the euro currency.

His work on optimum currency areas inspired generations of researchers and, thus, his ideas were developed, structured and formalized, creating a vast literature in this field.[3] The next developments to the concept created by Mundell were brought by Ronald McKinnon (1963) and Peter Kenen (1969).

The results of multiple researches on optimum currency area theory took the shape of three classic economic criteria and three additional ones of a political nature.

The first economic criterion was proposed by Robert Mundell at the time he formulated the concept of optimum currency area. He described this notion as being the space where production factors, mainly labor, are perfectly mobile. Thus, the optimum area where a currency circulates is defined by referring to the economic criterion of mobility degree (intern and extern) of production factors and not to the political criterion regarding countries' territory which is a subject of international law or other geographic benchmarks.[4]

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[2] Rose Andrew, *A Review of Some of the Economic Contributions of Robert A. Mundell, Winner of the 1999 Nobel Memorial Prize in Economics*, Scandinavian Journal of Economics, 102: 211–222. doi: 10.1111/1467-9442.00195, 2000, p. 3

[3] Cerna Silviu, *Teoria zonelor monetare optime*, Ed. Universităţii de Vest, Timişoara, 2006, p.19

[4] Cerna Silviu, *Teoria zonelor monetare optime*, Ed. Universităţii de Vest, Timişoara, 2006, p.26

Two other criteria derived from this first criterion: the degree of wage flexibility and free capital movement.

Price and wage flexibility is very important because when this criterion it is not fulfilled the only adjustment mechanism left is the exchange rate variation, which imposes nominal exchange rate variation.

In 1962, James Ingram stated that financial integration can reduce the necessity of exchange rate adjustments. Through this criterion, an optimum currency area appears, thus, as a totally financial integrated area, in which there is the possibility of financing the eventual private and public deficits without any pressures on exchange rates or interest rates.

The second major criterion of defining one area's optimality is the degree of product diversity, introduced by Peter Kenen. The essence of this is that the member countries of a monetary area must have a well diversified production in order to make the shocks determined by demand variation symmetric or with little effects that do not need frequent adjustments of the exchange rate. As a consequence, most exposed countries at the risk of being affected by severe shocks are those specialized in a narrow range of products. Demand decrease for the exported goods affects only those products, creating an asymmetric shock. Contrarily, countries with a well diversified production will be less affected by negative shocks on a single product, because its weight in the total production is reduced.

Product diversification criterion represents an application of the risk sharing principle, which is a fundamental principle in insurance. Risk in this case is given by economic activity fluctuation and it can be diminished by a higher number of branches and sectors in which the production is made. Concluding, for the countries with a low degree of product diversification it is recommended to adopt a flexible exchange rate regime and for those with diversified production to participate in a monetary area.

Professor Ronald McKinnon proposed the third economic criterion: the degree of economic openness. According to this, countries that are more opened to each other can form a monetary union because renouncing at the exchange rate as an adjustment mechanism of asymmetric shocks does not creates important losses. Openness degree of the economy is quantified by the weight of goods and services imports and exports in the gross domestic product.

McKinnon was the one who offered the first clear and explicit definition of the notion of optimum currency area, considering that: "Optimum is used here to describe a single currency area within which monetary-fiscal policy and flexible external exchange rates can be used to give the best resolution of three (sometimes conflicting objectives): (1) the maintenance of full

employment; (2) the maintenance of balanced international payments; (3) the maintenance of a stable internal average price level".[5]

Besides these criteria enounced by Mundell, Kenen and McKinnon we have identified in the literature other criteria that are taken into consideration when there is judged the optimality of a monetary area, like inflation differentials and the symmetry of shocks.

External imbalances can arise also from persistent differences in national inflation rates created by differences in: structural developments, labour market, economic policies, and social preferences. Fleming (1971) noted that when inflation rates between countries are low and similar over time, terms of trade will also remain fairly stable. This will foster more equilibrated current account transactions and trade, reducing the need for nominal exchange rate adjustments.[6]

Economic criteria are joined by the political aspects that mainly refer to identifying the probabilities that different countries are offering mutual help when they confront with symmetric shocks. The political criteria are: fiscal transfer mechanism, homogeneous preferences and commonality of destiny.

Fiscal integration through fiscal transfers presumes that countries are accepting compensation between them for negative shocks. This type of transfers is working like a mutual insurance against shocks because, often, the country who offers the help to another country might need it in the future.

The logic of this criterion assumes the existence of a system that allows the funds to be transferred from a country in a monetary area to another, in the case of an adverse shock. It replaces the need of nominal exchange rate adjustment for compensating the shock by offering to the region confronting with recession. Such a system makes it necessary to create a supranational institution that coordinates the efforts, desideratum that can be realized when there is a high level of political integration and a will to help the affected regions from an optimum monetary area.

Homogenous preferences indicate the fact that member countries of a monetary area have to create an agreement regarding the method chosen to solve the problems created by a shock. This criterion is necessary because there are many ways of approaching a certain economic problem. The partners of an optimum currency area have to agree with the economic policy, like choosing to target inflation or unemployment or to favor exporters or importers. If the member states of a monetary area do not share the same preferences regarding these agreements, each will wish that the common central bank to follow different policies. A single

[5] Mckinon R.I., *Optimum Currency Area*, American Economic Review, 53, 1963, p.717
[6] Mongelli Francesco Paolo, *European economic and monetary integration and the optimum currency area theory*, 2008, http://ec.europa.eu/economyfinance/publications/publication 12081_en.pdf

answer to the economic problems, based on similar ideologies will be necessary in order to keep the monetary area apart from being destroyed by the competitive preferences.

The last criterion, solidarity, states that when the monetary policy stirrers conflicts of national interest, member countries of the monetary area have to accept these costs in the name of the common future.

One major condition for the monetary integration is the political will of integration. Asymmetric shocks manifestation can be joined by misunderstandings and national or regional interests. Thus, it is important that member countries contribute to the welfare of the union seen as a whole and to not let the nationalism get in the way of union's functionality.

This criterion is very hard to quantify, because there is no clear way to measure how much the citizens are willing to treasure others' interest against their own in the name of the common interest.

The analysis of Mundell, even though it is a wonderful achievement, it represented the subject of many critics.

The first criticized aspect is the definition that Mundell gave to the region, which is nor geographic, nor political. Peter Kenen attracted the idea that: "perfect interregional labor mobility requires perfect occupational mobility. And this can only come about when labor is homogenous."[7] But labor is not homogeneous enough to talk about perfect mobility or to distinguish a region, in which labor is perfectly mobile, only if this region produces one single product.

McKinnon also qualifies the concept of labor mobility. He shows that if every region has a specialized industry, it can be difficult to distinguish between low geographic and low inter-industrial labor mobility.

In Herbert Grubel's[8] opinion, the definition given by Mundell to the region is inapplicable to the real world problems, because it does not take into consideration the different labor mobility degrees. The author considers that the definition of the regions as: "areas within which there is factor mobility, but between which there is factor immobility" is too general and it has a low practical applicability.

Another critique comes from Herbert Giersch[9], which argues that Mundell's definition of labor mobility implies the fact that, in the long run, the entire world becomes an optimum currency area. Since the mobility depends on time and it grows very much while the time passes,

[7] Kenen Peter, *The Theory of Optimum Currency Areas: An Eclectic View*, University of Chicago Press, 1969, http://ideas.repec.org/ a/eee/inecon/v1y1971i1p127-131.html

[8] Grubel Herbert, *The Theory of Optimum Currency Areas, Canadian Journal of Economics*, 1970, http://www.jstor.org/pss/133681

[9] Giersch Herbert, *On the Desirable Degree of Flexibility of Exchange Rates*, Weltwirtschaftliches Archiv, 1973, http://econpapers.repec.org/article/sprweltar/v_3a109_3ay_3a1973_3ai_3a2_3ap_3a191-213.htm

the logic conclusion will be that, in the long run, the optimum currency area must be the whole world. Giersch (1973) also points out the situation in which migration could be the worst response to the balance of payments adjustment since is very likely that migration is irreversible.

Max Gorden[10] is skeptical regarding the importance of the labor mobility in asymmetric shocks adjustment. He argues that the adjustment mechanism implies that countries are similar regarding the income level.

James Ingram[11] makes another important observation about Mundell's definition of regions, noting that he emphasizes labor, instead of capital mobility. Also, he considers that Mundell's analysis for many regions can lead to the conclusion: when a region confronts with unemployment, others will have to accept inflation in order to reduce unemployment. Thus, there are expected different inflation degrees in regions. This is not sustained by the empirical data.

Bofinger contradicts Mundell's argument with an example that takes into consideration a country affected by negative shocks of a good's demand which represents only a small portion of the country's production and that it is not produced in other member countries.

Also, there have appeared skeptical opinions regarding the probability that exchange rate adjustment to asymmetric shocks represents the reasonable adjustment modality in the case of sticky prices, low labor mobility and the lack of fiscal transfers.

Despite of the numerous critics previously mentioned, Mundell's argument survived. Today, labor mobility is seen as a criterion for defining the optimum currency area.

The criterion proposed by McKinnon was also a source of rising controversies. Ishiyama stated that McKinnon assumes the external price level as being stable. Contrarily, his argument can be completely reversed since „external instability would be directly propagated to the domestic economy through fixed exchange".[12]

Similar, Giersch sustains that the degree of openness of an economy is in a strong direct relation with the exchange rate flexibility. Thus, the more open is the economy the more it may need exchange rate flexibility since it may be more exposed to cyclical disturbances from the outside world from which it wants to isolate itself.[13]

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[10] Corden Max, *The Adjustment Problem in Krause and Salant, European Monetary Unification and its Meaning for the United States*, Washington, 1973, http://ideas.repec.org/a/eee/inecon/v5y1975i1p106-106.html

[11] Ingram James, *"Comment: The Currency Area Problem."* in Mundel and Swoboda, *Monetary Problems in the International Economy*, University of Chicago Press, 1969, http://ideas.repec.org/a/eee/inecon/v1y1971i1p127-131.html

[12] Ishiyama Yoshihide, *The Theory of Optimum Currency Areas: A Survey*, Staff Papers Internayional Monetary Fund , 1975, Vol. 22, pp.344-83

[13] Giersch Herbert, *On the Desirable Degree of Flexibility of Exchange Rates*, Weltwirtschaftliches Archiv, 1973, http://econpapers.repec.org/article/sprweltar/v_3a109_3ay_3a1973_3ai_3a2_3ap_3a191-213.htm

Regarding Kenen's contribution, we find it interesting that he defends against the critics by stating that he did not say that the degree of diversification should be the only OCA criterion. His paper set out to provide an eclectic approach to OCA theory.

Mundell makes an observation by noting the fact that if there is taken into consideration Kenen's criterion then "the most highly diversified economy is the world economy. Then, in terms of an insurance principle and from the point of view of hedging against risks of fluctuation, a world currency is the best solution."

In 1995, Melitz wrote that he doubts about the fact that Kenen's argumentation implies that a country without diversified production structure benefits from exchange rate flexibility.

3. The European experience and the optimum currency area theory

For a period of almost twenty years (late 1970 – early 1990), the academic interest for the optimum currency area theory has been of a minor importance. Starting with late 1980- early 1990, the optimum currency area theory became an active academic interest area, interest which lasted until now. What determined this comeback? The answer is: the experience of the European Monetary Union.

When he received the Nobel Prize, Mundell was also called the father of the European monetary union. This may seem surprising since his initial article that put the bases for the future cost benefit analysis was very skeptical regarding the chances of a successful monetary union in Europe. Another contribution of Mundell, written in 1973, presents a much more optimistic view on the benefits of a monetary union.

Mundell's reassessment is based on two arguments.[14] The first one refers to the fact that a monetary union is a more efficient way to organize an insurance system to cope with asymmetric shocks than a system of national moneys with exchange rate uncertainty. A second reason is related to the fact that uncertainty makes exchange rate movements of asymmetric shocks instead of a mechanism that allow countries to better adjust for asymmetric shocks.

Many wondered how someone can be the author of a theory that criticize the monetary union and, in the same time the main spiritual father of the euro.

The analysis made by Mundell stated some of the criteria that must be fulfilled by a monetary union. Before creating euro, most scientific debates on European Monetary Union showed that Europe did not constitute an optimum currency area, as it met the optimality criteria only partially. Thus, at that time, any proposal of a union of existing states could have been rejected on grounds of non-optimality, if the term optimality is to be given its strict meaning.

[14] De Grawe Paul, Economics of Monetary Union, Oxford University Press, Seventh Edition, New York, 2007, p. 55

Also, it was known that the labor markets in main European countries suffer from keen rigidities. The labor factor, which already has little mobility within certain countries, was even less mobile in the region as a whole.[15]

Mundell supported the idea of a monetary union in Europe since 1960s, even though there were opinions regarding the fact that his theory of optimum currency areas condemns the European Monetary Union to failure. In December 1969 he presented a paper in favor of the creation of a European currency called „The Case for a European Currency. A revised version of this paper entitled „A Plan for a European Currency" was presented at the Conference on Optimum Currency Areas in Madrid in March 1970.

The European Monetary Union provided plenty empirical data for the optimum currency area theory. Many economists have researched on the degree in which the member countries fulfill the optimality criteria, considering that this will determine the success or the failure of the new monetary union. All the attention was given to the moment before introducing a single currency. This approach was reconsidered since the recent developments in the literature regarding optimum currency areas have introduced the endogeneity hypothesis. Thus, it came into attention the analysis of how the creation of a currency union can affect the factors that influence the well functioning of it. The endogeneity problem of monetary integration can be explained by observing the fact that sharing a common currency by many countries can bring them closer together.

The theory of optimum currency area endogeneity was first introduced by Frankel and Rose, who sustained the idea that countries joining a monetary union can satisfy the criteria ex - post, even though they are not fulfilled ex – ante[16]. Thus, according to Warin, Wunnava and Janicki, examining historical data gives a wrong image about the right moment to join a currency union since the criteria are endogenous. The argument brought by those two authors is based on the experience of the first wave of participants to the euro area which showed that some criteria for a successful monetary area, like trade openness and business cycle convergence, are endogenous.

[15] Swoboda Alexandre, *Robert Mundell and the Theoretical Foundation for the European Monetary Union,* 1999, http://www.imf.org/external/np/vc/1999/121399.HTM

[16]Frankel Jeffrey., Rose Andrew., *The Endogeneity of the Optimum Currency Area Criteria,* Working Paper 5700, Cambridge, NBER, 1997, pp. 1009–1025.

4. Conclusions

This odyssey of the optimum currency area theory proves the fact that this subject attracted a great interest since its beginnings in 1950. The evolution of the international macroeconomic framework was market by substantial changes in the last decades which have been reflected in the debates regarding optimum currency areas theory.

There have been constant critics regarding initiators, optimality criteria, the connection between this theory and the European experience. In my opinion, the greatest merit it belongs to Mundell, who raised the unconventional question about the economic criteria on which the decision by various regions of the world to adopt a common currency should be based. The diversity of criteria shows that the theory tries to keep up with the recent evolutions.

The current financial crisis represents a great motivation for intensifying the debates on the optimality of the European Monetary Unions, taking into consideration the important imbalances it brought.

Recent findings can encourage the integration process even though the optimality criteria were not fulfilled when the currency area was created. But this analysis should be regarded carefully because the degree of endogeneity can be exaggerated, some taking it too far by suggesting that almost any currency union can become optimal.

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