Has the Euro led to an increase in trade among its member states?

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This paper investigates the euro's effect on trade taking in account previews empirical works on this subject and tries to put together their findings to find whether or not euro has actually increased European trade and why trade flows in the Eurozone appear to be much less affected by the common currency union than nations in other common currency areas.

After the massive economic meltdown that European economies faced with the end of World War 2 the majority of the countries sought to strengthen their relations and links as a measure to avoid a future war among the European countries. The way to do this was to integrate their economies through several ways. One of this which is the liberalization of trade in order to create economies that are interconnected and interdepended. The biggest step was taken with the adoption of the euro as a common currency after lots of failed attempts to introduce a common monetary system. With the Maastricht Treaty in 1992 most EU countries agreed to adopt the euro which was introduced in 1999 and started circulating the markets in 2002. Today 18 countries out of the 28 member states of the European Union have adopted the euro as their national currencies creating the Eurozone.

Optimum Currency Theory

The euro was introduced as a solution to the unstable monetary systems that existed up to that time and as a way of deeper European integration that would boost trade. This would be achieved through the minimization of transaction costs and the elimination of the exchange rate risk. The belief that a common currency union is linked with increased trade was a common belief that existed among the economic world. The idea that common currency increases trade is leys under the Optimum Currency Area (OCA) theory which was analyzed by Robert Mundell in his paper "A theory of optimum currency area". As Robert Mundell states, "The theory of international trade was developed on the Ricardian assumption that factors of production are mobile internally but immobile internationally" (Mundell, 1961, p661). Immobility of the factors of productions in international trade arises from problems of price predictability and conversion of cost that are caused from exchange rate systems. Thus adopting a common currency this problems would be eliminated encouraging trade. However it is not clear to what extend does a common currency area boosts trade.

An optimum currency area is a region in which if its members decide to share a common currency then they can maximize efficiency and increase trade. The euro is considered to be a very good example for testing the optimum currency area theory and

investigating the extent to which a common currency boosts trade. Thus there have been many empirical studies investigating how European trade has evolved since the euro introduction in 1999 testing the trade and euro link, correlation and true causality.

The Rose Effect

One of the most important papers on the correlation of a common currency area with trade was written by Andy Rose (2000), where he used a gravity model to estimate the effects that a common currency union has on trade. By using a gravity model Rose was able to control for other variables that affect trade patterns such as colonial relationships and openness of a country. The openness ratio measures the ratio of a country's trade to its GNP. In this way Rose is able to isolate the increase of trade that is solely caused by the introduction of a common currency union. In his sample he used a great variety of small nations that were under several currency union systems. What he got out of the results was that a common currency helps boosts trade by 200% above what would otherwise have been if nations did not share the same currency. The effect of a currency union on trade is now known as the Rose effect, since Andy Rose was the first to include a common currency dummy variable in a gravity model and test its effects on bilateral trade.

Rose effect in Europe

His results were criticized by many who believed that the rose effect results were very large to reflect reality. In the years presiding, many economists tried to run again tests based on the Rose gravity model and investigate what was the rose effect of euro on trade. One of the most important papers was written and presented by (MOS) Micco, Ordonez and Stein (2003). MOS (2003) used a difference-to-difference technique that helped find the before and after trade flow of both members and non-members of the Eurozone. What they found was that the euro increased trade among Eurozone countries by 6-8% compared to countries of the European Union that had not adopted the euro.

Also it increased European trade with other developed countries by 4-10% above what would have been without the adoption of euro.

They also find out that the rose effect cannot be traced back to trade diversion which is the effect caused after the adoption of common currency where countries switch their trade towards countries sharing the common currency. They include a dummy variable for trade diversion and find no evidence of such an effect. However as Baldwin (2006) explains their difference-to-difference approach doesn't allow for them to control for the effects of other free trade agreements that were established during the sample period that might have caused bias in the rose effect of European trade. Also another striking effect is that when they dropped the countries of the Deutsche-Mark block (which were European countries that engaged in large trade activities before the euro) from their sample the rose effect was eliminated. This is strange since the euro should have had a much smaller effect on trade among the DM block countries that were already highly integrated. On the other hand euro should have had a much greater impact on smaller countries such as Greece where the adaptation of euro should have been a great change that would intergrade their trade relations with the rest of the Eurozone members. However as Baldwin explains "European trade and policy integration are a dialectic process" (Baldwin, 2006, p.42) which has equal impact on all members joining the European Union.

Overall, most studies undertaken for the rose effect in the euro case showed that indeed there was a rose effect in Europe which however was much smaller than the rose effect found by Andy Rose (2000) sample countries. The various gravity models created for Europe gave a rose effect of about 10-15% meaning that the euro had boosted trade in an overall of 15% above of what would otherwise have been without a currency union. This indicates a large difference in comparison to the rose effect fount by Rose (2000). The fact that other currency unions were characterized by such large rose effect whereas the European currency union was found to boost trade by much less stimulated the need to find the root of this differential.

Many tried to provide some assumptions upon the causality of this difference. One must understand that there are many other variables that cause increased trade

between nations such as colonial relationships. Also the nations used in Rose's (2000) sample were nations that were part of currency unions for many years giving them time to strengthen their trade relationships explaining the existence of a large rose effect. On the other hand the euro is still young which might explain the large difference in the rose effect results of euro. For example Panama engages in large trade exchanges with the United States due to the fact that it has been in the dollar for many years and that's how one can explain the large rose effect of Rose (2000). However, Frankel (2008) explains that many countries in Europe used to be in the Deutsche-Mark block for many years and also had strong trade links and connections well before the euro was introduced. Thus since European countries were also engaging in trade activities for many years, as is the case of the sample nations used by Rose, one cannot imply that the large gap is due to the time horizon that each currency union has existed.

Another link between countries that might influence their trade relationships, and thus the results of rose effect, is the colonial relationship. If one nation used to be a colony of another nation years ago, which implies direct trade between them during that time, they will most probably seek to keep their trade relationship and this can continue many years after the end of the colony (Frankel, 2008, p. 3).

Reverse causality is another example that might be casing the large rose effect difference. According to Frankel "optimum currency area theory suggests that countries should peg if they are small and open, and should peg to the partners with which they trade a lot" (Frankel, 2008, p.6). For example, the alternative theory of why a common currency area was introduced is that countries decided to peg to dollar because US was their major exporter, and did not peg to dollar in order to boost trade. In this case the increased trade among them might not be caused by the adoption of a common currency but instead might have existed long before and thus caused countries to adopt a common currency. Under this assumption one could explain why the rose effect in Rose (2000) was too large while the rose effect fount for Eurozone was so small. However, European countries also used to have large trade interaction before the euro was introduced which could have led to the adoption of euro rather than choose to adopt common currency to increase trade. So if what caused the Rose effect in rose (2000) was due to reverse causality why didn't it appear to be as large in the Eurozone as well?

Another major difference between European Monetary Union and other currency unions used in the Rose (2000) sample is that the countries in Rose's sample were small and poor counties. These countries were highly dependent in trading with larger nations which explains why a currency union had such a major effect on their trade. On the other hand the Eurozone consists of large countries that are not so much depended on trade. Thus it was suspected that the common currency effect on trade, experiences diminishing effect meaning that the rose effect will be decreasing as the size of countries in a currency union is increasing. So one cannot compare the rose effect experienced by other currency unions with the rose effect of euro.

Frankel (2008)

Frankel (2008) tries to investigate if all this reasons used to explain the smaller European rose effect actually stand, by running some tests himself on the above assumptions. Firstly he tests whether the fact that Rose (2000) used nations with currency unions which existed for a longer period than the Eurozone, had more time to affect trade whereas the euro had been in operation for only a few years. As he states, European trade started increasing from 1998 one year before the euro was adopted. This increasing flow of trade continued to increase until 2002, but for the upcoming years results showed that the trade stabilized and did not increased any further from 2003-2006. Even by including more years in the sample it seems that the rose effect of euro cannot increase any further and thus excluding the possibility that time horizon affects the rose effect of a common currency area.

Second, he sought to investigate the possibility that smaller countries are likely to be affected much more from a currency union than larger countries are. This would explains why other monetary unions that included smaller nation had experienced a much larger rose effect than the one experienced in the Eurozone, where nations are much larger. But even when controlling for size Frankel finds that the difference still existed and rose effect did not diminish with size.

Thirdly, he investigates the possibility of reserve causality where the trade between countries led to the adoption of a common currency instead of the other way

around. Indeed he finds out that there was increasing trade in the years before the establishment of the monetary union. He examines how the bilateral trade of Africa CFA members was affected when France converted to euro in 1999. Before the euro was introduced, the trade links of France and African members of the CFA were questioned whether trade among them existed due to currency links or due to their colonial relationship. However, after France converted to euro and adopted the same currency with other European countries, CFA countries increased their trade exchanges with the other members of the Eurozone. This establishes that common currency, the euro has caused the trade to increase and not the other way around.

So Frankel concludes that none of this explains the difference in the rose effect of euro and other monetary unions. But more importantly he concludes there are no actual evidence that the euro has caused larger increase in trade among Eurozone members than the increase experienced by non-euro members.

In 2010 Joao Santos Solva and Silvana Tenreyro, provided a differences-to-differences approach where they compare the before and after euro trade flow of both the countries that choose to join the euro and those who choose not to join. The difference of this method to the gravity method used by others in the previews papers, is that it can control and take account of the limitations that exist in gravity models that can bias the results on the rose effect. This limitations include the fact that European economies started the integration proses and engaged in trade liberalization before the euro introduction and that the 12 members of the Eurozone had large trade exchanges before they joined the Eurozone whereas the countries that choose not to join had much less trade relationships with the other countries. After accounting for all this they conclude that there is no evidence showing that the euro had actually any effect on the trading flow among the euro-12. So as it turns out what is believed to be the major benefit of an optimum currency area does not stand for the case of the Eurozone. What they conclude is that it is possible that this stands for the euro-12 who were already very integrated whereas there might be a small positive effect for new members.

One of the latest papers on intra-EU trade effects of euro was produced is 2013 (Serlenga and Shin, 2013) where they used a gravity model on 91 country pairs of 14EU

countries and they found a euro impact on trade of 3-4%. In their papers they establish that Europe has been engaging to methods of deeper integration in the last years which has a positive effect on trade. However this might be showing up in the euro trade effect as on increased rose effect. So they test how euro has caused a deeper European integration that in turn has helped to increase trade. As they explain "if the euro had a positive effect on internal European trade (by reducing overall trade cost), this might have caused a decrease in trade impacts of bilateral trade barriers, especially the border effect". As they find out border effect on trade decreased from 1990 to 2003 from 25.6% to 10.6% and thus the euro might have helped decrease trade costs that were caused by the boarder effect and as a result trade was increased.

Conclusion

Accounting for all the above it is very important to establish how euro actually affects trade within Europe, not just for the counties that are already members of the Eurozone but most importantly for the members that are considering joining the euro. This is essential because since the Maastricht Treaty that first committed countries to adopt a common currency, increased trade was one of the most important benefits a country would gain by joining the euro. However, as the European Union is consisted of members much more developed and rich than any other currency union, when thinking of the trade benefits that a nation could gain by joining EU, one should not only think of the rose effects. The adaptation of euro is highly connected with the aim of the European countries to pursue deeper European integration. The euro helps European Union's countries to become more integrated which in turn boost trade. Thus the euro effects on trade might be an indirect increase from arising from its result on deeper integration. Nether the less, the true effects euro has had on trade among the European counties are still under question. Most probably it had some effect on the first years of its implementation which however stopped increasing from a point and then but it's not clear how exactly euro and European trade are correlated and to which extend. Maybe future years might give more data to work with that will help to reach a better understanding of the European situation.

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