

What effects is EMU having on the euro area and its member countries?
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Richard Baldwin, “The Euro’s Trade Effects”

Comments by Jacques Melitz

This monograph has two fundamental aspects.

(1) It is the most in-depth and comprehensive analytical survey of the Rose (rosy) literature on the impact of EMU on bilateral trade among the members.

(2) It contains an effort to explain this impact.

According to Richard Baldwin, the impact of EMU on bilateral trade among the members is of the order of 5 to 10%.

Small as these figures are, he considers them too large to follow from usual thinking and to require special explication.

I shall make three main points:

(1) A 5 to 10% impact of EMU on bilateral trade is roughly what we would expect from the gravity model based on earlier work.

(2) All of the detailed evidence for individual countries and individual sectors on which Richard Baldwin relies for his own, more sophisticated explanation of the 5-10% rise in bilateral trade is equally consistent with the explanation I propose.

(3) Based on Micco-Stein-Ordonez and Flam-Nordstrom – the two studies on which Richard Baldwin relies mainly for his 5-10% assessment – there is good reason to view the figure as closer to 15%.

Finally, I will comment on the right measures of the variables in gravity equations and Richard Baldwin's general criticisms of the specifications in the Rose literature or his references to the "silver-medal" and the "bronze-medal" mistakes.

Point 1: the ease of explaining a 5 to 10% effect

According to the gravity model, the elasticity of substitution between goods can mean that a modest change in relative prices will suffice to produce a large change in trade volumes.

Usual estimates of the intra-temporal elasticity of substitution between goods, σ , are on the order 6 to 8 on average. In that case, a fall in relative prices of only 1% will get us a 5 to 7% rise in bilateral trade between country o and country d and get us into Richard Baldwin's lower range.

To elucidate, let us proceed from Baldwin's micro-founded gravity equation, while using Anderson and van Wincoop's simplification $\tau_{od} = \tau_{do}$. This leads to the well-known specification:

$$V_{od} = \left(\frac{\tau_{od}}{P_o P_d} \right)^{1-\sigma} \frac{E_o E_d}{E_w} \quad P_d = \left[\sum_k (\beta_k p_k \tau_{kd})^{1-\sigma} \right]^{1/(1-\sigma)} \quad d, o \in k$$

One Market One Money calculates that EMU will reduce costs by .25 to .5 of EU GDP by eliminating costs of conversion of currencies and costs of cover for exchange risk.

In addition, the report considers gains from the elimination of the "in-house costs" associated with multiple units of account. Assume that the tax-equivalent of those gains is about as important as the previous ones.

Trade is between a quarter and a third of GDP. Suppose on the basis of the previous numbers that trade costs (and τ_{od}) fall by about 2% on account of EMU.

The EMU roughly embraces 50% of the trade of the members. Therefore, the adoption of monetary union will lower P_o and P_d , respectively, by about 1%. There will then be a fall in τ_{od} of 2% and $P_o P_d$ of 1%. The net result should then be to raise V_{od} by approximately $-.01*(1-\sigma)$ for the average EMU member. Applying σ of 6 to 8, we get a rise in bilateral trade of 5 to 7%.

Point 2: the conformity of the detailed evidence with the previous explanation

According to the detailed evidence by country, the impact of EMU on trade volumes was particularly high for the DM-bloc and low for Portugal and Greece. Richard Baldwin considers “this is a bit puzzling since one might have thought that the trade effects would have been largest among nations that had the largest, pre-euro bilateral volatility.”

However, σ must be particularly large between countries that are already closely integrated through trade. Thus, the evidence conforms to the interpretation I have suggested.

According to the evidence by industrial sector, the highest effect of EMU is on trade in the industries producing differentiated goods or those characterized by imperfect competition and increasing returns.

This too fits perfectly with the interpretation I have suggested. σ must be much higher between different varieties than between totally different goods.

Point 3: the likelihood of a higher effect than 10%

1. Richard Baldwin's favorite study, by Flam and Nordstrom, reports 15% more trade from EMU when the authors use a control group consisting of 11 rich countries. However, when Flam and Nordstrom use as their control group the 3 EU members outside the euro zone (the "cleanest definition of the control group"), they get only 8%. Richard Baldwin considers the 8% figure superior. However, it is easy to argue that the 15% figure is the better one.

The EMU members could get 8% more trade among themselves than with the UK, Denmark and Sweden while getting 7% more trade with the UK, Denmark and Sweden. In this case, they would get 15% more trade with one another altogether. In fact, that interpretation follows readily from MSO, the other study on which Richard Baldwin relies highly.

2. MSO investigate whether monetary union has a substitution or a complementary effect on trade between members and non-members. They do so by adopting the usual practice of introducing a separate dummy for trade between one member of a monetary union and one non-member. They find that the dummy emerges with a significant positive sign. The coefficient is lower than the one for trade between two EMU members but still positive. Thus, there is a complementary effect.

3. Richard Baldwin evidently expected the opposite. "In standard trade policy terminology, having a common currency is like reducing bilateral, non-tariff trade barriers" (p.43). But MSO's result is perfectly reasonable. Introducing a common currency can be likened to a graded reduction in a trade barrier applying more to some, the members, than others, the non-members. The reduction applies to everyone who trades with two of the members or more.

**The right measures of variables in the gravity equations:
The “bronze medal” mistake**

1. The gravity model applies to nominal values not real ones while Rose used real values for output and trade and others have followed him. According to Richard Baldwin, some distortions thus arise. This is the “bronze medal” mistake.

2. However, the real values Rose uses are not simply nominal values divided by the national price level; they come from the Penn World Table. They are PPP-adjusted values. Thus, their use may reflect an effort to avoid the distortions that come from converting grossly undervalued currencies into dollars. Such conversion can lead to undervaluing non-traded output relative to traded output in countries with undervalued currencies.

3. If so, the resort to the Penn figures would represent an effort to avoid precisely the error that Richard Baldwin attributes to Rose and his followers: that of introducing false relative values of traded and non-traded goods when taking the theory to the data.

4. Generally, in deriving the gravity model, we simply proceed by assuming a common unit of account. But when confronting the data, we face the problem of relating the model to multiple moneys in the world. Since non-traded goods exist everywhere, in the absence of a world unit of account, it is not obvious that converting into dollars at current exchange rates keeps us closest to the model.

The right measures of variables in the gravity equations: The “silver medal” mistake

1. Rose and very many people use figures for total bilateral trade or the average of goods moving in both directions as the dependent variable in applying the gravity model. Richard Baldwin considers this the “silver medal mistake.”

2. However, the gravity model uses variables that are identical regardless of trade one way or the other. Indeed, Anderson and van Wincoop show that under the assumptions of the model the values of bilateral trade both ways are exactly equal in theory if t_{ij} equals t_{ji} . Since the model says nothing about trade imbalances, it is perhaps reasonable to assume that the model applies strictly to total trade.

3. To proceed further in making the point, suppose that nevertheless we wish to distinguish between exports one way and exports the other. Then don't we need a better model: one that says something about bilateral trade balances and not simply bilateral trade? Is it enough to keep the same model, use separate figures for the movement of goods both ways, and merely add a relative price relating to the exchange rate?

4. Merely introducing exchange rates clearly will not suffice in order to say something even roughly accurate about trade imbalances in the world. In order to do so, we evidently must get away from the assumption that countries wish to maintain balanced trade in the aggregate and to avoid any intertemporal substitution. One step is to cease identifying the desired spending variable E_d for the importing country with the country's output but to identify it with its desired absorption instead. But that is only a beginning.

5. My basic point is that the use of the average for trade both ways can be viewed as a response to the simplified nature of the gravity model.

6. A final issue, if exports both ways are to enter, is which data to use: those for the shipments or the arrivals? Richard Baldwin recommends the shipments.

He has a good argument with respect to the EU: the destination principle that applies to VAT makes export figures more reliable in the region. But a number of questions arise.

The situation concerning VAT is peculiar to the EU. On a world level, there is a massive trade deficit and the consensus is that the import figures are closer to the truth. This is precisely because tax considerations generally lead to better reporting of expenses (or imports) than receipts (or exports).

In addition, if the gravity model is to remain simply a demand equation, as it is in Richard Baldwin's formulation, it is difficult to see how export figures can be ideal. What matters to the buyer are the landed goods not those shipped. According to numerous formulations, some of the goods "melt" along the way.

Finally, once we separate the flow of goods both ways, there is also an issue of identification regarding the sign of the exchange rate. The sign could go either way depending on supply or demand behavior. Is the sign the same regardless of import or export figures? Do Flam and Nordstrom's results confirm the assumption that the impact of the real exchange rate reflects strictly demand behavior?