



# Currency unions mean more trade, but not for everyone

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*Currency unions usually go hand in hand with deeper economic integration. But does that automatically mean more international trade? This column shows that since the end of WWII, currency unions have on average been associated with 40% more trade between member countries. The 'thin' relationships between countries who do not trade much with each other benefit the most from currency unions, with little in the way of a boost for more established trading relationships.*

Currency unions are an important institutional arrangement to facilitate international trade and reduce trade costs. In the period since WWII, a total of 123 countries have been involved in a currency union at some point. By the year 2015, 83 countries continued to be involved in one. In addition, various countries are considering forming new currency unions or to join existing ones. For example, the East African Community is thinking about setting up a common currency. Also, Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, and Sweden are supposed to join the euro at some point.

## The traditional currency union effect on trade: One size fits all

By how much do currency unions facilitate international trade? To evaluate the trade effect of currency unions, researchers typically rely on a standard gravity equation framework, and insert a simple currency union dummy variable as a right-hand side regressor (e.g. Rose 2000). This yields a single coefficient to assess the trade effect of currency unions. By construction, this effect is homogeneous across all currency union country pairs in the sample. Researchers have often found large effects, and by construction these equally apply to all bilateral pairs in the sample that are in a currency union. But the results are not always clear-cut since they can vary a lot across samples (Glick and Rose 2015, 2016).

## A new approach: Heterogeneous currency union effects

In new research (Chen and Novy 2018), we challenge the view that currency unions have a homogeneous 'one-size-fits-all' effect on bilateral trade flows. We argue theoretically, and demonstrate empirically, that the trade effect of currency unions is heterogeneous both across and within country pairs. As our theoretical framework, we introduce heterogeneous currency union effects by taking guidance from a translog gravity equation that predicts variable trade cost elasticities (Novy 2013). This means that a currency union (through lowering trade costs) will not have the same effect on all bilateral trading relationships between member countries.

In our framework, ‘thin’ bilateral trade relationships (characterised by small import shares) are more sensitive to trade cost changes in comparison to ‘thick’ or ‘established’ trade relationships (characterised by large import shares). As an example, think of Germany importing from Malta as a thin relationship. Malta is not a large economy, and therefore its share in German imports is small. This is the type of bilateral relationship that benefits the most from joining a currency union in terms of increased trade. By contrast, think of Germany importing from France. This is a thick relationship, with a large share in German imports. This type of relationship is not very sensitive to a reduction in trade costs induced by their currency union. Bilateral trade between France and Germany therefore does not move much.

The intuition is that small import shares are high up on the demand curve where sales are very sensitive to trade cost changes. Large import shares are further down on the demand curve where sales are more buffered. As a result, smaller import shares have a stronger trade cost elasticity in absolute magnitude.

## Heterogeneous currency union effects in the data

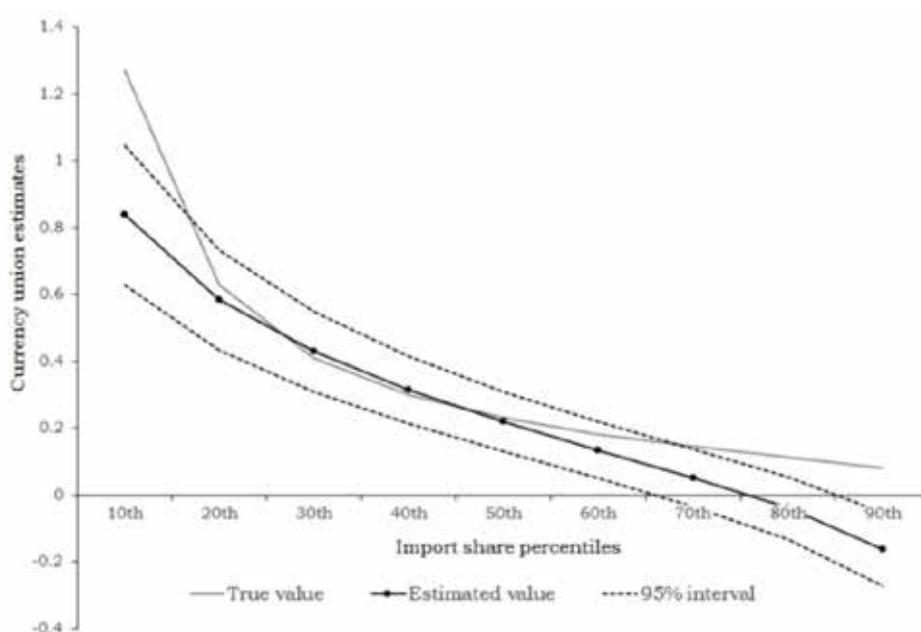
We use a very large, comprehensive data set of aggregate annual bilateral trade flows, covering the vast majority of global trade after WWII. It consists of trade flows for 199 countries between 1949 and 2013.

We first estimate a standard gravity regression without heterogeneous effects. We find that sharing a common currency is associated with roughly 40% more trade on average. But once we allow for variable effects across country pairs, we find a great deal of heterogeneity. For instance, at the 90th percentile of import shares (these are the ‘thick’ relationships), we find that the trade effect of sharing the same currency is relatively modest at 30%. In contrast, at the 10th percentile (these are the ‘thin’ relationships), we find a substantially stronger effect of 94%.

Examples of country pairs with small import shares associated with large currency union effects are Denmark importing from Greenland (115%), Equatorial Guinea from Niger (105%), Mali from the Central African Republic (98%), and Gabon from Niger (96%). In contrast, country pairs with large import shares that do not increase trade at all by joining a currency union include Belgium-Luxembourg importing from the Netherlands or Germany, and the Netherlands importing from Belgium-Luxembourg and Germany.

Figure 1 illustrates this basic result. Small import shares (those at low percentiles) are associated with large currency union effects. And vice versa, large import shares (those at high percentiles) have small currency union effects that can be close to zero.

**Figure 1.** Currency union effects on trade are strong for small import shares and weak for large import shares.



Note: The numbers in this figure are based on a particular simulation and therefore may differ quantitatively from the numbers mentioned in the text. But qualitatively, the relationship is the same.

### Asymmetries within country pairs

We also find that the trade effect of currency unions is heterogeneous within country pairs and therefore asymmetric by direction of trade. For instance, the effect is relatively large (at around 58%) when Germany or France import from Malta (i.e. low import shares). But it is insignificant in the other direction when Malta imports from Germany or France (i.e. large import shares). Table 1 illustrates a few of these results.

**Table 1.** Asymmetries of estimated currency union effects within country pairs.

Bilateral Asymmetries					
Exporter	Importer	CU estimates	Exporter	Importer	CU estimates
Malta	Germany	0.458*** (0.071)	Germany	Malta	0.111 (0.073)
Malta	France	0.451*** (0.069)	France	Malta	0.121* (0.071)
France	Germany	0.027 (0.091)	Germany	France	0.010 (0.095)
Panama	U.S.	0.394*** (0.060)	U.S.	Panama	0.074 (0.080)

Notes: The table shows point estimates for currency union effects with standard errors reported in parentheses (asterisks denote significance). The estimates have to be exponentiated to obtain the trade effects. For example, for trade from Malta to Germany, we find a trade effect of 58 percent, which is computed as  $\exp(0.458)-1$ .

## How about the euro?

The euro's 20th anniversary is coming up. Given the enormous academic and policy interest in the European single currency, we also focus more specifically on the trade effect of the euro. Consistent with evidence reported in the literature (Baldwin 2006), we confirm that the average trade effect of the euro is modest. Our explanation would be that on average, trading relationships amongst euro area countries are well-established and therefore relatively thick'.

Still, we find that the euro effect is heterogeneous across country pairs. It is insignificant at the 90th percentile of import shares. But it becomes significant and equal to 36% at the 10th percentile. Examples of country pairs with small import shares associated with large euro effects are Ireland importing from Cyprus (31%), Finland from Malta (30%), and Austria from Estonia (25%). In contrast, country pairs with large import shares not generating any additional trade from the euro include Belgium-Luxembourg importing from the Netherlands or Germany.

## But aren't currency unions endogenous?

Currency unions are not randomly assigned. They are the outcome of a political process. Reverse causality may arise because countries that trade intensively with each other are more likely to join a currency union, leading to an overestimation of the trade effect of common currencies. Instruments for currency union membership are hard to find. Attempts in the literature along those lines have proved disappointing (see Baldwin 2006 for a discussion).

In our paper, we do not attempt to instrument currency union membership. But we demonstrate that the framework with heterogeneity can lead to some new insights. More specifically, we show that correcting for endogeneity bias (to the extent that it exists) should strengthen, rather than weaken, the heterogeneity patterns in our results. The intuition is that bilateral trade and currency unions are positively related. This would result in positive endogeneity bias, pushing up the modest currency union effects associated with high import intensity (i.e. large import shares) and pushing down the strong effects associated with low import intensity (i.e. small import shares). Thus, removing this potential bias would lead to even stronger heterogeneity patterns.

## Policy implications

Our results help to evaluate the potential changes in trade flows that countries can expect when joining a currency union. For instance, suppose Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, and Sweden were to join the euro in the next few years. As these countries are relatively small compared to some existing members of the euro area such as France and Germany, they have relatively large import shares. Our results suggest that these import shares will grow modestly. However, trade shares in the opposite direction are smaller and can therefore be expected to grow faster.

## Wider applicability: Heterogeneous effects of other trade cost elements

From a methodological point of view, the flexible approach with heterogeneity that we propose paper can be applied more widely. We therefore hope it should be of interest to other researchers in the literature. For example, the flexible gravity framework could be employed to investigate the heterogeneous trade effects of transportation costs, tariffs, non-tariff barriers, or regional trade agreements.

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