2024

ANALYSIS

Trade effects of a common currency

Experiences of euro cooperation and currency unions

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Summary

On January 1, 1999, after several years of preparation, the euro cooperation was launched where eleven countries left their national currencies and joined the euro. It is easy to assume that the trade effects of a common currency were well understood. That was not really the case. In the years before and around the turn of the millennium, knowledge about the trade effects of a common currency was extremely limited, instead assessments were largely based on what was known at the time about the impact of exchange rate changes on trade.

Today, 25 years later, there is fairly strong evidence that a common currency has a trade-promoting effect, even if it is not as strong as some early studies suggested. Modern studies of the trade effects of the euro point to a trade-enhancing effect in the range of 2–16 percent, and in some cases upwards of 30 percent, as well as an income increase of 0.3–2.1 percent of GDP.

Some important drivers of why a common currency can stimulate international trade are partly reduced search costs and frictions linked to international trade exchange, partly reduced exchange rate-related risks.

With a common currency comes increased trade and deeper integration. Our interpretation of the literature and the evidence that exists today is that participation in the euro cooperation can contribute to increased trade and therefore also have a positive impact on long-term growth.

A question that is outside the scope of this analysis is how participation in the euro cooperation affects the risk of being exposed to asymmetric shocks and other risks, as well as the tools available to deal with challenges linked to different currency regimes. How one stands when choosing an exchange rate regime therefore depends on a number of different assessments. The purpose of this analysis is to contribute one component of this puzzle, what can we say about the trade effects?

Content

1   Introduction

On 19 October 1995, the Swedish government appointed an inquiry with the task of investigating the consequences of a Swedish accession to the third stage of the Economic and Monetary Union (EMU). The assignment led to the so-called Calmfor investigation (1996)[1] which, on 485 pages, highlighted the potential advantages and disadvantages of a Swedish accession to the euro cooperation.
Something that may seem surprising today is that only a little over two pages are devoted to the trade effects of a common currency, despite the fact that a central element of a common currency is to reduce transaction costs for international trade.

An explanation for the relatively limited writing about trade can probably be attributed to the state of knowledge about the trade effects of a common currency in the mid-1990s. There was at that time a relatively extensive literature on trade and

exchange rate changes while analyzes of a single currency were more limited.
Today, almost 30 years later, the picture is different. Our knowledge of how a common currency affects trade has been strengthened in several ways, and we have a fairly good picture of a number of issues that were debated at the time. The strengthened state of knowledge regarding trade effects is an important piece of the puzzle in the knowledge base required to take a well-balanced position on whether Sweden should complete the accession to the euro cooperation. The ambition in the coming sections is therefore to give an account of what the existing research says about how big these effects actually are and how this knowledge has developed.

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[1]   SOU 1996:158

2 Trade and currency unions

2.1 Background

The choice between a flexible or fixed exchange rate concerns several areas of theory and one

dilemma is that there are no simple and comprehensive models that can capture all the economic

effects associated with participation in a common currency.2

Exchange rate theory highlights the currency risk and monetary policy aspects. Trade theory contributes

insights into the effects of lower trade barriers, while macro theory focuses on the link between

common monetary policy, investment and growth

(McKinnon 1963, Mundell 1961). In what follows, we highlight the trade theory perspective.

The most common arguments about how a common currency affects the conditions for

international trade in goods and services can be illustratively summarized as follows: [3]

• A common currency reduces (eliminates) risks linked to exchange rate volatility

  for trade that takes place between countries with the same currency and therefore reduces

  the need for (costly) financial instruments that hedge transactions against exchange rate

  changes.

• A common currency leads to reduced information and search costs associated with

  international trade exchange.

• A relatively large currency usually has a lower volatility than small currencies. This also reduces

  risk and uncertainty associated with trading with actors outside the currency union.

• A common currency increases price transparency and thus the conditions for effective competition

  between countries.

The well-cited Calmfor study (SOU 1996:158) was very cautious in its assessment of the euro's

expected effects on trade and really only concluded that currency fluctuations (not to be confused with

currency unions) do not affect foreign trade to any great extent:

 "There is a large amount of empirical research on the relationship between the degree of exchange rate
fluctuations and the volume of foreign trade. The somewhat surprising, but rather unequivocal conclusion
is that foreign trade appears to be affected very little or not at all by exchange rate fluctuations' (SOU
1996:158, p. 77).

With limited evidence in the area, the assessment of the trade effects of a common

currency also differed between actors. The Swedish Chamber of Commerce's consultation

response to the Calmfor investigation directed criticism at the conclusion that one cannot expect

any trade effects from joining the euro cooperation. As a counterweight to the Calmfor investigation, it

was said in the Kommerskollegium's consultation response:
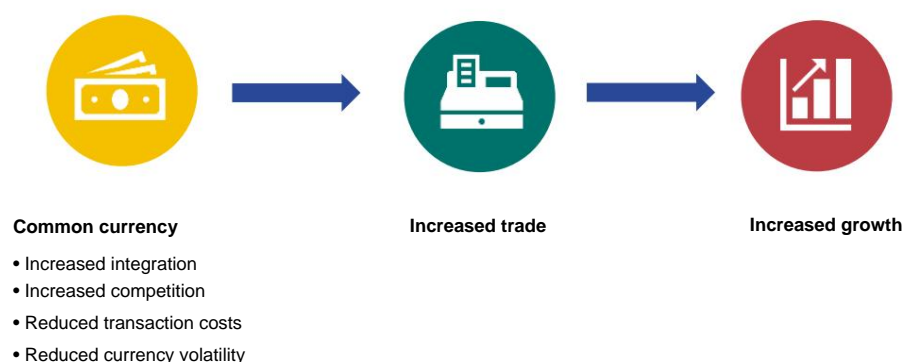
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2 Emerson 1992 and de Grauwe 1997.

3 Sources: Flam and Persson (2024), SIEPS (2017, 2021, 2024), IMF (2023), Pelagidis and Mitsopoulos
  (2016).

"Kommerskollegium believes that the investigation strongly underestimated the positive effects on Swedish trade with other countries that participation in EMU would have" (Kommerskollegium, 1997: Dnr 100-1906-96, page 5).

All in all, in its consultation response, the Chamber of Commerce was positively disposed to euro cooperation, which was justified by the fact that it leads to a deepening of the internal market, contributes to increased resistance to financial unrest, contributes to increased exports and attractiveness for investments, and strengthened political influence in the EU.

Today, more than 25 years after these reports, knowledge of the link between trade and exchange rate regime choice has matured, although a number of questions are still unresolved or unclear and new questions have arisen. Below we will therefore review what evidence has emerged about currency unions and their impact on trade.

Figure 1. Trade in the centre

Common currency

• Increased integration
• Increased competition
• Reduced transaction costs
• Reduced currency volatility

Increased trade

Increased growth

2.2 Currency unions and trade – the early literature

A seminal paper examining how a common currency affects trade was Rose (2000). In his literature review, Rose discussed a total of seven studies that studied the relationship between exchange rate changes/volatility and trade. Rose also writes that this is the first study to study the effect of currency unions on international trade. *"No previous author, to my knowledge, has considered the effect of currency unions on international trade".*[4]

The results of Rose (2000) showed very large effects of a common currency with trade increases of over 300 percent. This finding was of course remarkable and triggered a series of articles that came to examine the so-called currency union effect. As a technical note, Roses' analysis was based on cross-sectional data, i.e. trade between countries at a fixed point in time. Today, it is usually required to be able to follow a relationship over time in order to establish causality, and the methodology applied by Rose in 2000 would be difficult to gain scientific acceptance for today. However, we would like to point out that Rose's article was instrumental for continued research in the area.

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[4] Rose (1999), NBER WP. no. 7432, p9.

For an overview of the available evidence on the early literature on the relationship between a common currency and its trade effects, meta-analyses are a good place to start. What a meta-analysis does is summarize the results of several scientific studies. Meta-analyses are therefore seen as the highest level of scientific evidence and provide a good summary of the overall effects (which can be difficult to obtain from individual studies). The disadvantage is that in a meta-analysis, unlike individual studies, it is difficult to delve into specific circumstances.

An early meta-analysis is Rose (2004) who summarized 19 studies on currency unions and came to the following conclusions:

(in)   The hypothesis that currency unions do not affect trade can be rejected (which partly contrasts with the Calmfor inquiry's statement in 1996).

(ii) A currency union roughly doubles trade. (iii)
          The effect varies between countries and studies.

Table 1. Studies of the effect of currency unions on trade based on Rose (2004).

Author	Year	Gamma Coef.	Author	Year	Gamma Coef.
Rose	2000	1.21	Klein	2002	0.50
Engel-Rose	2002	1.21	Estevadeoral, Frantz, and Taylor	2003	0.29
Frankel-Rose	2002	1.36	Alesina, Barro and Tenreyro	2003	1.56
Rose-van Wincoop	2001	0.91	Smith	2002	0.38
Glick-Rose	2002	0.65	Bomberger	2002	0.08
Person	2001	0.51	Melitz	2002	1.38
Rose	2001	0.74	Saiki	2002	0.56
Honohan	2001	0.92	Micco, Stein, Ordonez	2003	0.09
Nietzsche	2002	0.82	Ken	2002	1.22
Pakko and Wall	2001	-0.38	Bun and Klaassen	2002	0.33
Walsh and Thom	2002	0.10	de Souza	2002	0.17
Melitz	2001	0.70	de Sousa and Lochard	2003	1.21
López-Córdova and Meissner	2003	0.72	Flam and Nordstrom	2003	0.14
Tenreyro	2001	0.47	Barr, Breedon and Miles	2003	0.25
Levy Yeyati	2003	0.50	de Nardis and Vicarelli	2003	0.06
Nietzsche	2002	0.62	Rose	2004	1.12
Flandreau and Maurel	2001	1.16	Subramanian-Wei	2003	0.73

Note: Table replicated from Rose (2004), Appendix, Table, "Estimates of the currency union effect on trade".

2.3 Shrinking the currency union effect

Inspired by Rose (2000) and the significant effect that a currency union seems to bring, Glick and Rose (2001) using a panel of 217 countries studied that a common currency, and instead of more than tripling bilateral trade, they found an approximate doubling of bilateral trade. This, too, is a remarkably large effect. These strong results led to further studies aimed at studying more closely what came to be known as the "currency union effect". The undisputed winner in

the "best title" category goes to Nitsch (2001) with his article *"Honey, I Just Shrunk the Currency Union Effect"* where the currency union effect of about 200 percent from Glick and Rose (2001) was roughly halved to about 100 percent increased trade.

A clear trend at the beginning of the 2000s was a series of increasingly developed and rigorous methods for estimating the effect of a common currency. With the methodological development, the estimated effect of a common currency also came to shrink and a tone-setting study from this era is Torsten Persson (2001) who argued that a common currency should be considered an endogenous process. In his study, Persson (2001) found using a matching technique that a common currency increases bilateral trade by around 13–64 percent. In other words, we have gone from an estimate of 300 percent to 13–64 percent in a short time.

That the interest in the effect of currency unions on trade was high during the first ten years of the millennium is underlined by both the intense debate surrounding the issue and the fact that more meta-analyses were published (for a meta-analysis to be possible to carry out, a good amount of studies are required to rely on against). That the debate could sometimes be heated is underlined by Frankel (2006), who criticized Baldwin (2006) for arbitrarily determining the quality of various studies, *"He (Richard Baldwin) thinks he knows which of the studies are good and which are bad (...), and only wants to count the good ones. The problem with this is that other authors have other opinions as to what is good and what is bad."* (Frankel 2006, p. 83).

More meta-analyses were also published, one such was Havránek (2010) who analyzed the trade effect of currency unions in general as well as the EMU effect. In total, Havránek (2010) captured 60 studies, and by taking a simple average of the studies included in this analysis, we get an average currency union effect of 59 percent; if only studies from 2004 onwards are included, the estimated effect falls to 29 percent.5 An explanation for the reduced effect over time can probably be attributed to the rapid methodological progress where one switched from using cross-sectional data to actually following the development over time and also applying matching methods .

Moving forward in time to 2018, we find Novy and Chen (2018) who, via a gravity regression of trade flows for 199 countries between 1949 and 2013, found that a common currency is associated with an increase in trade of approximately 40 percent, but with significant variation between countries . A key message from Novy and Chen

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5 Author's calculations based on Table 4 in Havránek (2010).

(2018), and which is well established, is that the trade effect of a currency union can vary significantly between countries.

From this review, we see that as the analysis methods are refined, the estimated effect of a common currency seems to decrease and that the effect varies between countries and studies. As a technical note, we can add that in the last ten years there have been further advances in the framework of evaluation methods that to some extent question the precision of older studies. A second observation is that from these studies that did not include the EU and the Eurozone, it is difficult to say anything specific about the euro.

Table 2. Studies from 2004 onwards of the effect of currency unions on trade based on Havránek (2010)

Study	Effect (%)	Study	Effect (%)
Flam and Nordström (2006b)	0.018	Brouwer et al. (2008)	0.709
Gomes et al. (2006)	0.018	Baldwin et al. (2008)	0.036
Tsangarides et al. (2006)	0.036	Cafiso (2008)	0.036
Baxter and Kouparitsas (2006)	0.036	de Nardis et al. (2008)	0.072
Barro and Tenreyro (2007)	0.535	Frankel (2008a)	0.036
Subramanian and Wei (2007)	1,541	Chintrakarn (2008)	0.072
Adam and Cobham (2007)	0.153	Rose (2004)	0.036
Shin and Serlenga (2007)	1,094	Sadikov et al. (2004)	0.036
Bun and Klaassen (2007)	0.732	Farooqee (2004)	0.018
de Sousa and Lochard (2007)	0.018	Taglioni (2004)	0.018
Shirono (2008)	0.072	Baldwin and Taglioni (2004)	0.143
Me´litz (2008)	0.994	Flochreau and Maurel (2005)	0.709
Berger and Nitsch (2008)	0.709	Klein (2005)	0.072
Brouwer et al. (2008)	0.709	Yamarik and Ghosh (2005)	0.653
Baldwin et al. (2008)	0.036	Aristotelous (2006)	0.036
Cafiso (2008)	0.036	Flam and Nordström (2006a)	0.036
de Nardis et al. (2008)	0.072	Baldwin and Taglioni (2006)	0.036
Frankel (2008a)	0.036	Taglioni (2004)	0.018
Chintrakarn (2008)	0.072	Baldwin and Taglioni (2004)	0.143
Rose (2004)	0.036	Flochreau and Maurel (2005)	0.709
Sadikov et al. (2004)	0.036	Klein (2005)	0.072
Farooqee (2004)	0.018	Flam and Nordström (2006a)	0.036
Yamarik and Ghosh (2005)	0.653	Baldwin and Taglioni (2006)	0.036
Aristotelous (2006)	0.036		

Note: Studies before 2004 are mainly found in Rose (2004) and are not reproduced in this table, see Havránek (2010) Table 4 for a complete rendering of included studies.

2.4 Early studies of trade effects of the euro

An early attempt to capture the euro effect is Rose and Wincoop (2001), who used pre-EMU data to estimate the trade effects of EMU. They estimated the (future) trade-creating effect at around 60 percent. However, it should be noted that their conclusions are based on *expected* effects. Another early study is Berger and Nitsch (2005) who argued that the formation of a currency union should be seen as the culmination of an integration process. Taking a long-term view of European integration, they concluded that the introduction of the euro has hardly had any measurable effect on trade. A third

initial study of the euro is Alejandro et al. (2003). Depending on the choice of comparison group, they found that the effect of EMU on bilateral trade flows has been in the range of 4–16 percent.

2.5 Modern studies of trade effects of the euro

Around the years 2005–2008, there was a certain consensus about participation in the euro cooperation had about a 2–8 percent impact on trade flows for the first wave of euro area countries (Baldwin et al., 2005). This claim has in turn been re-examined in a series of studies.

The ECB (2020) analyzed two decades of post-EMU data and, using a gratification model, concluded that the effect of the currency union on trade varies between 4.3–6.3 percent. If they instead applied a synthetic control method, the trade effect of the euro was estimated to be around a 30 percent increase in trade.
The ECB study also concluded that the euro facilitated the establishment and expansion of international production chains in Europe, which in turn increases business cycle synchronization and facilitates market access (in line with the Commission's view on integration). Felbermayr and Steininger (2022), applied a general equilibrium model of world trade and found that EMU increases real incomes in
the euro area by 0.3-2.1 percent and trade in goods by almost 8 percent.

Lalinsky and Meriküll (2021) used firm data to study the trade effects of Slovakia and Estonia joining the euro. An interesting result was that Slovakia, which switched from a flexible exchange rate regime to the euro, experienced an 18 percent increase in exports to the euro area. Estonia, which instead moved from a fixed exchange rate regime to the euro, experienced almost no impact on its exports to the euro area. An explanation of these results highlighted by Lalinsky and Meriküll (2021) is the importance of transaction costs, exchange rate volatility and uncertainty. That is, Slovakia, which got rid of the exchange rate uncertainty associated with a floating exchange rate regime, experienced the largest trade impact. The emphasis on the importance of reduced uncertainty stands in contrast to the Calmfor investigation assessment of currency unions from 1996 and shows how growing evidence in an area can change the current consensus.

As a follow-up to the meta-analysis by Rose (2004), Polák (2019) conducted a meta-analysis that collected 3323 estimates of the euro effect on trade from almost 60 studies. The results show both the presence of publication bias and a significant variation between studies. After correcting for bias, the meta-analysis shows a

trade promotion effect between 2–6 percent. Unfortunately, Polák (2019) does not report the estimates or the underlying studies, fortunately we find a large part of this background from an early version from the year 2016 of the same article, Polák (2016). Polák (2016) is based on 48 (of the 60 included in the 2019 study) articles on the effects of the euro on trade. The estimates from the 2016 study are shown in Figure 2 and we make three observations:

• The effect of the euro varies significantly between studies.

- The relatively low trade-disturbing estimates in Polák (2019) - compared to the basis in the 2016 study, indicate that the studies in Figure 2 that report large effects have been given little weight in the assessment of the euro's effect on trade and therefore probably associated with large model uncertainty.

• The trend of weaker effects after the euro's first ten years is verified in Figure 2.

- We cannot determine whether the diminishing effect can be attributed to the recently increasingly stringent analysis methods or whether the emu effect was de facto greatest during the first ten years.

• In addition, expectations for increased trade also seem to have been met.

Figure 2. Estimated effects of participation in EMU on trade
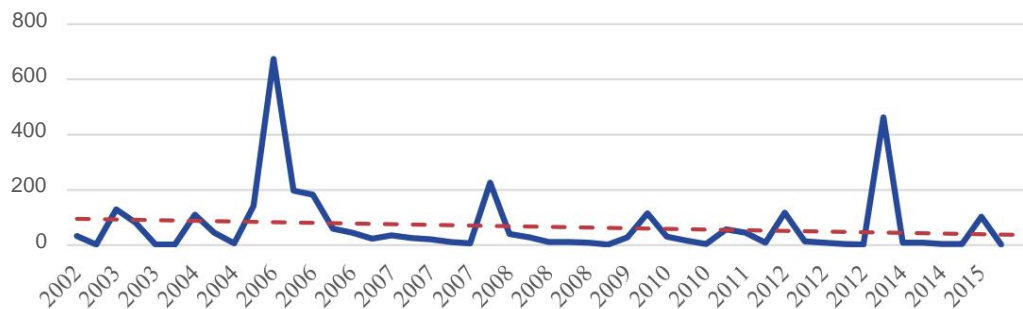
Note: Figure based on 48 studies listed in Polák (2016), Table A1.

Interestingly, even outside countries can benefit from the euro cooperation. Soons and Overbeek (2023) estimated the effect of joining EMU on exports from non-euro members to euro members at 15.7 percent and exports to the rest of the world at 12.0 percent. In line with this, Gullstrand and Olofsdotter (2018) found that the euro helped to increase Swedish companies' exports to the euro area, which indicates that the euro can contribute to increased trade also for outside countries.

In summary, we have seen a significant reduction in the estimated impact of a single currency since Rose's early estimates of 200 and 300 percent.
But the idea that a common currency increases trade is still valid. The question is how big the effect of the euro is, and an estimate between 2-16 percent and in some cases up to 30 percent is representative of most modern studies. In addition to the size of the effect, much of the current scientific debate revolves around mechanisms and challenges associated with how to measure these effects.6

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6 For those interested in the technical aspects of measuring the currency union effect, see Hou (2019) for an overview of how sample size and econometric method choice can affect the results.

3 Exchange rate changes and trade

In recent years, there has been discussion about whether the exchange rate has become "decoupled" from trade flows. The discussion gained momentum when exchange rate depreciations in, among others, Great Britain in 2007–2009 and Japan in 2012–2014 were not followed by export increases. In Sweden, the discussion concerns, among other things, how Swedish companies' participation in global value chains can affect the relationship between trade and the exchange rate. When a larger proportion of export companies' input goods are imported increases, this can lead to Swedish export volumes not increasing to the same extent as before - or not at all.

Despite discussions where the development of the exchange rate periodically seems to have been disconnected from the development of trade, it can be argued that the exchange rate plays a central role in international trade. The relationship between exchange rate changes and trade is a large area of research that cannot be easily summarized. Below we will describe some frequently occurring questions linked to the development of the exchange rate and trade, as well as give an account of what has been found in analyzes for Sweden.

3.1 The exchange rate, the trade balance and the J-curve

The trade balance consists of the difference between the value of exports and imports of goods. If the difference is positive, it is called a trade surplus, if it is negative, it is called a trade deficit. When studying trade in services, the term balance of services is used.

A recurring question is the connection between the exchange rate, trade and the trade balance. As pointed out above, the early assessments (1990s) of the trade effects of a common currency were partly based on what was known about the relationship between exchange rate changes and trade. In order for a depreciation (weakened exchange rate) to lead to an improved trade balance, the theory says that the sum of the price elasticity for exports and imports in absolute numbers must be greater than one, this is called the Marshall-Lerner condition (Sveriges Riksbank, 2018). In plain language, this means that the value of exports in the event of a depreciation increases and/or that the cost of imports decreases so that the net effect of import and export changes leads to an improved trade balance (Carlin and Soskice, 2005). Research in the area indicates that the condition is met for most countries, but that Sweden seems to show a deviant pattern. In a study by Bahmani-Oskooee and Niroomand (1998) of 26 countries, it was found that the condition was met for almost all countries, but not for Sweden, whose aggregate price elasticity was calculated to be 0.86. Similarly, Hacker and Hatemi (2003) also found that for Sweden the sum of the price elasticity for exports and imports was less than one. These results, which are now several years behind the times, suggest that for Sweden, a depreciation of the currency has probably (and in contrast to many other countries) been linked to a weakened trade balance. There is, however, a possibility that the length of time after a depreciation that one followed the development of the trade balance could have affected the results.

In the event of an exchange rate change, an adjustment usually takes place over time, which can give rise to a so-called j-curve. It has been seen that often the balance of trade tends to

deteriorates immediately after a depreciation. Imports become more expensive, while it may take time for exports to adapt. In addition, the short-run price elasticity is lower than the long-run counterpart (Carlin and Soskice, 2006). According to Junz and Rhomberg (1973), these reasons can explain the j-curve, where the trade balance initially worsens after a depreciation and then slowly improves.

Hacker and Hatemi (2003) investigated whether (among other things) Sweden has a j-curve. Their results showed that the Swedish trade balance worsened immediately after a depreciation, but then gradually improved, thus showing support for a j-curve. Bahmani-Oskooee and Ratha (2007) also carried out a study on the connection of the j-curve to Sweden, even there the results pointed to the j-curve for Sweden. Overall, these studies suggest that the studies where it was found that the Swedish trade balance deteriorates in the event of a depreciation can possibly be explained by the fact that the development of the trade balance was not followed long enough after the depreciation took place.

Huchet-Bourdon, M. and J. Korinek (2011, 2012) have analyzed the relationship between exchange rate changes and trade development and believe that the effect of a currency depreciation can be both positive and negative for the trade balance. When the same authors did a follow-up study Huchet-Bourdon, M. and J. Korinek (2013) using the same simulation method in Sweden, they found that:

 "A 10 per cent depreciation of the Swedish krona in real terms would imply a deterioration in Sweden's trade balance with the Euro Area and the United States, ..., and improved Sweden's total trade balance with China."

What is interesting in this study is that a depreciation, due to different price sensitivities in trade with different countries, can affect the bilateral trade balance between different countries quite differently. The trade balance is strengthened against some countries and weakened against other countries. For those interested in the development of the Swedish exchange rate, the ESO (2024) report *"Krona på Rätt Kurs"* is a good starting point, which is also published relatively recently.

3.2 Exchange Rate Volatility

A volatile currency is often associated with uncertainty, which in turn can inhibit trade, investment and growth. A question that arises is therefore whether small countries can benefit particularly much from participating in a common currency.

Yarmukhamedov (2007) investigated the effect of exchange rate volatility on Swedish foreign trade for the period 1993–2006. The results of the study show that in the short term, high volatility creates uncertainty, which in turn has a negative effect on both imports and exports.7 Linked to the Euro issue, these results suggest that a membership in

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7 One way to manage currency risk is through currency hedging, but currency hedging in turn entails a
    administrative element that, above all, larger companies have the resources to manage (Alfaro et al., 2021).

euro cooperation can reduce uncertainty linked to fluctuations in the exchange rate also in trade with countries outside the euro zone. [8] That small countries can be connected with one Volatile currency has for some time been called "svalpvaluta" in Sweden. In line with this, Huchet-Bourdon and Korinek, (2012) found in a study on Chile and New Zealand that small economies' trade is more affected by exchange rate volatility than large countries.

 "This study finds that the two small economies' trade is impacted relatively more by exchange rate volatility than large economies. This finding is consistent with other studies and with the theoretical literature."

The results from Huchet-Bourdon and Korinek, (2012) suggest that Sweden's currency stability would probably be strengthened through membership in the euro cooperation and thereby contribute to increased trade.

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8 Regarding the choice of which currency companies use in international trade, Stefan Karlsson says
   The Export Credit Board (EKN): *"The dollar always strengthens in troubled times, ..., and then the demand for the krone simply drops* (Stefan Karlsson EKN)" https://www.ekn.se/exportmagasinet/ ekn-exportmagasin/sa-paverkas-exporten -of-the-weak-crown/

4 Growth trade and integration

EU: To get an idea of the growth effect of EMU, European integration and EU membership can form an external framework for the possible effects of membership in the euro cooperation. It can also be mentioned that there are significantly more studies that have analyzed the trade effects of EMU compared to the effect on economic growth. Badinger (2005) studies the growth effect of integration and concludes that if no integration had taken place since 1950, Europe's GDP per capita would be approximately 20 percent lower in 2000, and that the biggest driving force was GATT/ WTO integration, and that European integration via the EU(EC) accounted for a third of the effect. Looking to the EU, Campos et al. (2014) who, with a synthetic counterfactual analysis on countries that joined the EU in 1973, 1981, 1986, 1995 and 2004, found that EU membership has promoted GDP growth in participating countries by an average of 12 percent. In other words, the EU effect is significant.

However, the EU effect varies widely between countries with Ireland appearing to be the country that has benefited the most from its EU membership – Irish incomes would have been 43 percent lower in 2000 if the country had not joined the EU in 1973. Other countries with major benefits of EU membership are Denmark, Great Britain, Portugal, Spain, Austria, Estonia, Latvia, Lithuania and Slovenia The effect has been smaller but still positive for Finland, Sweden, the Czech Republic, Poland and Slovakia. The effect on Greece of joining the EU is calculated by Badinger (2007) to be negative. It should be noted that the sample in Campos (2014) only extends to the year 2008 if therefore does not include the financial crisis (National Board of Trade 2016; Badinger 2007).

EMU: Studies of the growth effects of participation in the euro cooperation usually find, in relation to EU membership, relatively modest growth effects. For example, Fernandez and Garcia Perea (2015) write that the euro did not bring any major step up in the growth path of the euro countries. In the early years of monetary union, euro area aggregate GDP per capita rose slightly above the trajectory predicted by counterfactual calculations; but since the mid-2000s, those gains have completely disappeared. According to Fernandez and Garcia Perea (2015), the Central European countries – Germany, the Netherlands and Austria – appear to have gained neither gains nor losses from adopting the euro. Ireland, Spain and Greece recorded positive and significant gains, but only in the expansionary years following the launch of the euro, while Italy and Portugal quickly fell off the GDP per capita trajectory predicted by their counterfactual calculations.

That the growth effect of participation in euro cooperation is limited in relation to EU membership is also emphasized by Barell et al. fl. (2008) who, in a report published by the European Commission, found that the common currency has had a direct positive effect on growth in the core countries of the euro area: France, Germany, Italy, Belgium and the Netherlands of about 2 percent (results which are partly in contrast to Fernandez and Garcia Perea 2015). In a later study from the ECB (2020), participation in the euro cooperation is estimated to contribute an income increase of 0.3– 2.1 percent of GDP for participating countries.

That the effect of EU and EMU membership varies between countries is underlined by Fernandez and Garcia Perea (2015), who find great variation in the growth effect of being part of the euro cooperation. Fernandez and Garcia Perea (2015) found the largest positive effect of participation in the euro for Ireland. In summary, it is noted that the effect of EMU varies between countries and that the effect of EMU membership has faded over time for the entire euro area, see Table 3.

Table 3. Growth effects of EMU

Country	1999–2003	2004–2007	2008–2013
Spain	7.91	3.85	0.43
Greece	8.74	15.12	1
Ireland	23.9	24.67	8.5
Italy	1.81	-3.26	-11.22
Portugal	2.08	-11.21	-12.57
Austria	0.23	-2.54	-1.3
Germany	0.94	-1.05	1.8
Netherlands	1	-3.72	-1.52
France	3.32	-1.66	-1.36
Finland	7.23	10.47	10.65
Belgium	-2.19	-6.31	-6.22
Euro area	2.66	-0.67	-2.78

Note: Results from Fernández and Perea, 2015.

Even more recent studies of the growth effect of EMU show great variation between countries. Lucke (2023) conducted a synthetic control group study of different NUTS regions within the euro area and found that EMU has benefited regions with competitive, export-oriented firms, while instead it appears to have had a negative impact on several French, Italian and Greek regions. In other words, there seems to be no clear positive or negative effect of EMU on regional growth, neither between regions nor over time.

4.1 The EU's development in some areas important for trade

Labor mobility between member countries plays an important role in maintaining the stability of a currency union. From a trade theory perspective, trade and the movement of capital and labor can be seen partly as substitutes for each other. In other words, the need to trade across national borders is reduced if factors of production can move frictionlessly between countries. At the same time, increased integration can have a direct impact on trade.

In addition to the basic Schengen Agreement from 1995, an important document concerning the freedom to move within the EU is the Directive 2004/38/EC of the European Parliament and the Council. The directive states (among other things) that of Union citizens and their

family members can freely travel to another EU member state without entry or exit visa. They may live in another Member State for up to three months without any conditions or formalities. Those who are employees or self-employed do not have to meet any other conditions. Other significant reforms are EURES (1993) which aims to help and support jobseekers and employers in finding each other across European borders within the EU/EEA. The Directive on the Recognition of Professional Qualifications (Directive 2005/36/EC) enables professionals to have their qualifications recognized and continue to work in their fields in another EU country.

In this area, there are still a number of problems that are still unsolved. As a final example, the ERASMUS program can be mentioned, which makes it possible for students to study or practice in another EU country for a certain period.

Overall, the above reforms aim to facilitate labor mobility between EU member states, which can, among other things, contribute to mitigating the effect of

country-specific shocks and economic imbalances. In this spirit, Batut et al (2024) believe that the removal of barriers to personal mobility has contributed positively to productivity development within the EU. If we look at data on labor mobility within the EU, we find that for the period 2013–2018 (before covid) an increase from approximately 570,000 to 720,000 intra-EU emigrants.9 While mobility brings a number of advantages, it has been argued that a long-term loss of working-age population can be harmful for sending countries (Baas et al. 2014).10

In a comparison between the EU and the US, O'Rourke (2013) showed that more than 40 percent of US residents were born outside the state they live in, while in the euro area only

14 percent of the population who were born in a country other than the one in which they live. Despite these differences in migration, O'Rourke (2013) showed that it is difficult to see any significant differences in price flexibility between the EU and the US. In a 2021 paper, Muller et al., (2021) discuss migration within the EU, and how the significantly lower migration within the EU makes risk sharing difficult with a common currency. Briefly, Muller et al. (2021) to a renewed focus on the principle of labor mobility to improve risk sharing in the euro area. For a review of issues relating to migration within the EU see Arnholtz & Leschke (2023) and Batut et al (2024). In short, these studies point to the fact that much has been done to facilitate labor mobility within the EU, but that the language barrier continues to be an obstacle.

In addition to migration, a series of reforms aimed at strengthening integration between EU member states have been carried out over the past 30 years. It is next to an impossible task to give an account of all the reforms that have contributed to increasing integration between EU member states, but there are some reforms that should be mentioned.
The Treaty of Amsterdam, which entered into force in 1999, led to strengthened cooperation in areas such as employment, the environment, gender equality, public health, consumer affairs and social policy. Another big step was the Treaty of Lisbon, which entered into force in 2009, ten years after the Treaty of Amsterdam. The treaty contains a series of reforms aimed at

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9   https://ec.europa.eu/eurostat/cache/digpub/eumove/bloc-1c.html?lang=en

10 As a technical note, Muñoz (2024) showed how traditional data on services trade within the EU underestimates trade in services through job-posting, where workers move between national borders for temporary work, e.g. in the construction sector.

simplify and streamline the European Union. During the 2010s, the Internal Market Act (2011) was launched with twelve measures for integration and growth, and in 2015 the Action Plan for the Capital Markets Union was adopted, which aimed to further integrate and deepen the member countries' capital markets. Finally, mention can be made of the new action plan for integration and inclusion that was launched in 2020. These examples signal an increasingly integrated EU, which in turn reduces barriers to trade in goods, services, and the movement of capital and labor between EU member states.

5 Conclusions

Whether Sweden is to take the step towards full participation in the common currency is undoubtedly a central issue for Sweden's EU integration and role in the European Union. In this analysis, we have sought to illuminate a piece of the puzzle in this question, namely how full participation in euro cooperation can be expected to affect trade.

Since the introduction of the euro on 1 January 1999, much has happened. We now have 25 years of experience with a single currency and the euro has established itself as the second most traded currency in the world and in the meantime a series of reforms have been implemented which strengthened the framework within which the single currency operates.

When the euro was introduced in 1999, knowledge of currency unions and their effect on trade was very limited. The literature they had to lean on was more about exchange rate changes and volatility than the impact of currency unions on trade. This lack of information probably contributed to different actors making different assessments about how full participation in euro cooperation would affect trade.

Today, 25 years later, the picture has become much clearer. The evidence points to a common currency leading to increased trade and thereby contributing to increased growth, but the question is how big these effects are.

Early studies in the field pointed to trade effects of monetary unions of 200–300 percent. These results were startling and, as it turned out, due to methodological problems, greatly overestimated. However, these initial studies led to extensive interest in the issue. Today, with the help of more precise methods and better data, the evidence for the euro points to a trade-enhancing effect in the range of 2-16 percent, and in some cases up to 30 percent, as well as an income increase of 0.3-2.1 percent of GDP . A question that has not been fully investigated is how the effect of a common currency is distributed between reduced transaction costs and the elimination of exchange rate uncertainty. However, it is quite clear that a common currency has a trade-promoting effect and that this in turn is favorable for productivity and economic development. With this report, we hope to have contributed a trade-based view of what participation in euro cooperation can bring.

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Appendix

Table 4. Estimated effects of participation in EMU on trade

Study	Estimate	Study	Estimate
de Souza (2002)	32	Baldwin, DiNino, Fontagné, Santis, and Taglioni (2008)	12
Bunn and Klaassen (2002)	2	Flam and Nordström (2008)	10
Micco, Stein, and Ordoñez (2003)	130	Brouwer, Paap, and Viaene (2008)	8
Barr, Breedon, and Miles (2003)	81	de Nardis, de Santis, and Vicarelli (2008)	2
de Nardis and Vicarelli (2003b)	2	de Sousa and Lochard (2009)	29
de Nardis and Vicarelli (2003a, 4)	2	Frankel (2010)	116
Taglioni (2004)	109	Costa Font (2010)	30
Farooqee (2004)	44	Jung, Hogrefe, and Kohler (2010)	15
Baldwin and Taglioni (2004)	6	Silva and Tenreyro (2010)	3
Baldwin, Skudelny, and Taglioni (2005)	142	Murphy and Siedschlag (2011)	58
Fernandes (2006)	674	Cafiso (2011)	44
Baldwin (2006)	198	Eicher and Henn (2011)	9
Flam and Nordström (2006a)	182	Bergin and Lin (2012)	117
Flam and Nordström (2006b)	59	Vicarelli and Pappalardo (2012)	14
Gomes, Helliwell, Kano, and J. Murmur Duck (2006)	44	Cieÿlik, Michaÿek, and Mycielski (2012)	9
Aristotelous (2006)	24	Kelejian, Tavlas, and Petroulas (2012)	4
Bun and Klaassen (2007)	35	Alakbarov (2012)	2
Ruiz and Vilarrubia (2007)	25	Rotili (2014)	462
Baldwin and Taglioni (2007)	20	Cieÿlik, Michaÿek, and Mycielski (2014)	9
Flam and Nordström (2007)	12	Polyak (2014)	8
Shin and Serlenga (2007)	7	Badinger and Türkcan (2014)	4
de Nardis, Vicarelli, and De Santis (2008)	225	Camarero, Gómez, and Tamarit (2014)	4
Berger and Nitsch (2008)	40	Good Morning (2015)	104
Chintrakarn (2008)	28	Kunroo and Azad (2015)	2

Note: Data from Polák (2019).

Kommerskollegium is Sweden's authority for foreign trade, the EU's internal market and trade policy. Our task is to improve the opportunities for international trade based on openness, clear rules of the game and free movement in the EU's internal market.

The goal of our work is to contribute to a well-functioning internal market, an external trade policy in the EU based on free trade and an open and strong multilateral trading system.

We provide the government with decision-making documents, investigations and opinions and participate in international meetings and negotiations.

Kommerskollegium's Solvitcenter helps companies and private individuals who encounter problems with free movement. We also host several networks with business organizations and authorities that aim to develop the conditions for trade.

Our role as a trade authority also includes providing support to developing countries through trade-related development cooperation. This happens, among other things, through the contact point Open Trade Gate Sweden, which assists exporters from developing countries in their trade with Sweden and the EU.

With our investigations and reports, we want to increase knowledge about the importance of trade for the economy and for global sustainable development.