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217 Report by Christian Bayer, Alexander Kriwoluzky, Gernot Müller, and Fabian Seyrich

Despite crises, the stability of the euro is rooted in the middle class

- Study investigates influence of the common European monetary union on the business cycle in individual countries
- Effects of business cycle impulses are shifted between countries
- Population groups of comparable wealth benefit differently in different countries

LEGAL AND EDITORIAL DETAILS



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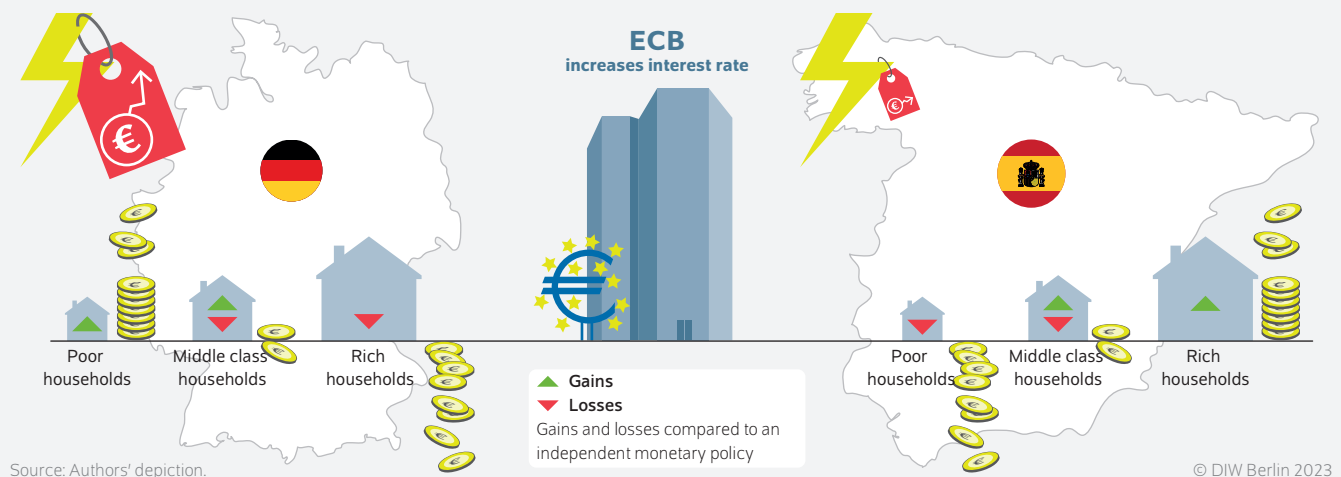
AT A GLANCE

Despite crises, the stability of the euro is rooted in the middle class

By Christian Bayer, Alexander Kriwoluzky, Gernot Müller, and Fabian Seyrich

- Model calculations show for the first time how the European Central Bank's common monetary policy changes the effect of economic crises on private households
- Households' wealth determines if they gain or lose due to the monetary union
- A common monetary policy makes a difference on the tails of the wealth distribution in particular
- Relative to a scenario with a national monetary policy, gains and losses even out for the middle class
- As a common monetary policy does not disadvantage the majority of households, the euro remains stable

A common monetary policy benefits poorer households in Germany during an energy price shock due to a comparatively moderate interest rate increase; the situation in Spain is reversed



FROM THE AUTHORS

"Following business cycle impulses, a household's wealth is particularly decisive as to whether it gains or loses due to the common monetary policy."

— Fabian Seyrich —

MEDIA



Audio Interview with Fabian Seyrich (in German)
www.diw.de/mediathek

Despite crises, the stability of the euro is rooted in the middle class

By Christian Bayer, Alexander Kriwoluzky, Gernot Müller, and Fabian Seyrich

ABSTRACT

In the 24 years since its introduction, the euro has experienced a financial crisis, a government debt crisis, a global pandemic, and an energy crisis—and survived. Using a model focusing on households, this Weekly Report shows that the monetary union's stability is rooted in the fact that the middle class neither gains nor loses significantly relative to an independent currency following business cycle impulses. The shifting of the costs due to a crisis as a result of membership in a monetary union occurs at the tails of the wealth distribution, namely between groups of equal wealth in different countries.

The euro was introduced over 20 years ago and will soon celebrate its 25th birthday. In light of the most difficult crises that the euro has endured over the past few years as a part of a monetary union, this is a surprising success. The common currency has been blamed by various groups such as populists for exacerbating the crises. Unlike the euro, the argument goes, an independent and autonomous currency and, consequently, monetary policy would allow countries to react better to country-specific problems and to not be dependent on a central monetary policy in Frankfurt. This is correct insofar as a common monetary policy for multiple countries can never be tailor made for each Member State. On average the policy is suitable, but for some countries it is too tight and for others, too loose.

Typically, this reasoning focuses on one country and assumes that the common monetary policy is too tight or too loose for all households in that country. The arguments follow previous academic analyses, which have considered the advantages and disadvantages of membership in a monetary union exclusively at the country level. The analyses do not consider that households within a country vary greatly in many aspects, amongst others with respect to their wealth. Against this background, a common monetary policy does not affect all households the same. Wealthy households prefer higher interest rates, while debtor households prefer lower rates. This Weekly Report considers the issue on a household level, analyzing the advantages and disadvantages of membership in a monetary union for households that differ in terms of wealth and income.

Focus of analysis on households, not countries

A theoretical model is used to investigate the advantages and disadvantages of membership in a monetary union (Box). The model contains two countries in a monetary union. Its parameters are determined in a way that the countries are similar to a typical Central or Northern European country such as Germany and a typical Southern European country such as Spain. One country has a high level of government debt and the other has a low level of debt relative to GDP. Furthermore, the model depicts key aspects of the business cycle.

Box

Description of the model

The underlying model is a new Keynesian two-country model with household heterogeneity.¹ The households consume a bundle of goods that contains both domestic as well as imported goods, with a disproportionately high share of consumption always being of domestic goods (home bias). As is common in the New Keynesian literature, the prices set by firms as well as the wages of the households are rigid.

The focus of the analysis is on the households in the euro area, which differ in terms of country of residence, income, and wealth. As is common in the literature on heterogeneous households, it is assumed that the individual productivity of a household fluctuates over time. As the wage income of households depends on their productivity as well as the national wage level, this leads to fluctuations in the wage income. Households thus build up private assets in order to self-insure against their income risk. Households can invest in domestic or foreign government debt as well as in domestic capital. Capital yields a higher return but is more illiquid than government debt and therefore less well suited to self-insure households' income risk.

The euro area is very heterogeneous in terms of inequality in the wealth distribution across individual member countries. Southern

countries such as Spain tend to have less unequal wealth distribution than Central or Northern countries like Germany, but more government debt. In a model including income risk, these two characteristics can be explained by the differing levels of welfare in the countries. As Northern European countries typically have more generous basic income, this reduces the income risk of households, so that the lower and middle classes in particular save less. Less basic income, on the other hand, increases the overall demand for liquid savings, which the government in these countries also provides due to more government debt. Both countries in the model are accordingly calibrated to depict the heterogeneity of the euro area in this respect.

The countries each have a national fiscal policy whose expenditures are financed via national taxes. In the baseline scenario, it is assumed that the countries form a monetary union: There is one common currency, so the nominal exchange rate is fixed at 1. The common monetary policy changes the common policy rate in the currency area in response to the average inflation rate in the currency area. This baseline scenario of the monetary union is compared with the counterfactual scenario in which both countries have their own independent monetary policy, each of which sets the policy rate for the country in response to its respective inflation rate. In this counterfactual scenario, the nominal exchange rate between the two currencies of both countries is flexible.

¹ Christian Bayer et al., "A HANK2 Model of Monetary Unions," *DIW Discussion Paper*, no. 2044 (2023) (available online).

The main focus of the model is on private households. Households differ in their earned income and thus save or borrow different amounts to finance their consumption. Households in the model can, however, only be in debt up to a certain threshold and different saving opportunities and saving behavior lead to the households holding different amount of wealth. Households can invest in government bonds and in productive capital. The latter has high interest rates, but is also more illiquid. The parameters for the countries are chosen such that the model depicts the difference in wealth inequality within the euro area. Wealth is typically more unequal in Central and Northern European countries such as Germany than in Southern European countries such as Spain because Southern households save more. One reason for the higher saving rate compared to Germany is that households in Germany have a higher degree of social security cover than Spanish households.

Monetary union alters transmission of business cycle impulses

The model is designed to analyze economic fluctuations and, thus, abstracts from growth effects of a monetary union due to close trade integration. Instead, an initial result of the model is that following a business cycle impulse, it makes no difference whether there is a monetary union or not to the

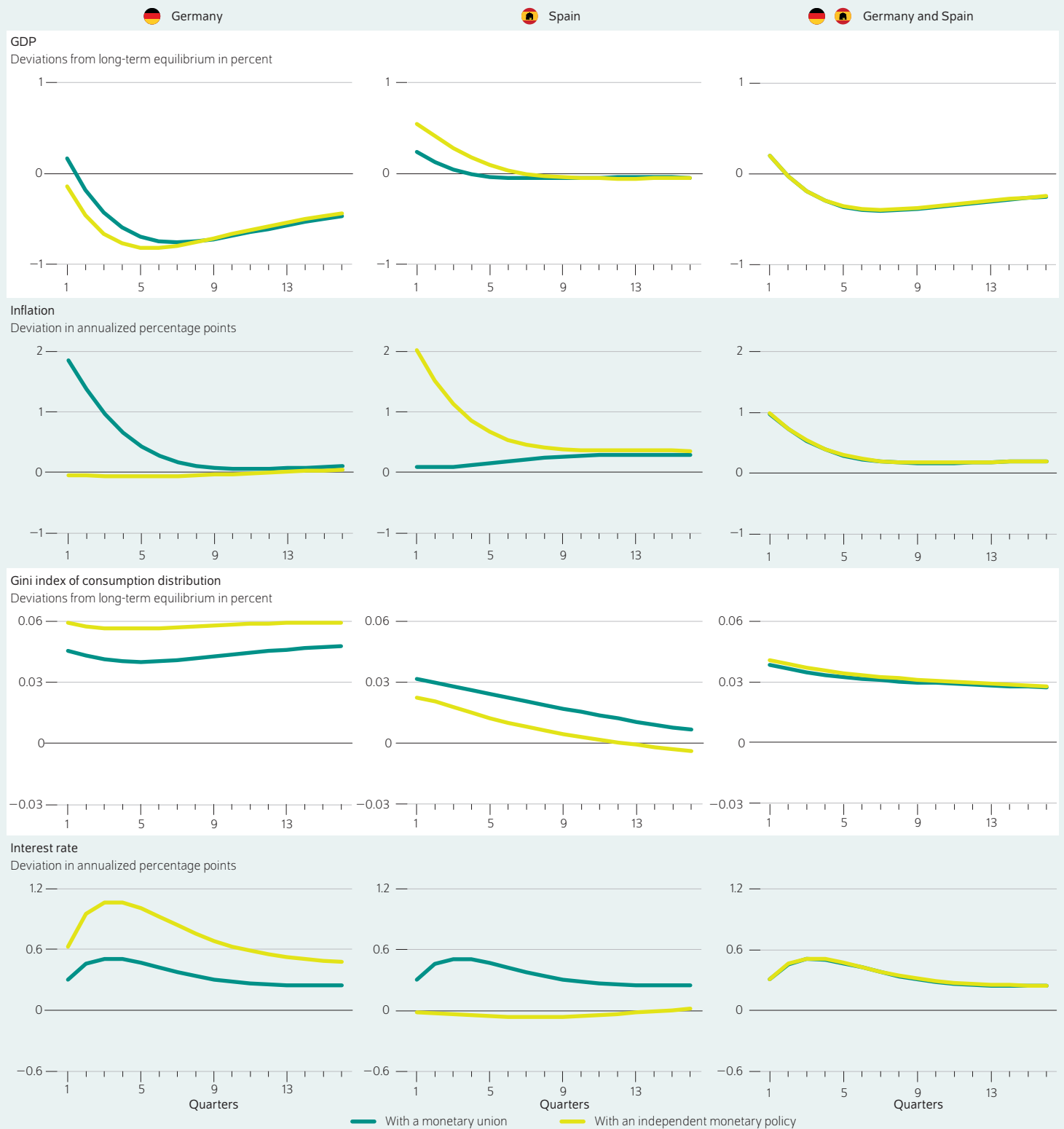
GDP and inflation of the two countries together. This result and the underlying mechanism are illustrated using the example of a negative supply shock, such as an energy price shock,¹ in Germany. The shock only occurs in Germany, while the other country, Spain, for example, is not directly affected by the shock due to the use of an alternative energy mix.

The shock has several macroeconomic effects on Germany, Spain, and the entire monetary union (Figure 1). The scenario in which both countries are in a monetary union (depicted by the green lines) as well as the scenario in which both countries have their own monetary policy (depicted by the yellow lines) are investigated. In the example, the shock leads to a decline in GDP in Germany while inflation increases simultaneously. How much the GDP declines depends on if Germany is in a monetary union or not. If Germany is in a monetary union, the GDP declines by less than if Germany had an independent monetary policy. This is due to the response of monetary policy: In a common monetary union, the common inflation rate is lower than in Germany

¹ The supply shock is modeled as a negative productivity shock. It is assumed that productivity in Germany initially decreases by one percent and then slowly returns to its original level. This is a good approximation of an energy price shock in Germany. See Bachmann et al., "Was wäre wenn..? Die wirtschaftlichen Auswirkungen eines Importstopps russischer Energie auf Deutschland," *ECONtribute Policy*, no. 29 (2022) (in German; available online. Accessed on July 12, 2023. This applies to all other online sources in this report unless otherwise specified).

Figure 1

Macroeconomic effects of a negative supply shock in Germany



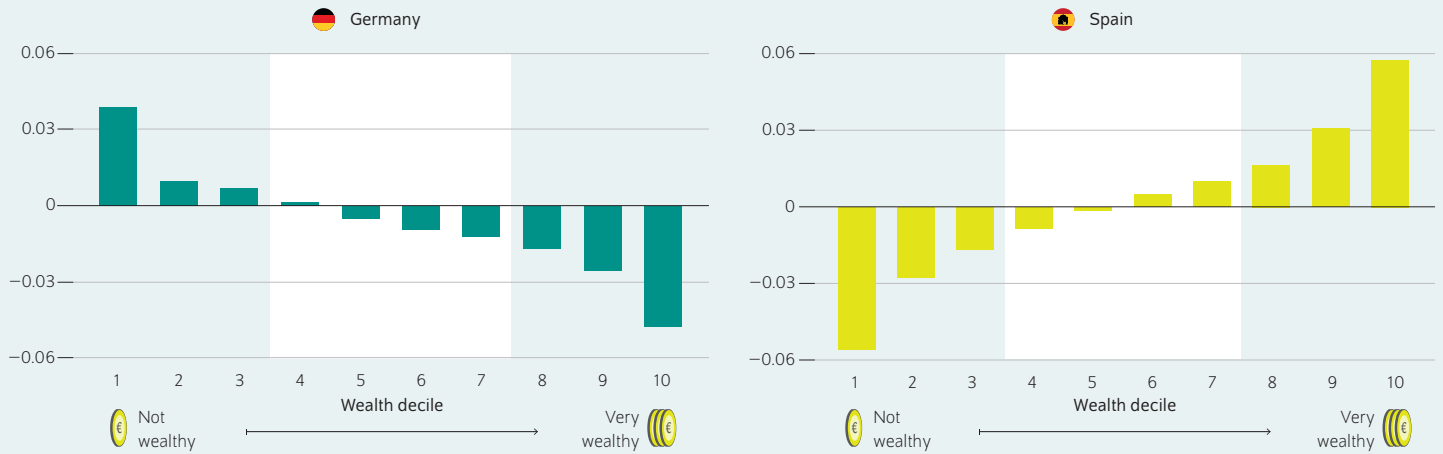
Source: Authors' depiction.

Due to the monetary union, GDP increases in Germany before it falls. In Spain, it increases less strongly than it would under an independent monetary policy.

Figure 2

Welfare gains and losses¹ across the wealth distribution due to a monetary union

In percent



¹ Welfare gains and losses are measured in consumption equivalents. These indicate the percentage of consumption that would have to be permanently taken away from households in the monetary union to make them as well off as they would be under an independent monetary policy.

Legend: The consumption of households in the lowest wealth decile in Germany could be reduced by 0.04 percent permanently without them being worse off compared to the scenario with an independent monetary policy.

Source: Authors' depiction.

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The poor households in Germany benefit from the monetary union at the cost of poor households in Spain; the rich households in Germany lose to the benefit of the rich households in Spain.

because the inflation rate does not increase starkly in Spain. Accordingly, the interest rates of the European Central Bank (ECB) increase less than in the case of a domestic central bank responsible for Germany, which can be seen in the left column of the fourth row.

Thus, the monetary union results in a short-term increase in German GDP, which then declines less than it would have with an independent monetary policy. In contrast, Spanish GDP increases less strongly than if Spain had an independent monetary policy. With a common monetary policy, the interest rates are increased in response to the situation in Germany. However, the new interest rates are too high for Spain and, thus, GDP increases less strongly in Spain. Interestingly, the changes in GDP in the two countries as a result of membership in a monetary union even out: The additional increase in one country evens out the additional decrease in the other. The lines representing the scenarios with a monetary union and with an independent monetary policy are practically identical and are almost perfectly on top of each other (Figure 1, right column).

Households affected differently depending on their wealth

The model used also shows how losses or gains following a negative supply shock are distributed across households in the countries (Figure 2).

In Germany, households in the lower deciles of the wealth distribution benefit from belonging to a monetary union, while the rich households lose. This is due to the lower interest rates that are associated with the common monetary policy compared to an independent monetary policy in Germany. This results in rich households receiving less capital income, in particular from the government bonds they hold. As the state pays less interest on the bonds issued, it also has to tax less to cover its expenditure. The poor households in Germany pay taxes, but barely hold any government bonds. Therefore, they benefit from membership in a monetary union following a negative supply shock. For the middle class, the two effects even each other out. While the middle class loses out through lost interest income, they also have to pay less tax. For the wealthy households in Germany, the loss due to reduced interest income outweighs the gain.

Households share risk horizontally

In Spain, the situation mirrors the situation in Germany: Here, the rich households benefit, as the interest rates in the monetary union are higher than under an independent monetary policy. As the higher interest payments result in higher taxes, the poorer households lose. Here, again, the effects on the middle class even out.

At first glance, the arguments suggest that the redistribution is vertical, that is, between the households of individual countries: in the case of Germany, from the rich households

to the poor households, and the other way around for Spain. However, the model shows that the redistribution is between households of the same asset group across countries.² The loss of the poor households in Spain is the gain of the poor households in Germany. The same applies for the wealthy households in both countries: The wealthy households in Spain benefit, while the rich ones in Germany lose. This means that the redistribution between the countries occurs horizontally. The same applies to the middle class in both countries. However, the effects there are very small; the middle class practically is neither losing nor benefiting from membership in a monetary union. As exiting a monetary union is associated with significant economic costs, the middle class supports remaining in the monetary union.

Conclusion: Households' wealth matters

In the discussion on the economic costs and benefits of a monetary union so far, the focus has been exclusively on the

country perspective, ignoring the heterogeneity of the households. This Weekly Report shows that the effects of membership in a monetary union are not evenly distributed across households in a country, but rather depend primarily on the households' asset group and the specific characteristics of the business cycle impulse. The income gains and losses are not vertically distributed across households in a country, but across countries, that is, between households of the same asset group. The relative wins of the poor households of one country are the relative losses of the poor households in the other country.

For the middle classes of both countries, the gains and losses even out. The middle class prefers to maintain the status quo, as it is assumed that exiting a monetary union would have economic costs. In addition to the middle class, the relative winners following a certain business cycle impulse, changing political coalitions that favor remaining in the euro area are possible. Also for this reason, the euro will soon celebrate its 25th birthday.

² For a more detailed depiction of the different effects, see Christian Bayer et al., "A HANK2 Model of Monetary Unions," *DIW Discussion Paper*, no. 2044 (2023) (available online).

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