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Professional paper

THE CIRCULATION OF EURO COINS IN CROATIA IN 2023

The circulation of foreign euro coins in Croatia after the introduction of euro currency in 2023 was analysed. The mixing of the coins from other European countries is very evident, and the proportion of Croatian euro coins rapidly dropped to about half of the coinage in the circulation within one year.

Introduction

On January 1st, 2023, Croatia has entered Eurozone by changing the currency from Croatian kuna to euro.¹ The Croatian euro coins are designed in accordance to EU rules and have the specific designs on the reverse, whereas the obverses are uniform for the whole EU area.²

The process of distribution of new coins started in 2022. The central bank has released new euro coins with Croatian designs on the reverse, and small packets of change were available (nominal value of 100 kuna, i.e. 13.28 euros), consisting of 33 coins, five coins of 50, 20, 10 and 1 cents, 4 coins of 2 and three coins of 2 and 1 euro and 5 cents. The fixed exchange rate was defined by central bank of 7,53450 kunas for one euro.

Until January 15th 2023, dual monetary system was allowed, where both kunas and euros were accepted in everyday cash purchases, and the change was received in euros. For easier transition to new currency, until end of the December 2023, all prices in shops were marked in both currencies. Shops have prepared sufficient amounts of new currency in their cash registers. In the first month, freshly minted shiny coins were obviously different than the euro coins from the other countries and people are looking at them with interest.

Results and discussion

Here the results of the coinage circulation are presented, and the analysis is based on the everyday change received by the author. All coins (total 2396, foreign 1090) are inspected and carefully recorded the countries and denominations. Although the volume and number of coins is relatively small and as such prone to statistical error, the analysis has shown that the results are quite consistent and explainable. For instance, studies with larger data sets are published for the circulation in Germany for 2019 (56000 coins)³, for France for the period 2002-2011 (281000 coins) and for Germany, France and Belgium

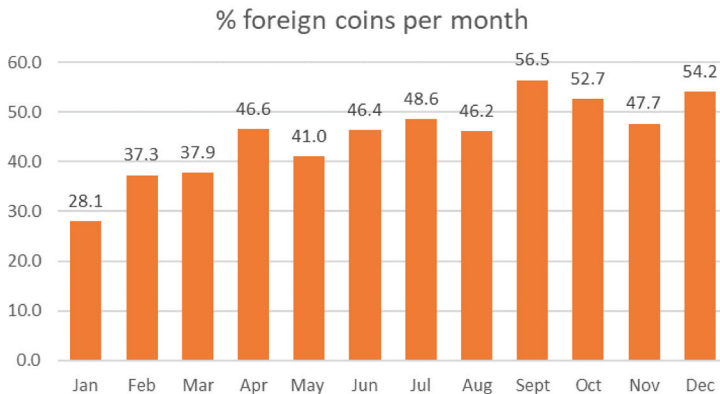
¹ Odluka o objavi uvođenja eura kao službene valute u Republici Hrvatskoj, Narodne novine NN 85/2022, 22.7.2022.

² *Damir Bolta*, Hrvatske eurokovanice, Numizmatičke Vijesti 2022, 75, 192-201.

³ *Markus Altmann, Nikolaus Bartzsch*, The Volume of Euro Coins held for Transaction Purposes in Germany, No. 14-06e August 2014

(2002-2011), with 22,500 people and almost 300000 coins being analyzed.⁴ In collected numismatic material, fake coins⁵ or coins from other countries which are very similar to euros and thus could be easily mistaken⁶ were not found.

Euro coins migrate between euro area countries which is evidenced by the analysis of coins in Croatia for 2023. The shares of foreign coins per month (*Graph 1*) show the steady increase in the proportion of foreign euro coins in general circulation and being roughly 50% after one year. Surprisingly, even in January, the month when the euro currency was introduced, there is already almost one third (28.1%) of foreign coins present. This fact could be explained by the fact that Croatian economy was already well integrated in euro zone and euro coins came from other countries by the travel activities of Croatian citizens to other European countries. This finding is in variance with the data on the initial introduction of euros in Germany in 2002, where German euros had a dominant share larger than 80% in first three years,⁷ or 66% of French euros in France after eleven years⁸. These differences could be explained by being the largest economies and the beginning of the monetary integration into Eurozone, after the simultaneous introduction of new euro coinage in 2002. On the other hand, smaller economy such as Austria had 74.2% of their own coinage in 2004 (after 2 years).



Graph 1. Shares of foreign coins per month

⁴ Marion Le Texier, Claude Grasland, France Guérin-Pace, Bénédicte Garnier, Monitoring the distribution of euro coins across borders (2002–2010): A dataset on the contents of 22,500 European citizens' wallet, Data in Brief 2021, 36, 107081.

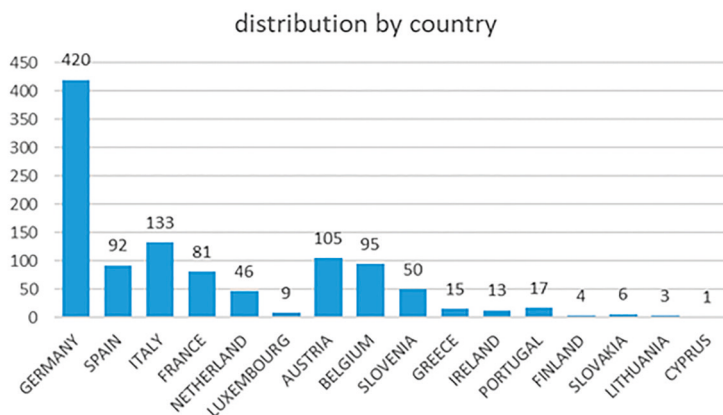
⁵ Bruno Serdar, HNB je dobio krivotvorene eure na analizu, najčešće se radi o tri kovanice - evo kako ih otkriti, 24sata, 2023, 7. siječanj.

⁶ Dubravka Jerković Berović, Budite oprezni: Ovo su svjetske kovanice koje su slične euru, a vrijednost im je znatno manja ili nikakva, DnevnikHR, 2023, 4. siječanj.

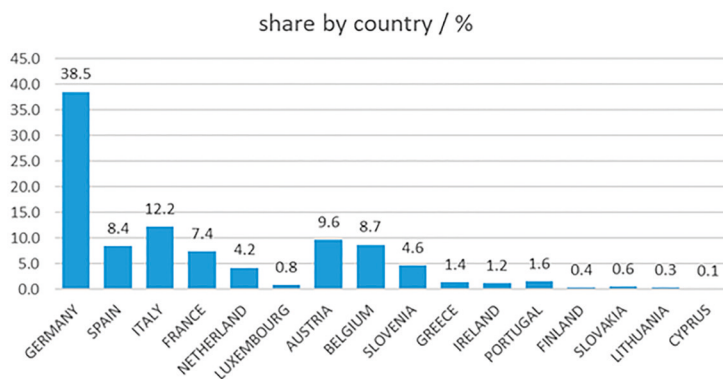
⁷ The mixing of euro coins in Germany, Deutsche Bundesbank Monthly Report December 2019, 73-83.

⁸ France Guérin-Pace, Marion Le Texier, The circulation of euro coins as markers of European mobility in France, Revue européenne des sciences sociales 2016, 54-1, 129-152.

The analysis by the distribution by the country of origin (*Graphs 2 and 3*), showed that the dominance of German coins is overwhelming, followed by important presence of Italy, Austria, Belgium and France. Some countries are not found yet in our wallet, such as Lithuania, Estonia, Andorra, Malta, San Marino, Vatican, and Monaco (although we have got Malta coinage from friends, which were found in their change).



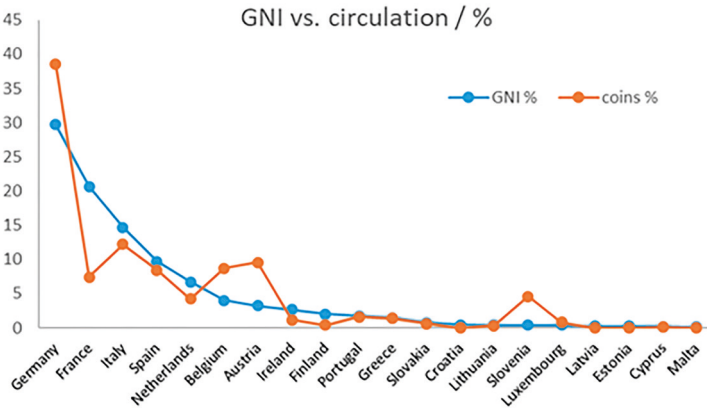
Graph 2. Distribution of foreign coins by country



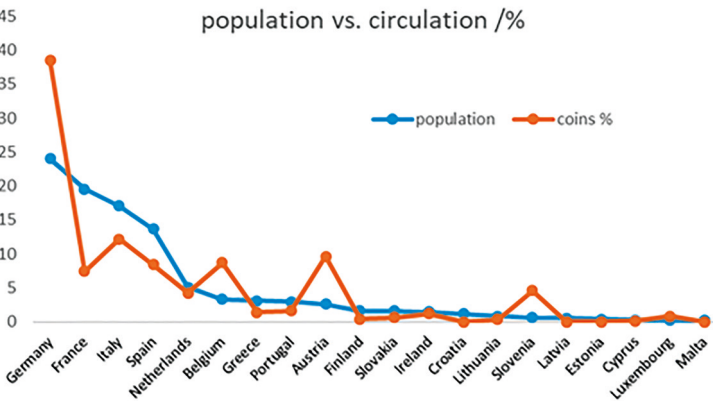
Graph 3. Distribution of foreign coins by country (percentage)

In order to discuss these findings, the distribution of foreign coins by country was correlated with GNI (% to the Eurozone) (*Graph 4*). This graph reveals that the countries with largest European economies are more abundant in the analyzed material. However, there are some deviations, such as France, which is the second largest Eurozone economy, but is not the second foreign coin found in Croatia. Instead, Belgium and Austria have larger proportion of coinage. Similar deviations could be found in the correlation of distribution of foreign coins by country with the size of population (% to the Eurozone) (*Graph 5*). These differences could be explained by the closeness of Austria and important trade and tourist exchange with it. Similar evidence of the importance of circulation

of the neighbouring country coinage was found for French coins in Belgium.⁹ The large presence of Belgium coins in Croatia is presumably associated with the intensive connections with Brussels, where the European institutions are located and Croatian representatives are actively commute. Another anomaly is the presence of Slovenian euros in circulation, which is the consequence of the neighbouring country with active trade and tourist exchange. The parallel could be drawn with the proportion of foreign coins in France in 2002-2012,¹⁰ with the raise of foreign coinage from 2002 (~5%) to 2011 (~34%) and evident larger presence of neighbouring countries.



Graph 4. Distribution of foreign coins by country correlated with GNI

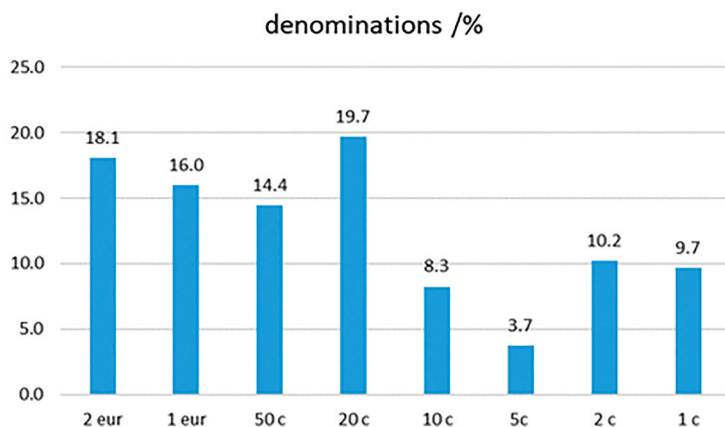


Graph 5. Distribution of foreign coins by country correlated with population

⁹ Sandrine Berroir, Claude Grasland, France Guérin-Pace, Grégory Hamez, La diffusion spatiale des pièces euro étrangères en Belgique et en France (Spatial diffusion of foreign euro coins in Belgium and France), *Belgeo Revue belge de géographie* 2005, 4, 1-15.

¹⁰ Claude Grasland, France Guérin-Pace, Marion Le Texier, Bénédicte Garnier, Diffusion of foreign euro coins in France, 2002-2012, *Population et sociétés* 2012, 488 (4), 1-4. hal-01651881

Finally, the distribution of various denomination of foreign coins was analyzed. After one year, larger denominations, from 20 cents to 2 euros dominate, whereas smaller denominations are less common (*Graph 6*). This overall dominance of distribution of larger denominations is in good accord to data presented for Austria (period 2002-2005).¹¹ There the proportion of foreign coins in Austria grows over the time from March 2002 to January 2004 in citizen's wallets as well as in bank lodgements from March 2002 to April 2005. Also, our analysis is in line with the conclusions for Germany in 2002 stating that mobility of small and large denominations is different.¹²



Graph 6. Distribution of foreign coins by denomination

What the distribution of foreign euro coinage will be in the next five years is difficult to predict, but we presume that the share of Croatian coins in the general circulation will further diminish.

¹¹ *Doris Schneeberger, Gabriele Süß*, Austria's Experience with Euro Migration since the Cash Changeover, Monetary Policy & the Economy, Oesterreichische Nationalbank 2007, 1, 128-137.

¹² *Dietrich Stoyan, Helga Stoyan, Gunter Döge*, Statistical Analyses and Modelling of the Mixing Process of Euro Coins in Germany and Europe. Austral. & NZeal. J. Stat. 2004, 46(1), 67-77.