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## The circulation of euros as a reflection of people's mobility

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The dissemination of the European currency affords an opportunity to observe the movements and contacts that are evolving among the different regions in Europe. The national-faced euros, that were first circulated early this year, have been disseminated since then by individuals in the course of their travelling, whether for business, tourism or other purposes. A series of surveys yielded a picture of the extent to which foreign euros were used in France at three points of the year—in March, June and September 2002 (1). The following question was put to each of the 1,000 or 2,000 people interviewed in each survey: "We are now going to talk about the euro and particularly about the circulation of coins in the euro zone. I would like us to see together if you have any euro coins, whether French or foreign, in your purse". Approximately three-quarters of the respondents agreed to open their purse and see with the interviewer where the euros in it (an average of 14 coins) came from (2).

### ◆ Twice as many foreign coins around from March to September

The proportion of coins issued abroad almost doubled in France between March and September 2002, rising from 5% to 9% (table 1). Curiously, the proportion varies depending on the value of the coins: in September, only 3% of the 1 cent coins were struck abroad, as against 14% of the € 2 coins. The coins do not circulate at the same rhythm depending on their value, and more of those with a higher value come from abroad into France (figure 1) (3).

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Now considering, not the proportion of foreign coins, but the proportion of individuals in whose purse at least one foreign coin was found, it turns out that 1 French national out of 5 had at least one foreign coin in March, as against 1 out of 3 in June, and 1 out of 2 in September.

### ◆ The West is lagging behind

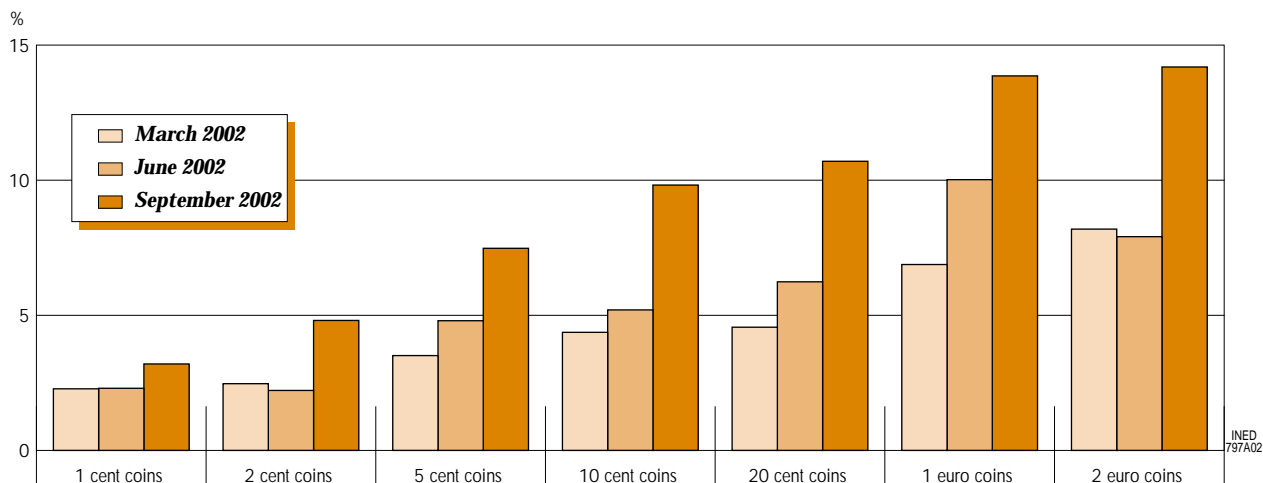
In March, foreign coins were already to be found in the purses of some half of residents in the *départements* near the German border, and in over one third of the purses of the residents in the north-eastern regions of France (figure 2). In contrast, there seemed to be much less such activity on the Spanish and Italian borders, probably due to low flows of tourists at that period of the year, but also to Italians belatedly using euros—in

Tableau 1 - The progress of foreign euros in France in 2002

	March	June	September
Number of people interviewed	1,003	2,015	2,057
Number of purses opened	717	1,482	1,430
Number of coins found	10,369	21,395	20,905
Proportion of foreign coins (%) *	4.7	6.0	9.2
Proportion of purses with at least one foreign coin in them (%) *	20.0	33.6	48.0

\* The Spanish 50 cent coin was excluded from the analysis, because 100 million coins were ordered by France from Spain and circulated in France early in 2002; consequently they are not considered "foreign" coins in this survey. As a result, the presence of Spanish coins is slightly underestimated here.

Figure 1 - The presence of foreign coins by their value (%)



Note: 50 cent coins are not represented here (see note to table 1).

Italy, more people than anywhere else waited until the 28 February deadline before they gave up their currency, whereas in Germany the euro had been enforced as early as 1 January. However, the situation changed fast, and by June, foreign coins were very much in use in the French regions bordering on Spain, due probably not so much to tourism, which is still low at that period, as to international road transport between the Iberian Peninsula and the rest of Europe. The large-scale summer migration of tourists resulted in foreign coins changing hands fast, as testified by the September chart.

A foreign coin may cross the border into France by various means: it may be brought in by a visiting foreigner, by a French national who paid a visit abroad, or again by foreigners travelling through French territory on their way to some other country. You can even imagine some more complex cases—for example, a French resident on a visit in Belgium may get a Finnish coin previously brought in by a German national, etc. Following this initial stage of international mobility come internal movements within each country; the coins may be circulated here and there within the national territory, or even travel beyond the borders again.

### ◆ The top three: Spain, Germany and Belgium

In March 2002, those foreign coins that were already to be found in over 5% of French purses came from Germany (7%), Spain (6%) and Belgium (6%) (figure 3). Next came coins from the Netherlands, Italy, Luxembourg and Portugal, that were to be found in 1.5% to 2.5% of purses; then far behind came coins from Ireland, Greece, Austria and Finland, that were to be found in under 1% of purses (4).

The June 2002 results show some changes about the ranking of the different countries. Though the top three remain the same, Spain (13%) is now definitely ahead of Germany (10%) and Belgium (9%). Italian coins, however few in March, now reach a 6% rate and rank fourth, ahead of the Netherlands (3%). Next come Portugal and Luxembourg (with coins from these countries to be found in 1.5% of purses), whereas Ireland, Greece, Austria and Finland still lag behind, never reaching the 1% threshold.

How did the large-scale summer migratory moves affect the position of countries? The survey made in September 2002 shows that the presence of foreign coins in France has progressed on the whole, though to widely different extents from one issuing country to another (figure 3). Whereas Spanish coins made extremely fast progress, with over 20% of them to be found in French purses, German coins were disseminated more slowly (13%), with less of them now in circulation than Belgian ones (14%). Coins from

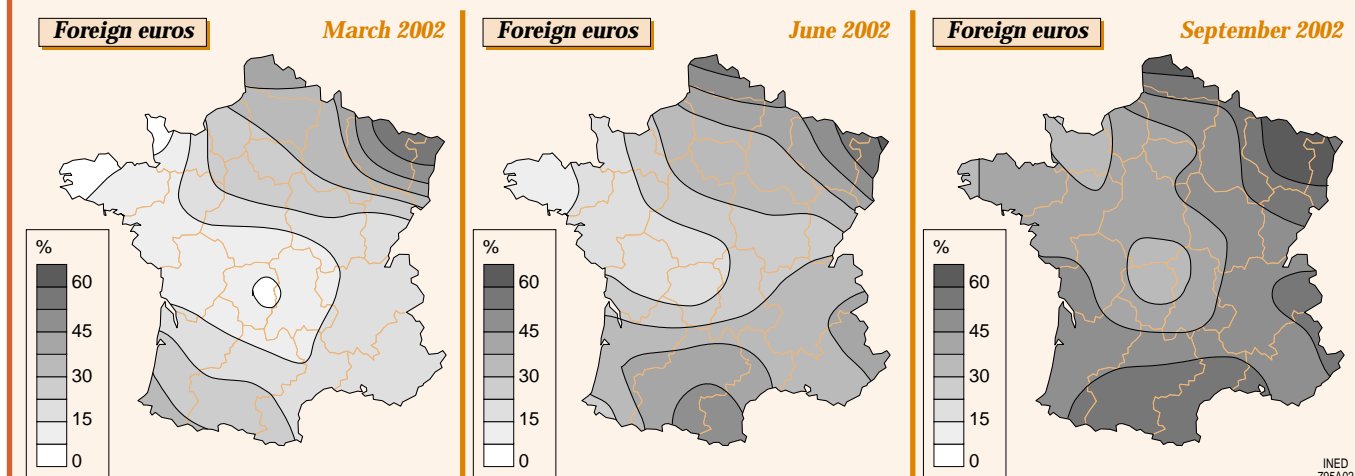
(1) These surveys were made as part of the ESDO (Euro Spatial Diffusion Observatory) programme co-funded by INED and CNRS (UMS RIATE & UMR Géographie-cités). The samples of respondents are representative of the French population at each of the dates (at-home "Omnibus" type surveys taken by the Lavalley survey institute).

(2) Half of the 25% of people who declined to open their purse said they had no coins in them, the other half refused to answer the question. However, the non-respondents are distributed randomly over the territory and so do not bias the cartography of results.

(3) This partly accounts for the fact that two other studies made on the international diffusion of the euro, one in Germany (Europmobil. <http://www.mathe.tu-freiberg.de/math/inst/stoch/Stoyan/euro/>) and the other in Belgium and the Netherlands (Eurodiffusie. <http://www.wiskgenoot.nl/eurodiffusie/fransindex.html>) came to different results from those of the French survey, because they did not take this fact into account.

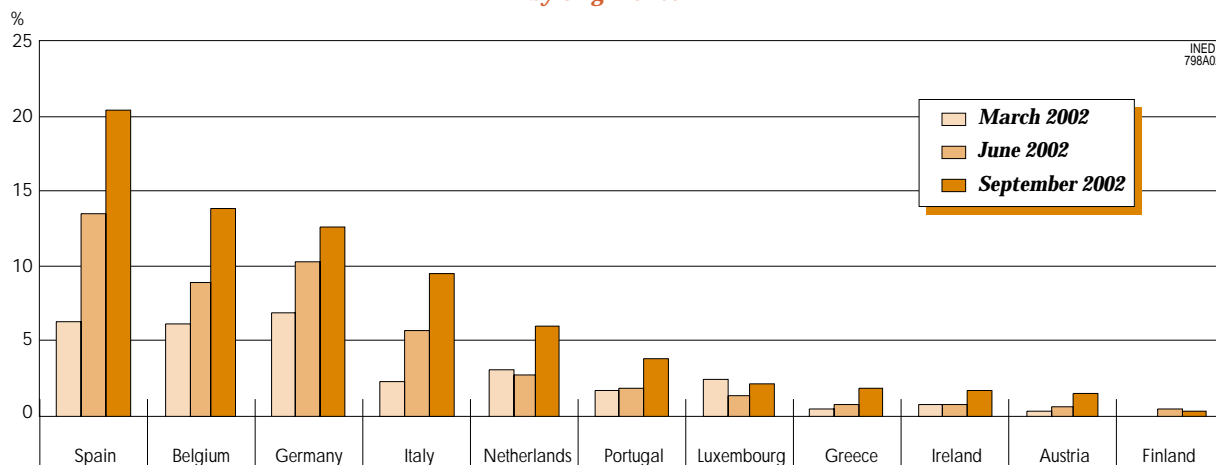
(4) In each of the surveys, two or three coin "collectors" were found, with coins from 10 to 12 different countries in their purses; they were not taken into account in the analyses.

Figure 2 - The spatial dissemination of foreign euro coins in France in 2002 (proportion of people with at least one foreign euro coin in their purse)



Note: The method used for the mapping is described in the box.

Figure 3 - Probability of finding a foreign euro coin in French people's purses in 2002, by origin of coin



Greece, Luxembourg, Ireland and even Austria are now in over 1% of purses, and only coins from Finland are still very few.

Foreign euros spread all over the French territory during the summer of 2002, starting from the initial spreading zones along the borders (figure 4). The influence of foreign tourists' visits to France can be traced through the progress of German coins on the Atlantic coast, and of Belgian and Dutch coins in the South-West. On the other hand, the strong presence of Spanish or Italian coins in the Ile-de-France region can be accounted for through French people returning from visits abroad. Apart from tourism, family connections and networks of people of foreign (Italian, Spanish, Portuguese) origin also contribute to increasing the circulation of euros between those countries and France.

◆ **In border areas the circulation of euros is stronger among the working classes**

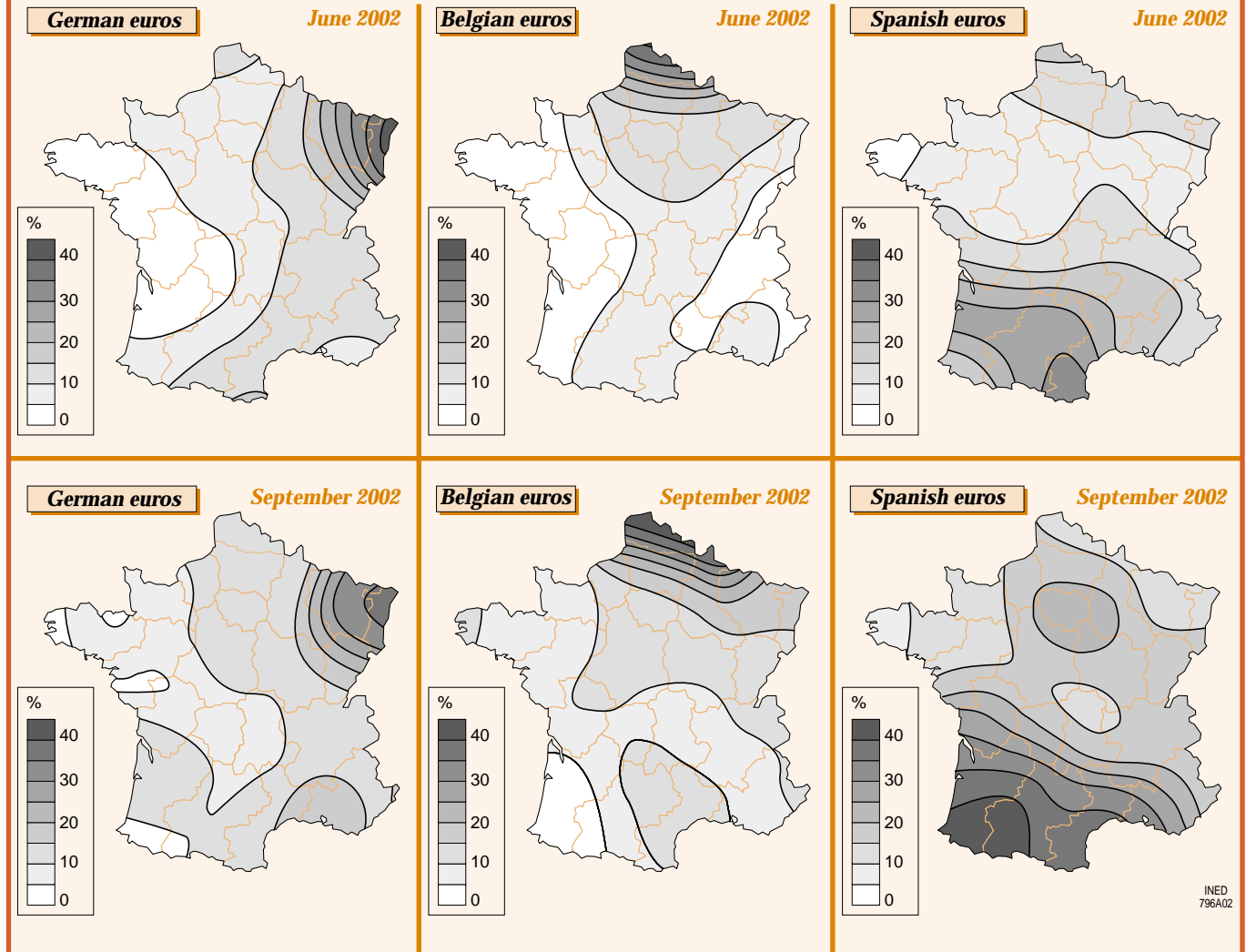
The fact that there is a border with another euro zone country nearby has played a crucial role in the propagation of foreign coins, at least in the initial phase of the dissemination process. In June, the proportion of people with at least one foreign coin in their purse was twice as high in the border *départements* (56%) as in the others (30%). The gap is still to be observed in September, though it tends to be closing (59% and 46% respectively).

The contrast between border and non-border *départements* also highlights significant social differences. In June, those people living in the border areas with no academic qualifications had foreign euros much more often than people with such

qualifications (63% and 45% respectively), whereas in the non-border regions, the situation is the reverse (27% and 36% respectively). The circulation of euros is strong evidence that in those regions far from the national borders, contacts with foreign countries,

whether directly or indirectly via networks, are more the mark of the social elite, whereas in the border regions, such contacts involve the whole of the population, especially the more working-class categories.

**Figure 4 - The effect of summer migration on the spatial dissemination of German, Belgian and Spanish euros (proportion of people with at least one euro from the country under study in their purse)**



#### Mapping the dissemination of coins

The maps showing the presence of foreign coins at each of the dates were drawn using a method adapted to the characteristics of the survey. Individuals are located by *département*, but considering the size of the sample and the intrinsically continuous nature of the dissemination, administrative cartography was inadequate. The method employed here is based on Gaussian smoothing and uses moving neighbourhoods. It makes it possible to measure, in any point of space, the importance of the dissemination of the coins within a range of about 100 kilometres. The calculations are weighted by a Gaussian function with a value of 0.5 for a distance of 100 km. In concrete terms this means that a number of purses inspected in a given place will contribute 100% to the measurement at that same place, only 50% at a place 100 km distant, and under 5% at a place 200 km distant.

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