

Access to cash in Germany: analyses of the spatial availability of cash withdrawal facilities

In the December 2022 issue of the Monthly Report, the Bundesbank's experts demonstrated that the overwhelming majority of citizens consider the effort involved in getting to an ATM or to a bank counter to be low or very low. The average time required per withdrawal is approximately nine minutes. These results are based on the responses to a representative public survey. This article will use location data to analyse the spatial availability of cash withdrawal facilities in order to obtain a broader picture of access to cash in Germany.

Cash is in demand in Germany as a means of payment and store of value; only if cash is available can citizens decide freely how they wish to pay and save. Cash is likewise important to ensure financial inclusion for all in our society, and it may constitute the only means of payment available at short notice in emergency and crisis situations. The Bundesbank, together with the other Eurosystem central banks, is therefore committed to ensuring that euro banknotes and coins remain available as a means of payment and store of value at all times going forward.

Consumers stock up on cash at automated teller machines (ATMs) and bank counters, in particular. At the same time, a steady dismantling of these traditional sources of cash has been observed in recent years. While the number of ATMs in Germany stood at around 59,000 in 2018, this figure had shrunk to just over 55,000 ATMs by 2021. In the same period, the number of bank branches fell from just under 30,000 to roughly 23,000; compared with 2006, the number even halved. At the same time, however, options to withdraw cash at the point of sale have gained in importance in recent years.

What can be said about access to cash in Germany in the light of these diverging developments? Analyses of the geographical distribution and availability of cash withdrawal facilities in municipalities show that 79.8 million citizens, or 96% of Germany's population, can withdraw cash at a bank branch or an ATM located in their own municipality. At the same time, however, the residents of a number of municipalities have to leave their municipalities to reach the nearest source of cash withdrawals.

In general, citizens have to cover an average of 1.7 km to withdraw cash at the nearest ATM or bank counter. 76.3 million consumers, around 92% of the population, have the option of withdrawing cash at a point of sale within their municipality. The average distance to the nearest point of sale is 2.9 km. In most cases, therefore, bank-based sources of cash are geographically more attractive for withdrawals.

These results suggest that the population of Germany is currently well supplied with cash thanks to a dense network of cash withdrawal facilities. However, the cash infrastructure will remain intact only if credit institutions in Germany continue to meet their responsibilities for the cash supply going forward.

Importance of cash and withdrawal sources

Cash widely used in Germany as a means of payment and store of value

Cash is widely used in Germany as a means of payment and store of value. According to the results of the Bundesbank's recently published payment behaviour study, respondents carry an average of €100 in cash in their wallets and use cash to settle 58% of their day-to-day payments.¹ Measured by turnover, 30% of all payments are settled in cash. This makes cash the most commonly used means of payment in Germany. Even respondents who said that they prefer to use cashless payment options to pay for their day-to-day expenditure carry an average of €77 in cash around with them.² Only 4% of citizens do not carry any cash. Those surveyed even hold significantly higher amounts of cash as a reserve at home.³

Cash withdrawals mainly at ATMs and bank counters

Most cash is still obtained at ATMs⁴ and bank counters. These traditional points of access to cash are used for 92% of all withdrawals, by value, of which 81% alone are made at ATMs (see the chart below). With a share of 11% of withdrawals in value terms, bank counters are the second most important source of cash. The cash infrastructure operated by credit institutions thus plays a key role in the supply of cash to the German population. Credit institutions hold cash in order to supply their customers.

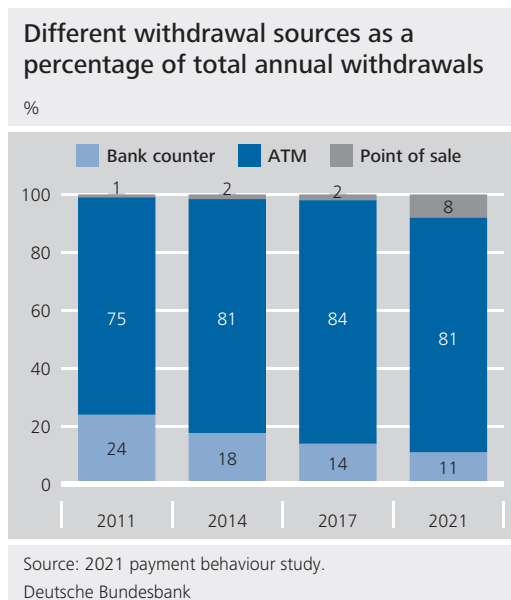
However, monetary policy developments have resulted in additional one-off effects on credit institutions' cash holdings, which are explained in greater detail in the box on pp. 96 f.

For some years, however, we have been seeing a decline in bank-based cash infrastructure. It is particularly striking how the branch network has been thinned out (see the chart on p. 95). The number of bank branches has declined by almost 19,000 since 2007, from around 42,000 bank branches back then to in the region of 23,000 in 2021. By contrast, the number of ATMs remained virtually constant for a long time and has declined slightly since 2018. Since then, operators have taken around 3,500 ATMs out of service. This development raises questions about access to cash in Germany: what is the current situation regarding the availability of cash withdrawal facilities? And what risks could arise for the cash supply in the future if credit institutions significantly pare back their cash withdrawal services?

Decline in bank-based cash infrastructure

In addition to traditional sources of cash, citizens can also obtain cash at selected points of sale.⁵ Consumers are increasingly taking up this option (see the adjacent chart). Whilst only 2% of all cash withdrawals in value terms were made at a point of sale in 2017, this share stood at 8% in 2021.⁶ Against this backdrop, the question is to what extent these alternative

Point of sale as an alternative to ATMs and bank counters?



1 See Deutsche Bundesbank (2022a).
 2 Carrying a cash reserve proved useful for many consumers in connection with the spate of disruptions to card payments experienced in the retail sector in the second half of May 2022; see Deutsche Bundesbank (2022b).
 3 See Deutsche Bundesbank (2022c) and Eschelbach and Schneider (2020).
 4 ATMs are either pure cash dispensers or customer-operated cash recycling machines, which allow both cash withdrawals and cash deposits.
 5 Cash transactions at the point of sale can be carried out via cashback and/or cash-in-shop procedures. In a cashback transaction, cash is withdrawn during the process of paying at the cash register. Cash-in-shop services allow customers to both withdraw and deposit cash. This does not require a purchase as the transaction formally constitutes an activity outsourced by the withdrawing party's credit institution.
 6 For further analyses of withdrawal behaviour, see Deutsche Bundesbank (2022a).

sources of cash can, in the future, complement traditional banking industry services.

In the light of the developments outlined above, this article looks at the spatial availability of withdrawal facilities in Germany. What does a possible decline in bank-based infrastructure mean in terms of access to cash? And what role can alternative point-of-sale cash withdrawal options play in the future?

Dataset for the analyses

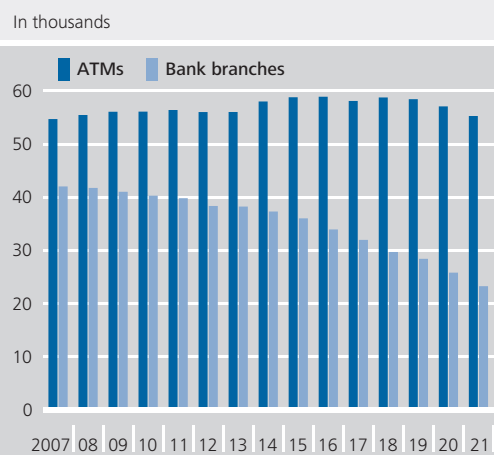
Geographical data are predominantly supplied directly by credit institutions and other cash handlers

The analyses use geographical data on the locations of ATMs, bank branches and points of sale offering cash services. Credit institutions and other cash handlers directly supplied the majority of the geographical data for the reference year 2021. If only the postal address was available for a point of access to cash, geocoding was used to translate it into coordinates.⁷ Further geographical data for bank branches and ATMs as well as for points of sale allowing cash withdrawals were obtained from OpenStreetMap⁸ and from the Federal Agency for Cartography and Geodesy. The data on municipalities' population size and surface area and other geodata were likewise supplied by the Federal Agency for Cartography and Geodesy.⁹

Analyses focus on cash withdrawal facilities

For the purposes of the following analyses, the various cash withdrawal options supplied by one provider at the same site (for example, several ATMs at one location or bank counters within a branch) are treated as one cash withdrawal point. A supermarket with several cash registers and thus withdrawal options is also treated as a single cash source. The analyses do not, therefore, provide any information on the number of ATMs, bank counters or cash registers allowing cash withdrawals that are available at a cash access point. Instead, the following analyses focus on the spatial availability of cash withdrawal facilities.

Number of ATMs and bank branches in Germany



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Cash withdrawal facilities within municipalities

In 2021, citizens were able to withdraw cash at a total of 77,669 different facilities throughout Germany. 49,874 cash withdrawal facilities were traditional sources of cash such as bank branches and ATMs. Alternative cash withdrawal options at the point of sale constituted around 36% of all cash withdrawal facilities, or 27,795 in total. In purely arithmetical terms, individuals thus had at their disposal around nine cash withdrawal facilities per 10,000 inhabit-

Total of 77,669 cash withdrawal facilities in Germany

⁷ Put simply, geocoding involves converting postal addresses into coordinates (latitude and longitude). The geocoded location data are then checked for plausibility and accuracy on a random basis and, if necessary, corrected. Although location data are checked carefully, geographic inaccuracies cannot be ruled out entirely.

⁸ OpenStreetMap is a non-commercial, community-operated online platform for geographical data, see <https://www.openstreetmap.org/>; last accessed on 8 December 2022. The data are made available under the Open Database License (see <https://www.openstreetmap.org/copyright>, last accessed on 8 December 2022).

⁹ Data on ATMs are contained in the Points of Interest Bund (POI-Bund) dataset (see <https://gdz.bkg.bund.de/index.php/default/points-of-interest-bund-poi-bund.html>). Information on surface area, population size, coordinates of the centre of the municipality and other geodata are taken from the data package "VG250-31.12." (see <https://gdz.bkg.bund.de/index.php/default/verwaltungsgebiete-1-250-000-mit-einwohnerzahlen-stand-31-12-vg250-ew-31-12.html>).

Developments in the cash holdings of monetary financial institutions in Germany

Credit institutions hold cash primarily so that they can supply their customers with banknotes and coins. Individuals withdraw this money at cash dispensers (ATMs) or bank counters for consumption purposes or to store as a cash reserve. The retail trade, meanwhile, mainly needs coins and low-value banknote denominations that can be used as change. At the end of the chain, it is the job of credit institutions to cover this demand. This makes them an important part of the German cash cycle.¹

Holding cash entails costs for credit institutions, meaning they generally strive to keep their holdings to a minimum for economic reasons. The associated costs include direct costs arising, for example, from transport and storage as well as the insurance of cash against involuntary loss. In addition, holding cash gives rise to opportunity costs, since the physically tied-up capital cannot be invested in other, possibly more profitable, forms of investment. From a liquidity perspective, too, cash holdings tend to be a less attractive option for credit institutions than keeping deposits on an account with a central bank.

However, the period from 2016 onwards saw notable one-off developments in the statistically recorded cash holdings of monetary financial institutions (MFIs) in Germany, around the time the Eurosystem began pursuing an exceedingly low interest rate policy.² Seasonal fluctuations aside, cash holdings were largely within a range of €13 billion to €16 billion at the end of 2015 (see the chart entitled “Cash holdings of monetary financial institutions in Germany” on p. 97).³ It can be assumed that these

amounts were what credit institutions held to satisfy regular customer demand.

Cash holdings rose significantly, albeit irregularly from the start of 2016. At the end of 2016, they were already significantly higher than they had been at the same point in the previous year, amounting to €26.0 billion. By the end of 2019, cash holdings had risen to a total of €43.4 billion and, in March 2020, reached €48.1 billion, going on to hold broadly steady around that level over the next two years.⁴ At the end of June 2022, cash holdings hit their highest level so far – €51.8 billion – before falling significantly in the following months. While the total amount of cash held by MFIs in Germany had already dropped down to €42.3 billion at the end of July, it declined by €18.7 billion in August, by €2.9 billion in September and by €0.7 billion in the following month. At €20.0 billion, cash holdings at the end of October 2022 were thus much closer to the level recorded in 2015.

¹ For a description of the German cash cycle, see Deutsche Bundesbank (2011).

² Besides credit institutions, monetary financial institutions also include money market funds, which generally do not hold cash. In addition to euro cash, cash holdings also cover cash in other currencies as well as postage stamps and court fee stamps. Given that the total value of these is negligible, they are not taken into account separately. For a look at developments in credit institutions’ cash holdings, see Deutsche Bundesbank (2018).

³ Seasonal fluctuations include, in particular, a regularly occurring increase at the end of the year, stemming from consumers’ cash spending in connection with Christmas trading.

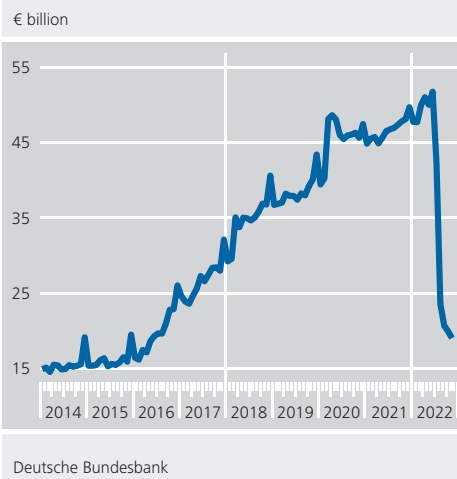
⁴ In March 2020, cash holdings of MFIs saw a net increase of €7.9 billion. This growth in cash holdings is likely to have been driven in part by precautionary motives related to the coronavirus pandemic.

Looking at the figures for banknote lodgements at the Bundesbank in 2022 (see the lower chart on this page), it can be seen that they started going up significantly in July, from calendar week 28 onwards. This increase is almost entirely attributable to substantial lodgements of €500 and €200 banknotes. In terms of value, the amounts being paid in remained at a discernibly elevated level until the end of August (calendar week 34/35), before moving towards the previous year's level over the following period. Even so, up to the end of October (calendar week 43), lodgements remained slightly higher than the corresponding figures for the previous year. One aspect worthy of note is the exceptionally high share of first series €200 banknotes at times; these accounted for more than half of the lodgements of €200 banknotes in some calendar weeks.

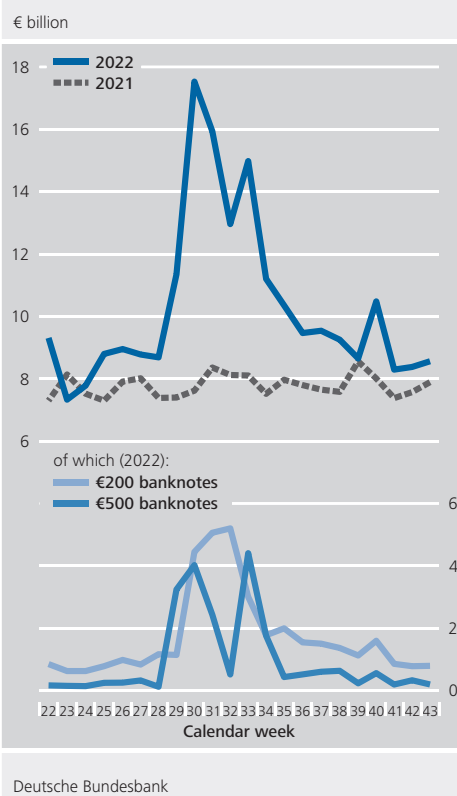
Overall, the observations suggest that the evolution of MFIs' cash holdings in Germany since 2016 has been heavily influenced by one-off monetary policy effects. The sharp rise in the cash holdings recorded in the statistics is likely to be the result of credit institutions shifting some liquid funds away from the negatively remunerated deposit facility into banknotes as a way of avoiding negative interest rates.⁵ As interest rates started to turn around, the additional holdings then quickly flowed back to the Bundesbank.

Now that the European Central Bank's interest rate on the deposit facility is back in positive territory, the economic motives for keeping additional cash holdings to avoid negative interest rates no longer apply; this means that the phenomenon of the strong expansion in cash holdings on the part of credit institutions has probably come to an end. Instead, it is to be expected that the demand for cash stemming from credit in-

Cash holdings of monetary financial institutions in Germany



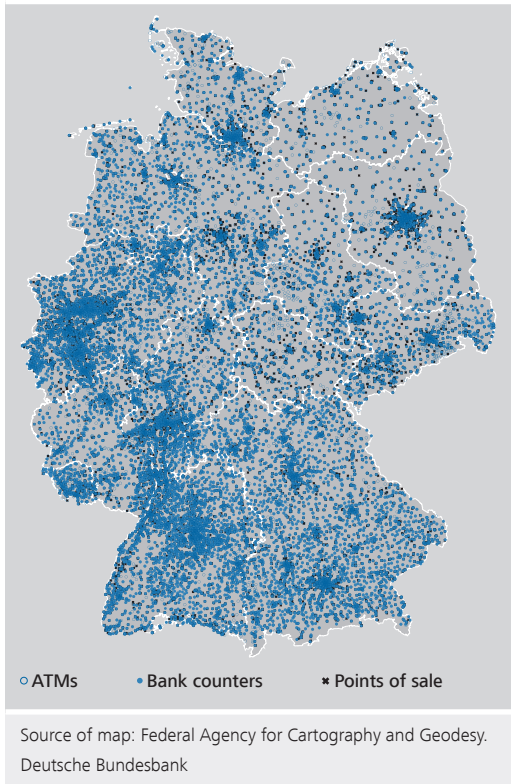
Banknote lodgements at the Bundesbank



stitutions' customer base will resume its position as a key factor determining the maintenance of cash holdings by MFIs.

⁵ See Deutsche Bundesbank (2022d).

Geographic distribution of cash withdrawal facilities



ants: six traditional and roughly three alternative options.

The chart above provides an overview of the geographical distribution of traditional and alternative cash withdrawal facilities in Germany. A striking feature is that traditional and alternative withdrawal facilities tend to be located together (see also the chart on p. 100). For example, most locations host both traditional (ATM: dark blue circle, bank counter: light blue dot) and alternative (black cross) cash withdrawal facilities. In addition, there are regions with a cluster of cash withdrawal facilities, while the network of cash points is sparser in other regions. There is a dense network of cash withdrawal facilities particularly in the west and south of Germany and in conurbations, while fewer cash withdrawal facilities are available in the east of Germany.

Looking at the availability of traditional and alternative cash withdrawal facilities at the muni-

cipal level, the 11,007 German municipalities¹⁰ can be divided into four groups based on the quality of the provision of cash withdrawal facilities: first, municipalities in which there is at least one traditional and at least one alternative cash withdrawal facility; second, municipalities with only traditional withdrawal facilities; third, municipalities with only alternative cash withdrawal facilities; and, fourth, municipalities with neither option for accessing cash. As can be seen in the table and in the chart on p. 99, 4,686 municipalities in Germany have no cash withdrawal facilities. These municipalities are home to around 3.1 million people, or 3.7% of the total population.¹¹

3.1 million citizens without access to cash within their municipality

However, most citizens have at their disposal a point of access to cash in their home municipality. 96% of Germany's total population, namely 79.8 million citizens, have traditional cash withdrawal facilities within their municipality. Around 76.3 million citizens, or 91.8% of the total population, do not need to leave their municipality to make a point-of-sale cash withdrawal. These results suggest that access to cash in Germany is currently good despite a number of municipalities having no cash withdrawal facilities.

96% of the total population of Germany has access to traditional cash withdrawal facilities within their municipality

A total of 76.1 million citizens, or 91.5% of Germany's population, and thus by far the largest group of the population, live in municipalities with at least one traditional as well as one alternative cash withdrawal facility. Among the municipalities with just one source of cash, municipalities with at least one traditional cash withdrawal facility predominate. This constellation applies to 1,779 municipalities, which are home to 3.7 million people. The municipalities in question are primarily located in the south of Germany. Only a small proportion of the total population, namely 0.3%, lives in municipalities in which there is the option of withdrawing cash at a point of sale, but not at a bank coun-

Point of sale rarely a municipality's only cash withdrawal facility

¹⁰ The number of municipalities refers to the cut-off date of 31 December 2021.

¹¹ Of the 4,686 municipalities, 208 are uninhabited.

Cash withdrawal facilities in municipalities

Number of municipalities (upper line) with such facilities and their total population (lower line)

Facilities		Point of sale					
		Available		Not available		Total	
		Number	%	Number	%	Number	%
Traditional source of cash	Available	4,418	40.1	1,779	16.2	6,197	56.3
		76,109,916	91.5	3,713,646	4.5	79,823,562	96.0
	Not available	124	1.1	4,686	42.6	4,810	43.7
		234,719	0.3	3,108,430	3.7	3,343,149	4.0
	Total	4,542	41.2	6,465	58.7	11,007	100.0
		76,344,635	91.8	6,822,076	8.2	83,166,711	100.0

1 Sample includes 208 uninhabited municipalities. **2** Rounding error. **3** Data as at 31 December 2021.

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ter or an ATM. With just a few exceptions, these municipalities are located in the eastern federal states. Taken together, the point of sale therefore generally complements the banking industry's existing cash services and is only very rarely the sole source of cash within a municipality.

ters either, especially given the prominent position occupied by the bank-based cash infrastructure in the cash cycle. For instance, the bulk of withdrawals effected at the point of sale – much like change – do not have to be checked for quality beforehand. As a result,

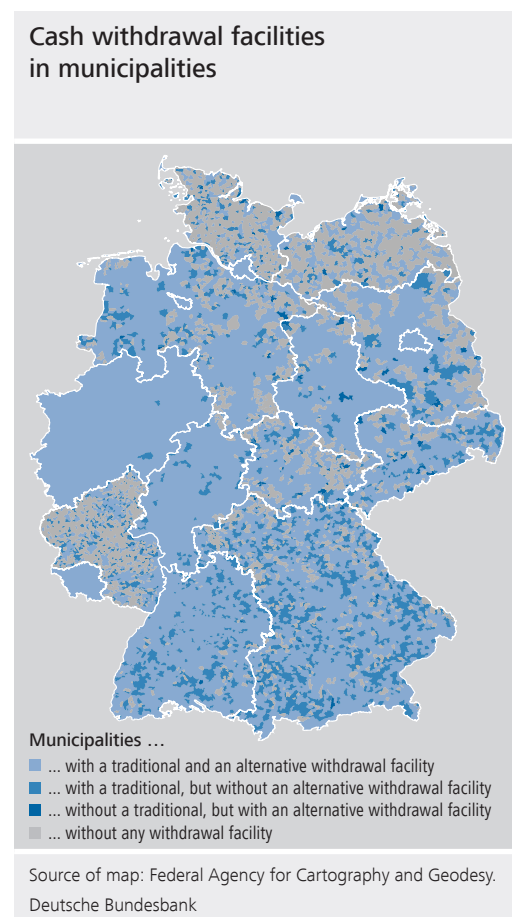
Number of cash withdrawal facilities increases with population size

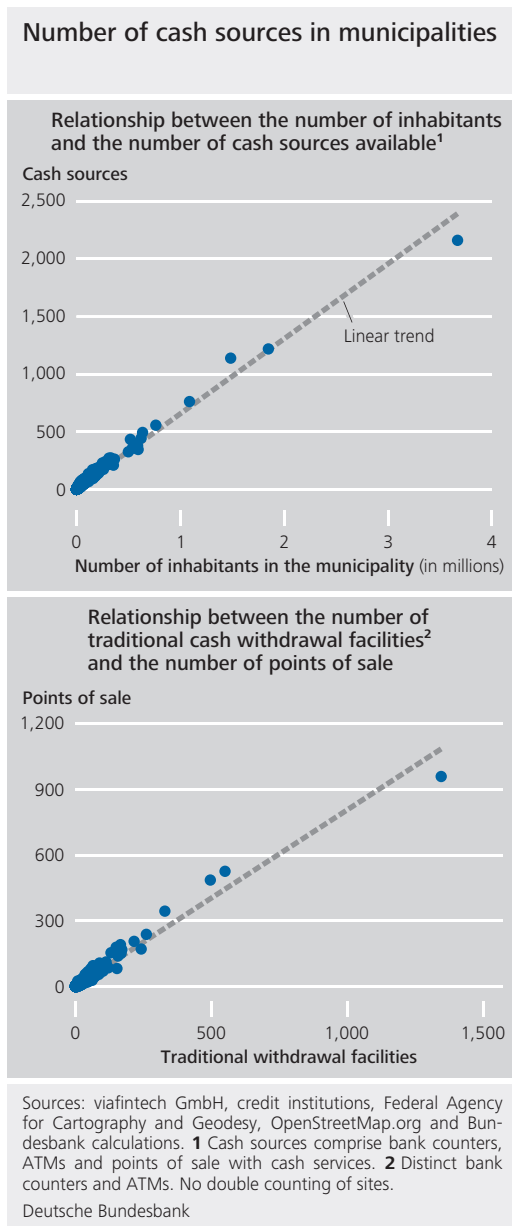
As shown in the chart on p. 100, the number of cash withdrawal facilities available within a municipality is positively correlated with its respective number of inhabitants. One logical explanation for this strong correlation is the higher demand for cash – and thus for points of access to cash – associated with a higher number of inhabitants. The characteristics of municipalities with and without cash withdrawal facilities are compared in the box on p. 101.

Alternative withdrawal facilities complement bank branches and ATMs

Furthermore, there is a positive correlation between the number of traditional and alternative cash withdrawal facilities within a municipality (see the chart on p. 100). This confirms the impression expressed above that alternative withdrawal sources complement the cash withdrawal infrastructure provided by credit institutions.

In that sense, points of sale do not represent any kind of substitute for ATMs and bank coun-





money that is no longer fit for circulation can continue to pass between consumers and retailers without being withdrawn from circulation. By contrast, credit institutions can and must make a proper check of the quality and authenticity of banknotes and coins. Their heavy involvement in the cash cycle therefore remains essential. The same applies to the central bank: it is able to carry out a particularly reliable authenticity check and it permanently removes banknotes that are no longer fit for circulation from the cycle by destroying them. At the same time, the central bank provides “fresh” cash that is brought into the cycle first and foremost via the banking industry – be it

through the provision of change to retailers or directly to consumers in the form of withdrawals.¹²

Distance to the nearest source of cash withdrawals

It seems most citizens live in municipalities with a good amount of available cash sources. However, the distance to the nearest source of cash withdrawals is also important, as this is likely to be closely related to the effort individuals perceive to be involved in withdrawing cash. For the following analysis, the distances between the centre of a municipality and the nearest source of cash withdrawals are therefore evaluated. The distance is the length of the straight line between the centre of an inhabited municipality and a source of cash withdrawals – in other words, the route “as the crow flies”.¹³ Although this means that the results presented below underestimate the actual effort involved in accessing cash, they nevertheless serve as a useful guide, especially when comparing various sub-groups.¹⁴

12 The average withdrawal amount at bank counters is €736 per use, while an average of €230 and €94, respectively, is obtained per withdrawal at ATMs and at the point of sale; see Deutsche Bundesbank (2022a). Cash withdrawals are generally subject to a withdrawal limit that is higher for withdrawals at traditional cash sources than at alternative points of access to cash. For a description of the cash cycle in Germany, see Beermann (2022) and Deutsche Bundesbank (2011).

13 Calculating distances “as the crow flies” is a commonly used approach in the literature on access to cash; see Restrepo (2021), Caddy and Zhang (2021), Tischer et al. (2020) and European Central Bank (2022). An alternative and more accurate – but much more complex – approach is to calculate the distance taking into account the transport network. See Stix (2020), Trütsch (2022) and Banque de France (2019). However, Stix (2020) and contributions from other fields of research show that calculating distances as the crow flies provides a very good approximation of the actual distance resulting from taking into account the transport network – see Boscoe et al. (2012).

14 First, calculating the distance as a straight line leads to the actual distance that has to be travelled to reach the source of cash withdrawals being underestimated. Second, it is implicitly assumed that the homes of all inhabitants of a municipality are concentrated in the centre of the municipality and are not distributed more broadly or located on the outskirts. This overestimates the actual spatial proximity of citizens to the sources of cash withdrawals.

Characteristics of municipalities with and without a cash withdrawal facility

The table below shows selected differences between municipalities with cash withdrawal facilities and those without. As expected, residents of municipalities without their own source of cash have to travel considerably longer distances to get to the nearest cash withdrawal facility. While residents of municipalities with a cash withdrawal facility have to travel roughly 0.2 km on average to the nearest cash withdrawal facility, those living in municipalities without a cash withdrawal facility must travel an average of 3.6 km to reach their nearest source of cash. A comparison of the distances to be travelled to the different cash withdrawal facilities shows that the residents of municipalities without a cash withdrawal facility have to travel an average of 4.2 km to the nearest bank counter and an average of 3.8 km to the nearest ATM. The nearest point-of-sale cash withdrawal point is an average of 4.6 km away. By contrast, the residents of municipalities with a cash withdrawal facility have to travel 0.7 km on average to reach their nearest bank counter and 0.3 km to the nearest ATM. The distance to the nearest point of sale offering cash services is 1.7 km, on average.¹

In addition, municipalities without a cash withdrawal facility have fewer inhabitants and are, at the same time, more sparsely populated. On average, the 6,321 municipalities with a cash withdrawal facility are each home to 12,665 people. By contrast, the 4,478 municipalities without a cash withdrawal facility have roughly 694 inhabitants, on average.

¹ These data are computed by first calculating the distance from the centre of the municipality to the nearest bank counter, ATM and point of sale for each municipality. The nearest cash withdrawal facility is defined as the one where this distance is shortest. Subsequently, means are formed for the two groups, namely municipalities with and those without cash withdrawal facilities. As the mean distance to the nearest cash withdrawal facility takes into account all the different types of withdrawal sources, it is necessarily shorter than the mean distance obtained by looking at the bank branches, ATMs and points of sale separately.

Municipalities with a cash withdrawal facility are therefore, on average, home to 18 times more residents than municipalities without a cash withdrawal facility. In average terms, municipalities with a cash withdrawal facility are roughly four times as densely populated as municipalities with no option for withdrawing cash and thus have a significantly larger surface area.

Characteristics of municipalities with and without a cash withdrawal facility*

Distance between the centre of the municipality and the cash withdrawal facility, in km (in brackets: standard deviation)		
Mean distance to the nearest ...	Municipalities with a cash withdrawal facility	Municipalities without a cash withdrawal facility
Cash withdrawal facility	0.2 (0.4)	3.6 (1.8)
Bank counter	0.7 (1.5)	4.2 (2.0)
ATM	0.3 (0.8)	3.8 (1.8)
Point of sale	1.7 (2.3)	4.6 (2.2)
Number of inhabitants (in brackets: population density per km ²)		
Mean	12,665.4 (269.0)	694.2 (75.3)
25th percentile ¹	2,250.5 (81.6)	291 (31.7)
50th percentile	4,533 (148.8)	551 (54.0)
75th percentile	10,069.3 (297.5)	915 (91.8)
95th percentile	36,171.8 (938.3)	1,726.4 (206.1)
Number of municipalities	6,321	² 4,478
Number of inhabitants	80,058,281	3,108,430

* Municipalities with or without at least one cash withdrawal facility of any type. The distance is the shortest route ("as the crow flies") between the centre of the municipality and the cash withdrawal facility. Figures are rounded. ¹ For example, looking at municipalities with a cash withdrawal facility, the 25th percentile figure means that 25% of these municipalities have no more than 2,250.5 inhabitants (81.6 inhabitants per km²). ² Uninhabited municipalities are excluded.

Distance to the nearest source of cash withdrawals

Cash source	Counter	ATM	Point of sale	Total
Average distance (in km)	2.1	1.8	2.9	1.6
Inhabitants (percentage of population) whose nearest source of cash withdrawals is within a radius of ...				
up to 1 km	77,534,014 (93.2)	78,786,632 (94.7)	73,996,562 (89.0)	79,303,341 (95.4)
1 to 5 km	4,407,965 (5.3)	3,613,459 (4.3)	6,936,090 (8.3)	3,284,914 (3.9)
5 to 10 km	1,162,638 (1.4)	744,974 (0.9)	2,124,756 (2.6)	566,113 (0.7)
10 to 15 km	60,946 (0.1)	21,646 (0.03)	105,371 (0.1)	12,343 (0.01)
more than 15 km	1,148 (0.001)	0 (0)	3,932 (0.005)	0 (0)

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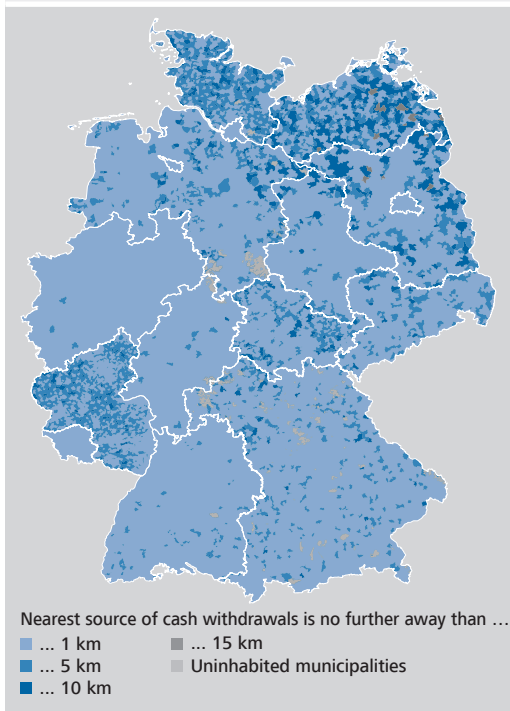
The nearest source of cash withdrawals is no further than 1 km away for 79.3 million citizens, ...

Citizens have to travel an average of 1.6 km to get to their nearest cash withdrawal facility. For 79.3 million citizens, their nearest source of cash withdrawals of any kind is no further than 1 km away from the centre of their municipality. This corresponds to 95.4% of the entire

population in Germany. 3.3 million citizens have to travel more than 1 km, but no further than 5 km to reach their nearest source of cash withdrawals. The nearest cash withdrawal source is located between 5 km and 10 km away for 0.6 million citizens. No municipality's nearest withdrawal facility is further than 15 km away from its centre – regardless of whether the municipality itself has a cash withdrawal source or not (see the table above).¹⁵

... and no citizen lives more than 15 km away from their nearest cash withdrawal point, ...

Maximum distance to the nearest source of cash withdrawals of any kind



Source of map: Federal Agency for Cartography and Geodesy, Deutsche Bundesbank

ATMs are usually the geographically closest withdrawal option for most inhabitants. Around 78.8 million citizens have to travel no further than 1 km to get to their nearest ATM. Bank counters are accessible within a 1 km radius for 77.5 million inhabitants. Roughly 74 million citizens have to travel no further than 1 km to be able to carry out cash transactions at their nearest point of sale. There are no cases where the nearest ATM is located more than 15 km from the centre of a municipality. By contrast, 1,148 citizens have to travel more

... which is primarily due to the availability of ATMs and bank branches

¹⁵ The nearest is not necessarily the best source of cash withdrawals for citizens; for instance, say the nearest traditional cash withdrawal source is operated by a credit institution belonging to a different group than the credit institution that the individual banks with. In this case, the saving in distance may not offset any additional costs that might be incurred as a result of using the cash withdrawal source. Or if the withdrawal facility in mind is not the nearest, but is located on a route they travel in their day-to-day lives anyway.

Availability of alternative options

ATMs and bank counters are by far the most important source of cash. If the nearest traditional cash withdrawal facility were to close, how much further would people have to travel to find a facility? In order to assess the availability and reachability of alternatives to traditional cash withdrawal facilities, the analysis below is limited to municipalities in which a bank counter or ATM is the nearest source of cash. This constellation applies to 8,087 municipalities that are home to a total of 64.3 million people, corresponding to a population share of 77.3%. It thus covers more than three-quarters of the total population of Germany. The additional distance to the second-nearest cash withdrawal facility is then calculated for these municipalities.

On average, people in these municipalities must travel an additional 0.8 km in order to withdraw cash at an alternative facility (see the table below).¹ As traditional and alternative cash withdrawal facilities can differ considerably in the range of services offered (e.g. opening hours, maximum withdrawal amounts, available denominations), it is appropriate to take a differentiated view and examine each type of alternative option. In order to reach alternative bank counters and ATMs, people must travel an additional 1 km on average. This corresponds to an extension of the distance to be travelled by 72.8%. On average, points of sale offering cash services are more than twice as far away; people have to cover an extra 1.6 km to compensate for the loss of a traditional

cash source by travelling to an appropriate point of sale.

These observations once again underline the central importance of bank-based infrastructure for the supply of cash in Germany. Moreover, the results suggest that, despite the current good supply situation in Germany, an erosion of the cash infrastructure represented by the closure of an increasing number of withdrawal facilities would likely significantly increase the time and effort involved in obtaining cash.

¹ This statement only refers to the additional distance to be travelled in order to reach the alternative facility. The time and effort may be greater if the nearest alternative facility charges for obtaining cash and the client therefore chooses to make a significantly longer journey to reach a withdrawal facility where cash can be withdrawn free of charge.

Nearest alternative to traditional cash withdrawal facility*

Average additional distance to the alternative location	Nearest alternative		
	Traditional	Point of sale	Total
km	1.0	1.6	0.8
%	72.8	120.8	56.5

* Only inhabited municipalities where the nearest source of cash is a traditional cash withdrawal facility are considered.

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than 15 km to be able to obtain cash at their nearest bank counter and 3,932 have further than 15 km to go to reach the closest point of sale offering cash services.

The fact that bank counters or ATMs are the nearest source of cash withdrawals for 64.3 million citizens – 77.3% of the total population – highlights the importance of the bank-based cash infrastructure for access to cash in Germany. Points of sale offering cash services, meanwhile, are the geographically closest cash withdrawal option for 18.9 million inhabitants. An average of 1.8 km has to be travelled to reach the nearest ATM. The nearest bank counter is 2.1 km away on average.¹⁶ Meanwhile, the average distance to the nearest point of sale is 2.9 km across all inhabited municipalities, as indicated in the table on p. 102.

Public surveys confirm good access to cash in Germany

Good access to cash in Germany is therefore guaranteed overall. This result is also confirmed by public surveys, which reveal citizens consider the existing infrastructure of points of access to cash to be good. Overall, 93% of respondents find it fairly easy or very easy to get to an ATM or bank counter. In most cases, they combine going to a bank-based cash source with going shopping (47%) or to work (17%). 15% of respondents make a separate trip to an ATM or bank counter from home. Respondents take an average of nine minutes to withdraw cash.¹⁷

Paring back of bank-based cash infrastructure harbours the risk of a self-reinforcing downward spiral ...

A dense network of cash withdrawal points helps to ensure that citizens can freely choose their preferred means of payment. It also makes the supply and removal of cash easier, contributing to an efficient cash cycle. However, the reduction of bank branches and ATMs over the past few years in particular has heightened fears that access to cash could deteriorate in future. Such developments pose the risk of a self-reinforcing downward spiral. Surveys conducted by the Bundesbank reveal that 13% of respondents would use less cash if their time spent travelling to a cash withdrawal facility were to increase by five minutes. If respond-

ents needed 15 minutes longer to reach a cash withdrawal facility, 20% of them would use cash less frequently as a means of payment.¹⁸ The decline in the use of cash in turn heightens the pressure on the existing bank-based cash infrastructure, meaning that a further stripping away of ATMs and bank counters could have a self-reinforcing effect. It is therefore important that credit institutions continue to operate an appropriate number of cash withdrawal facilities and thus continue to fulfil their responsibility to supply the population with cash. This will ensure that euro banknotes and coins also always remain available as a means of payment and store of value in future and can be obtained without requiring a greater amount of effort.¹⁹ The box on p. 103 looks at how closures of cash withdrawal facilities might affect the cash supply.

■ Summary

Cash has a special role in society. It is the most commonly used means of payment in Germany and is also in demand as a store of value. Cash protects privacy since, unlike with digital means of payment, no personal data are collected when transactions are conducted. It safeguards financial inclusion of all groups in society and might be the only means of payment that is available at short notice and viable for use in an emergency or crisis situation.

In order to obtain cash, the overwhelming majority of citizens use traditional sources of cash withdrawals, such as bank counters and ATMs. At the same time, the bank-based cash infrastructure is in a state of change. The reduction of ATMs and bank counters that we are seeing

... that ends up placing the availability and use of cash at stake

¹⁶ Taken together, the nearest traditional withdrawal facility is located 1.7 km away from the centre of a municipality on average.

¹⁷ See Deutsche Bundesbank (2022a, 2022b).

¹⁸ See Deutsche Bundesbank (2022b).

¹⁹ Ensuring the availability of cash at all times and promoting access to cash services are key elements of the Eurosystem's cash strategy. See https://www.ecb.europa.eu/euro/cash_strategy/html/index.en.html

harbours the risk that the existing network of cash withdrawal sources will develop cracks and it will become more difficult to supply citizens with cash via bank-based cash infrastructure. In this context, the remarks in this article also demonstrate that the point of sale can complement the banking industry's cash supply services, but cannot replace them.

The analysis of information on the locations of withdrawal facilities shows that, together, traditional and alternative withdrawal sources currently make up a dense network of cash withdrawal options. It is therefore easily possible to access cash in Germany at present. At the same time, there are already a number of municipalities in Germany that do not have any option

for withdrawing cash within their boundaries. The 3.1 million citizens who this affects have to travel considerably further to obtain cash, which may involve a greater amount of effort to access cash and can influence the choice of their preferred means of payment.

However, citizens should always be free to decide how they want to pay. As part of its cash strategy, the Eurosystem aims to ensure that euro banknotes and coins will continue to be available and generally accepted as a means of payment and store of value in the future. This also includes providing the general public with cash via an adequate supply of cash withdrawal sources. The Bundesbank will thus continue to closely monitor access to cash in Germany.

■ List of references

Banque de France (2019), Report on Public Access to Cash in Metropolitan France.

Beermann, J. (2022), The path money takes: Fundamentals, developments and the prospects for cash in Germany, pp. 183-213, in Beermann, J. (ed.) *The euro at 20 – The future of our money*, 1st edition, Siedler.

Boscoe, F. P., K. A. Henry and M. S. Zdeb (2012), A Nationwide Comparison of Driving Distance Versus Straight-Line Distance to Hospitals, *The Professional Geographer*, 64 (2), pp. 188-196.

Caddy, J. and Z. Zhang (2021), How Far Do Australians Need to Travel to Access Cash?, Reserve Bank of Australia.

Deutsche Bundesbank (2022a), Payment behaviour in Germany in 2021.

Deutsche Bundesbank (2022b), Access to cash in Germany – results of a representative public survey, Monthly Report, December 2022, pp. 55-66.

Deutsche Bundesbank (2022c), Demand for euro banknotes issued by the Bundesbank: current developments, Monthly Report, April 2022, pp. 67-83.

Deutsche Bundesbank (2022d), Domestic transaction balances of banknotes and cash consumption, Monthly Report, April 2022, pp. 75-76.

Deutsche Bundesbank (2018), Banknote holdings by credit institutions, Monthly Report, March 2018, pp. 43 f.

Deutsche Bundesbank (2011), The banknote cycle and banknote recycling in Germany, Monthly Report, January 2011, pp. 17-27.

Eschelbach, M. and F. Schneider (2020), Cash use in Germany: Cash hoarding by German households – an empirical analysis of how much cash they store and why, Deutsche Bundesbank.

European Central Bank (2022), Guaranteeing freedom of payment choice: access to cash in the euro area, Economic Bulletin, Issue 5/2022.

Restrepo, D. P. (2021), Cash Infrastructure and Cash Access Vulnerability in Spain, Banco de España, Economic Bulletin, Issue 3/2021, pp. 1-19.

Stix, H. (2020), A Spatial Analysis of Access to ATMs in Austria, Monetary Policy & the Economy, pp. 39-59.

Tischer, D., J. Evans, K. Cross, R. Scott and I. Oxley (2020), Where to withdraw? Mapping access to cash across the UK, University of Bristol.

Trütsch, T. (2022), Swiss Money Map 2022: A spatial analysis of cash access points in Switzerland, University of St. Gallen.