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* Views expressed are those of the author and do not necessarily reflect official positions of De Nederlandsche Bank.

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The cost of closure: the relation between the presence of bank branches and trust*

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Abstract

The banking sector is undergoing a rapid transformation due to the digitalisation of financial services, which has led to the widespread closure of bank branches. This study examines the relation between the presence of bank branches in the Netherlands and consumer trust in the payment system. Such trust is essential for the smooth functioning of the payment system. Using regional data from the Dutch Chamber of Commerce on bank branch locations and a consumer survey from De Nederlandsche Bank and the Dutch Payment Association, we estimate fixed effects models to assess how branch closures affect trust in the payment system in general (broad-scope trust) and trust in payment services offered by consumers' own bank (narrow-scope trust). The results indicate the presence of bank branches is positively associated with both trust measures, although the effects are small. Municipalities without a bank branch exhibit significantly lower levels of narrow-scope trust, while broad-scope trust is unaffected. Furthermore, the closure of two or more branches within a year reduces trust slightly. The findings provide new insights for further research and highlight the importance of maintaining accessible banking services to safeguard consumer trust, whether that is through a physical bank location or a financially inclusive alternative.

Key words: broad-scope trust, narrow-scope trust, bank branches, financial inclusion

JEL codes: G21, D12, O33

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1. Introduction

The banking sector is undergoing rapid transformation driven by technological innovations that enable the digitalisation of financial services. One of the more visible consequences is the widespread closure of physical bank branches as consumers switch to digital channels. For example, in the United Kingdom (UK) the number of bank branches fell by 44% between 2012 and 2022, from 11,355 to 6,305 (Booth, 2023). In Sweden, nearly two-thirds of branches closed between 2001 and 2023, leaving about 15% of municipalities without a bank branch (Amberg & Becker, 2024). In the United States, the COVID-19 pandemic accelerated bank branch closures across both low- and high-income areas (Kreiss, 2021).

This trend reflects a broader shift toward digital banking and reduced (face-to-face) interaction between consumers and financial institutions (Leyshon et al., 2008). Trust in financial institutions is a cornerstone for financial inclusion and financial stability (Guiso, 2010), particularly in a sector characterised by information asymmetries and intangible services (Harrison, 2003; Ennew et al., 2011). Physical bank branch closures may undermine this trust, especially among consumers that prefer personal contact with their bank. While only 23% of adults in the UK consider proximity to a branch important when choosing a bank, this share is higher for Americans (38%) and continental Europeans (35%) (CRIF, 2024). These figures underscore the need for banks to find the right balance between digital and offline channels for their services.

This paper examines how bank branch closure affects consumer trust in payment services in the Netherlands. Two dimensions of trust are analysed: trust in the payment system overall (broad-scope trust) and trust in payment services offered by consumers' own bank (narrow-scope). Such trust is crucial for the smooth functioning of the payment system. Using regional data on bank branch locations from the Dutch Chamber of Commerce and a comprehensive consumer survey from De Nederlandsche Bank (DNB) and the Dutch Payment Association (DPA), we estimate fixed effects models to assess whether physical bank branch presence contributes to trust in payment services. The Netherlands provides an ideal setting: the number of bank branches declined by 71% between 2013 and 2025 (see Section 3.2) and in 2023 the Netherlands had the lowest branch density in Europe, with only 4.6 bank branches per 100,000 adults (World Bank, n.d.). At the same time, many Dutch citizens face challenges with digital payments (Broekhoff et al., 2023). Accessibility has become a priority for the Dutch National Forum on the Payment System (NFPS) and a key item on the agenda of banks, prompting initiatives such as the Accessible Banking program launched by the four largest banks in 2023. Although trust in the payment system remains high in the Netherlands,

Broekhoff et al. (2024) report that digitalisation and branch closures are frequently cited as reasons for lower trust. For example, people with low trust in payment services report that they experience less service due to closure of bank branches.

By exploring the relation between bank branch presence and trust in the payment system, this study contributes to the literature on the impact of bank branch closure and to the literature on trust in banks. Research into the implications of bank closures for consumer trust in banks is still in its early stages. Unlike the previous studies, our analysis benefits from time-series data and detailed regional branch information, enabling us to track how local branch changes influence consumer trust. Studying trust in banks is particularly relevant in the context of digitalisation. As many physical bank branches have closed, consumers heavily rely on digital channels to conduct their transactions. Customer service has also shifted to digitalised alternatives such as chatbots and mobile applications, which limits the personal interaction between customer and bank. The shift to digital platforms can increase financial inclusion. However, it also introduces barriers for certain groups who experience difficulties with digitalisation, such as people with low digital literacy or limited access to technology (Jiang et al., 2022; Broekhoff et al., 2023). This increases the risk of financial exclusion. To prevent this risk, Dutch banks are increasingly offering non-digital alternatives such as service points within shops and bank employees who help people with their banking affairs at home.

The results suggest that the number of bank branches is positively related to consumers' trust in the payment system in general (broad-scope trust) and their own banks' payment services (narrow-scope trust), although the effects are small. The number of bank branches has a significant positive effect on both types of trust. In addition, municipalities without a bank branch have lower narrow-scope trust, while no significant effect is found on broad-scope trust. Furthermore, two or more bank branch closures within a year lead to lower levels of narrow-scope trust while controlling for the number of bank branches. The results are largely robust for different specifications of the model.

The remainder of the paper is structured as follows. Section 2 reviews the relevant literature on bank branch closure and trust in banks. Section 3 describes the data sources. Section 4 outlines the empirical methodology. Section 5 presents the results and robustness. Section 6 discusses the findings and concludes with directions for future research and policy implications.

2. Literature

2.1 Bank branch closures

The closure of bank branches has implications for credit intermediation and financial stability, with effects that vary across firms, households and regions. A key concern when bank branches close is the loss of soft information about customers. This type of information becomes harder to obtain without physical branches, which can disrupt lending relationships. These closures have forced firms to transfer their loans to other banks (Bonfim et al., 2020). They have also resulted in reduced lending, especially to small firms (Nguyen, 2019; Amberg & Becker, 2024), and thereby have had a detrimental effect on firm's real activity (Amberg & Becker, 2024). In addition, the decline in bank presence has had a negative impact on new business formation (Cardamone & Trivieri, 2024; Ho & Wilhelmsson, 2022). When in-person banking services disappear, this can encourage some households, especially lower-income households, to get loans from alternative financial service providers, often with higher interest rates (Dunham & Foster, 2015; Nguyen, 2019). Anenberg et al. (2018) emphasize the importance of local bank branches for both consumers and small businesses.

Bank branch density also plays a role in financial stability. Benmelech et al. (2023) demonstrate that banks with high branch density (the number of branches relative to the total deposits) are more resilient to the outflow of deposits during periods of economic stress. Ueda (2024) uses transaction data from a Japanese bank to show that branch and ATM consolidations lead to a decline in cash withdrawals. The further away the bank branch, the more persistent the decline is, especially among older customers. Moreover, their findings suggest that customers shifted to other banks for their daily payments as the total expenditure and inflows that include non-cash transactions decreased by almost the same amount. Jiang et al. (2022) find that the closure of bank branches in the US has been detrimental for tech-unsavvy consumers, placing them at higher risk of financial exclusion, even though tech-savvy consumers benefit from digital innovations in banking.

Several studies have highlighted regional disparities in branch availability. Beckmann et al. (2018) compiled a hand-collected dataset on bank branches in Central, Eastern and Southeastern Europe. This revealed significant differences in the availability of bank branches both within and across countries, which is shaped by factors such as economic activity and population density. Similarly, Clark et al. (2024) find that branch closures in Great Britain are most likely in rural areas, in areas with dispersed employment activity and in areas where a post office is located that can take over some of the banking services. Leyshon et al. (2008) show that closures happen more often in poorer areas, which may increase financial exclusion. Sakon

and Zentefis (2025) research disparities in bank branch use in the US and find that the lower use in Black communities than in White communities can be explained by poorer access, not lower demand.

This study contributes to the growing body of research on bank branch closures by examining how such closures affect customer trust in payment services. While there is a rich body of literature examining the impacts of bank branch closures, research specifically addressing their implications for consumer trust in banks is still in its early stages. Allen et al. (2016) find that a lack of trust is more likely to be a barrier to opening an account in countries with lower branch density of financial institutions. Their results suggest a significant positive association between familiarity with banks and trust. They use 2011 data on 123 countries. In India, the distance between the consumer and the financial institution has a negative relation with trust (Filipiak, 2016). Geographic proximity is an individual's perception as it is measured with a survey question. 2004/2005 survey data is used with information on 29 states. A key strength of our analysis compared to these previous two studies is the use of time-series data and granular regional information on bank branches. This allows us to track how changes in local branch presence over time affect consumer trust, and to identify regional patterns that would be missed in more aggregated data. While these earlier studies have focused on the relation between distance to banks and trust in banking services like savings or opening a bank account, our study focuses on trust in payment services.

2.2 Trust in banks

Trust in banks is shaped by multiple factors, including institutional behaviour, economic conditions and consumer characteristics (van der Cruijsen et al., 2023). Examples of institutional behaviour that positively affect trust in a consumer's own bank are customer orientation, competence, transparency, and most importantly: integrity (van Esterik-Plasmeijer & van Raaij, 2017). Ampudia and Palligkinis (2018) find that the profitability of banks has a positive impact on trust of customers. Economic conditions may also influence trust. For example, Stevenson and Wolfers (2011) find a strong negative relation between trust in banks and unemployment rates. In addition, how consumers view the economic situation is also an important predictor for trust (Knell & Stix, 2015). There is extensive research on the role of socio-economic demographics on trust in banks, see van der Cruijsen et al. (2023) for an overview. For example, consumer trust is shaped by demographics like age (Afandi & Habibov, 2017; Fungácová & Weill, 2018; Fungácová et al, 2019), gender (Knell & Stix, 2015; Fungácová & Weill, 2018; Heyert & Weill, 2023, 2025) and income (Knell & Stix, 2015;

Filipiak, 2016; Ampudia & Palligkinis, 2018). Moreover, previous experiences and financial and payment literacy play a role (Hansen, 2014; van der Cruijsen & de Haan, 2025).

Although much of the existing literature concentrates on trust in banks, this study shifts the focus to trust in payment services, which constitute a more direct and frequent interaction between consumers and banks. Thereby contributing to the extensive literature on determinants of trust in banks by examining the role of physical bank presence as a potential driver. We distinguish between trust in the ability of the consumer's own bank to process payments adequately (narrow-scope trust) and trust in the payment system (broad-scope trust). Narrow-scope trust is defined by Sirdeshmukh et al. (2002) as the consumers' expectation that their bank is dependable and will deliver on its promises. Hansen (2012) defines broad-scope trust as the expectation that service providers within a certain industry are generally dependable and deliver on their promises. The distinction between broad-scope and narrow-scope trust is important as generally broad-scope trust is lower than narrow-scope trust (van der Cruijsen et al., 2023).

The closure of bank branches can affect consumer satisfaction, which may have a negative impact on their trust in banks. Previous research has shown that trust in one's own bank positively depends on satisfaction with the bank-customer relationship (Hansen, 2014). Leyshon et al. (2008) emphasizes that bank branches are the core point of contact between customers and banks. Bravo et al. (2019) state that trust in the own main bank positively depends on the quality of services, and particularly the quality of offline services. The closure of physical bank branches may undermine trust, especially among consumers that prefer personal contact with their bank. About 35% of the adults in continental Europe say that having a bank branch nearby is important for their choice of bank, which highlights the importance of banks finding a balance between digital and offline solutions for their services (CRIF, 2024). Broekhoff et al. (2024) use data on the Netherlands and find that people with low digital literacy and people with a visual impairment have relatively low levels of trust in the payment system (broad-scope trust) and in the payment services of their own bank (narrow-scope trust). In addition, broad-scope trust is relatively low for people with limited or no hand function, while it is relatively high for people who experience difficulty walking or who are wheelchair-bound.

3. Data

3.1 Trust

The trust data are retrieved from the Survey on Consumer Payments (SCP), which are collected daily by Ipsos on behalf of DNB and DPA. The survey is representative of the Dutch population

aged 12 years and older based on gender, age, ethnicity and education level. The survey consists of two components: a payment diary and an additional questionnaire. The additional questionnaire includes several questions on trust in the payment system, which form the basis for the dependent variables in this analysis. These questions have been included since 2020. Therefore, this study uses data from 2020 to 2024 for narrow-scope trust and from 2021 to 2024 for broad-scope trust.[1] The SCP trust data have proven to be a valuable resource for research. They have been used in two prior trust studies: Bijlsma et al. (2022) employed the 2020 data to examine the impact of the COVID-19 crisis on trust in banks' payment services, and Broekhoff et al. (2024) analysed 1.5 years of data to investigate trust among groups at risk.

On average approximately 24,000 respondents participate in the survey each year. The analysis uses the municipal division as of January 1, 2024 for consistency across the years in the sample. Between 2020 and 2024, the dataset contains on average 68 observations per municipality for both trust measures (Table 1). When municipalities with fewer than 30 observations are excluded the average increases to 90. Of the 342 municipalities in the Netherlands, an average of 106 municipalities per year fall below the 30 observations threshold.

Table 1. Average number of observations per municipality, per year

		Narrow-scope & broad-scope trust
2020[1]	All municipalities	71
	Municipalities with at least 30 observations	94
2021	All municipalities	98
	Municipalities with at least 30 observations	90
2022	All municipalities	68
	Municipalities with at least 30 observations	91
2023	All municipalities	67
	Municipalities with at least 30 observations	89
2024	All municipalities	66
	Municipalities with at least 30 observations	89

[1]*Note*: For 2020, we do not use the observations for broad-scope trust as the question changed after 2020.

The SCP contains three core questions on trust (Table 2).[2] The first question asks respondents to what extent they trust their own bank to process their payments adequately. If

[1] A different question on broad-scope trust was included in the 2020 survey. The question was: "*Do you have trust that Dutch banks in general are able to process your payments adequately?"* Since we only have one year of data for this version of broad-scope trust, we are unable to conduct meaningful analyses with it.
[2] In some periods, an additional question was included to measure which factors contribute to broad-scope trust.

respondents have multiple payment accounts at different banks, they answer this narrow-scope question for one randomly selected bank. An exception applies when a respondent has listed at least one smaller Dutch bank. In such cases, one of the smaller banks is randomly selected to ensure sufficient responses for each bank.[3] Narrow-scope trust is measured on a five-point scale, where 1 indicates no trust at all and 5 indicates complete trust. The second question concerns broad-scope trust; the extent to which respondents trust the Dutch payment system in general. Broad-scope trust is measured on a five-point scale, where 1 represents very little trust and 5 very much trust. The third question is open-ended and asks respondents with very little or little broad-scope trust to explain their reasons. This question is analysed by Broekhoff et al. (2024) and not explored further in this study due to an insufficient number of observations for regional-level analysis.

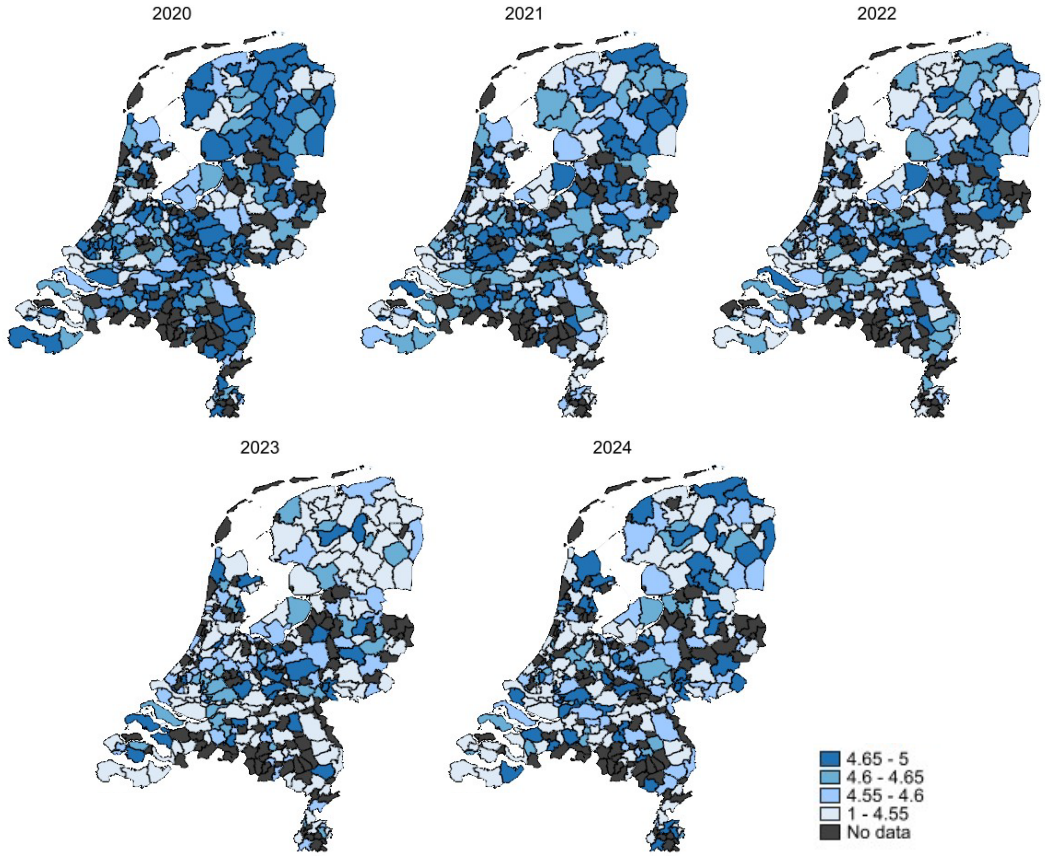
Table 2. Overview of trust questions in SCP

Type of trust	Question	Answers	Data period
Narrow-scope	Do you trust <bank name>'s ability to process your payments adequately?	o No, not at all o No, mostly not o Neutral o Yes, mostly o Yes, completely	From 2020 onwards
Broad-scope	To what degree do you have trust in the Dutch payment system in general?	o Very little trust o Little trust o Neutral o Much trust o Very much trust	From 2021 onwards
Broad-scope	Why do you have little or very little trust in the Dutch payment system?	Open question	From 2023 onwards

Overall, trust in payment services is high in the Netherlands. In 2024, 73% of respondents reported high or very high trust in the Dutch payment system and 91% expressed mostly or complete trust in their own bank to process their payments adequately. Figures 1 and 2 present trust levels per municipality per year, including municipalities with at least 30 observations annually. While trust in the payment system is consistently high, the figures reveal a slight decline over time in certain municipalities.

[3] The method of questioning was slightly different in 2020 compared to the rest of the sample period. In 2020 people with multiple bank accounts could answer the narrow-scope trust question for up to three banks. We use the average trust they reported.

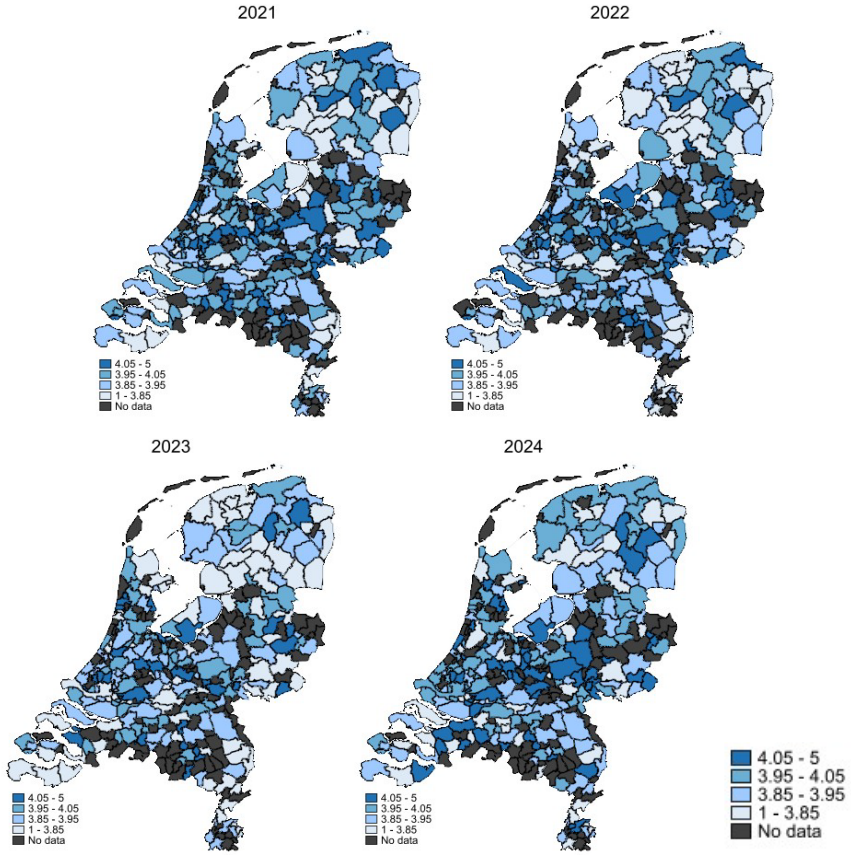
Figure 1. Narrow-scope trust in the Netherlands 2020 – 2024



Source: SCP (DNB & DPA).
Note: The figures show the average value of narrow-scope trust in a municipality, where narrow-scope trust is measured on a scale of 1 (no trust at all) to 5 (complete trust).

The dependent variables in this study are constructed based on the SCP data. For each year and municipality, average values of *broad-scope trust* and *narrow-scope trust* are calculated. Only municipalities with at least 30 observations per year are included in the analysis. This approach is in line with van der Cruijsen and Knoben (2021), who use SCP payment behaviour data at the municipal level. Respondents can complete the survey up to four times per year. In the primary analysis, all responses are included. Between 2020 and 2024, respondents participated an average of 1.5 times a year, with 63% completing the survey only once a year.

Figure 2. Broad-scope trust in the Netherlands 2021 - 2024



Source: SCP (DNB & DPA).
Note: The figures show the average value of broad-scope trust in a municipality, where broad-scope trust is measured on a scale of 1 (very little trust) to 5 (very much trust).

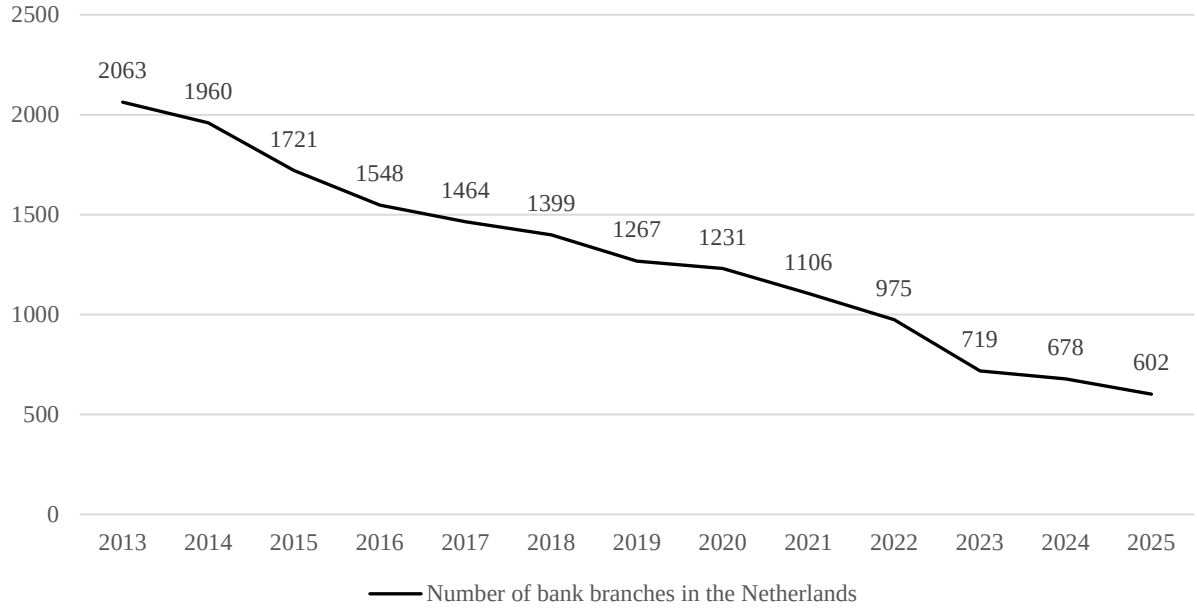
3.2 Bank branches

Data on the number of bank branches per municipality are obtained from the Business Register of the Dutch Chamber of Commerce (Kamer van Koophandel). To identify bank branches, the following activity codes are used: 64191 (Cooperatively organised banks), 64193 (Savings banks), and 64194 (General banks). This is annual data with the number of bank branches on January 1. The dataset encompasses information about all 342 municipalities in the Netherlands. Three municipalities did not have any bank branches during the period covered by the dataset. Figure 3 illustrates the decline in the number of bank branches in the Netherlands between 2013 and 2025, showing a 71% reduction.

The analysis covers the period from 2020 to 2024, as it aligns with the availability of SCP trust data. During this period, the number of bank branches declined by 45%, from 1,231 in 2020 to 678 in 2024. The COVID-19 pandemic accelerated this trend, as illustrated in Figure 3 which shows a steep decline between 2022 and 2023. The average number of branches per municipality decreased from 3.6 to 2.0, and by 2024 36% of municipalities had no branch left

compared to 11% in 2020. Figure 4 visualizes these changes, highlighting that especially in low populated areas municipalities are left without a bank branch. These regions also have relatively few trust observations. For example, in 2020, only 10 of the 37 municipalities without bank branches could be included in the baseline analysis (27%), whereas in 2024, this number increased to 58 out of 124 municipalities without bank branches (47%). This may cause attrition bias in the analysis as smaller municipalities are more likely to drop out of the sample, while these are also more likely to be left without a bank branch. In the robustness analysis, we show whether the results are robust when the threshold for the number of observations per municipalities is lower and thus more municipalities are included in the sample.

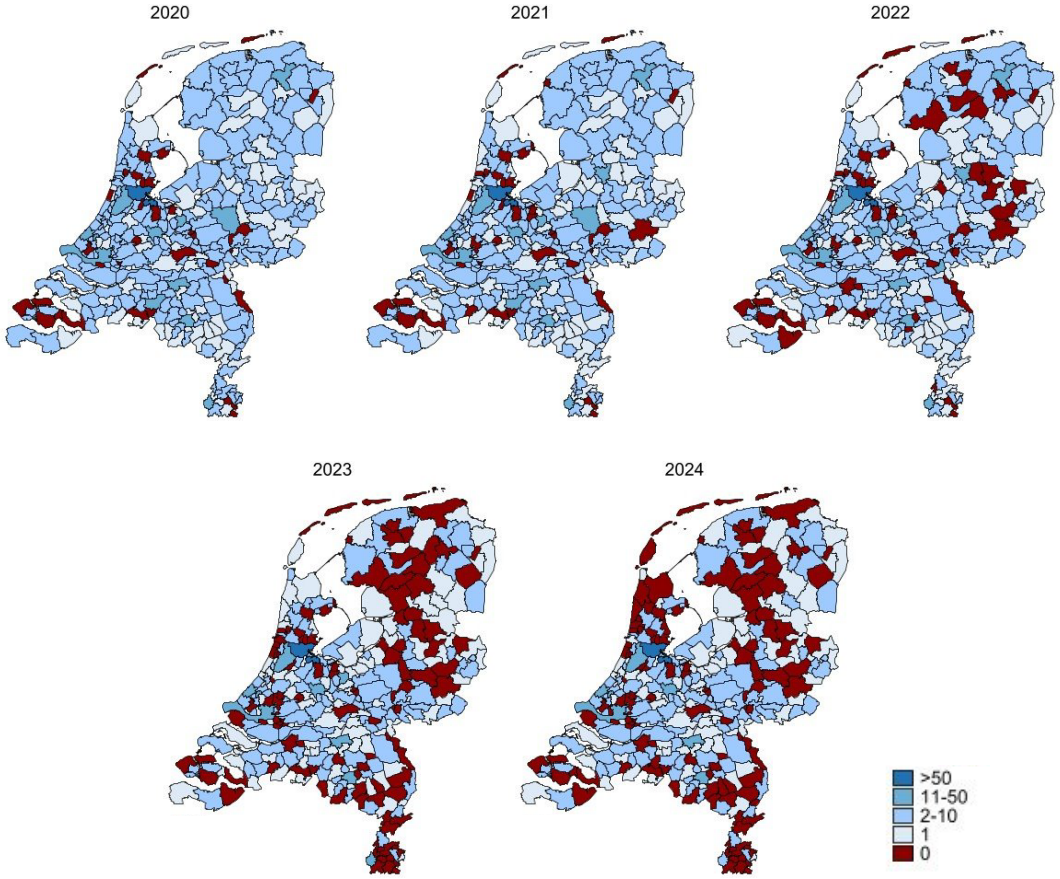
Figure 3. The number of bank branches in the Netherlands 2013 - 2025



Source: KVK, the Netherlands Chamber of Commerce, Business Register.
Notes: Activity codes 64191 (Cooperatively organised banks), 64193 (Savings banks), and 64194 (General banks). Annual data, 1st of January.

Five variables are constructed from these data. First, *number of bank branches* indicates the number of branches open on January 1 of a given year in each municipality. Secondly, *no bank branch* is a binary indicator equal to 1 if a municipality has no branch on January 1 and 0 if a municipality has at least one bank branch on that date. Third, three binary variables capture changes in the number of branches in a given year relative to the year before: *one branch closed*, *two or more branches closed*, *one or more branches opened*. The baseline category is no change in the number of bank branches. These variables reflect net changes (e.g. when two branches opened and three closed, the variable *one branch closed* is equal to 1).

Figure 4. Bank branch coverage in 2020 - 2024 in the Netherlands



Source: KVK, the Netherlands Chamber of Commerce, Business Register.

4. Methodology

The effects of physical bank branches on consumer trust are estimated using a panel data model with fixed regional effects.[4] This specification accounts for unobserved, time-invariant characteristics of regions that may influence trust in the payment system. The models are specified as follows:

$$Trust_{rt} = \alpha_r + \beta_1 \cdot number\ of\ bank\ branches_{rt} + \epsilon_{rt} \quad (1)$$

$$Trust_{rt} = \alpha_r + \beta_1 \cdot no\ bank\ branch_{rt} + \epsilon_{rt} \quad (2)$$

$$Trust_{rt} = \alpha_r + \beta_1 \cdot number\ of\ bank\ branches_{rt} + \beta_2 \cdot one\ branch\ closed_{rt} + \beta_3 \cdot two\ or\ more\ branches\ closed_{rt} + \beta_4 \cdot one\ or\ more\ branches\ opened_{rt} + \epsilon_{rt} \quad (3)$$

[4] Our models do not include time fixed effects. While these control for common temporal shocks, they also substantially reduce the variation we aim to capture. When time fixed effects are included, the estimated effects are no longer statistically significant.

Where $trust_{rt}$ is the average level of trust in region *r* (a municipality) at time *t* (a year). The study examines two dependent variables: broad-scope trust and narrow-scope trust, for three different models. In the first model, β_1 captures the effect of the number of bank branches on trust. In the second model, β_1 represents the effect of having no bank branch in a municipality on trust. In the third model, the effect of the changes in the number of bank branches due to closures and openings is examined, while controlling for the number of bank branches. All branch-related variables refer to data on January 1 of the respective year, whereas trust variables represent annual averages. This temporal alignment is appropriate because branch availability at the beginning of the year is likely to shape perceptions and experiences over the course of that year. Each model includes a region-specific constant α_r and an error term ϵ_{rt}. The standard errors are clustered at the regional level. See Table A1 in Appendix A for summary statistics of the variables included in the empirical analysis. On average, broad-scope trust equals 3.94, while narrow-scope trust equals 4.58. The average number of bank branches per municipality is four. In 14% of municipalities, there is no bank branch. In 64% of cases, the number of bank branches remained unchanged; in 22%, it decreased by one; in 10%, it decreased by two or more; and in 4%, it increased.

Robustness checks are conducted to validate the results (Section 5.2). These include (1) varying the minimum number of yearly observations per municipality (10, 20, 40 or 50); (2) considering only the first observation per respondent per year for municipalities with at least 30 observations; and (3) selecting one random observation per respondent per year for municipalities with at least 30 observations. The latter two checks are in line with the approach of van der Cruijsen and Knoben (2021).

5. Results

5.1 Fixed effects models

Higher number of bank branches within a municipality are associated with higher average levels of both broad-scope and narrow-scope trust in payment services. Table 3 presents the estimated models. Columns 1a and 1b present the results for model (1), columns 2a and 2b for model (2), and columns 3a and 3b for model (3). Columns labelled “a” report results for broad-scope trust, while columns labelled “b” pertain to narrow-scope trust. The number of bank branches is positively associated with both trust measures (columns 1a and 1b). This suggests that greater access to physical banking services may foster higher levels of trust. The effect is slightly stronger for narrow-scope trust, with an increase of 0.009 per additional bank branch compared to 0.003 for broad-scope trust. Considering that both trust measures are on a 1-5 scale, these

effects may appear modest. However, given the typically stable nature of trust over the sample period, these can be considered meaningful.

Table 3. Bank branches and trust: fixed effects models

	(1a) Broad-scope trust	(1b) Narrow-scope trust	(2a) Broad-scope trust	(2b) Narrow-scope trust	(3a) Broad-scope trust	(3b) Narrow-scope trust
Number of bank branches	0.003*	0.009**			0.002	0.007**
	(0.002)	(0.004)			(0.002)	(0.003)
No bank branch			-0.003	-0.037**		
			(0.018)	(0.016)		
Changes in number of bank branches						
One branch closed					-0.009	-0.005
					(0.009)	(0.007)
Two or more branches closed					-0.026**	-0.023**
					(0.013)	(0.011)
One or more branches opened					-0.019	0.019
					(0.021)	(0.013)
Constant	3.926***	4.547***	3.938***	4.583***	3.935***	4.555***
	(0.006)	(0.013)	(0.003)	(0.002)	(0.007)	(0.013)
Observations	929	1166	929	1166	929	1166
Number of municipalities	260	266	260	266	260	266
Sample period	2021-2024	2020-2024	2021-2024	2020-2024	2021-2024	2020-2024
Fixed regional effects	YES	YES	YES	YES	YES	YES
R^2						
Within	0.003	0.026	0.000	0.010	0.009	0.034
Between	0.006	0.009	0.001	0.002	0.003	0.009
Overall	0.006	0.003	0.001	0.004	0.007	0.001
F-statistic	3.77*	5.84**	0.03	5.34**	2.09*	5.45***

Note: Standard errors between parentheses are clustered on municipality level. Significance levels are shown as follows: *** p < 0.01, ** p < 0.05, * p < 0.1.

Furthermore, municipalities without a bank branch show 0.037 lower narrow-scope trust than those with at least one branch (column 2b), while no significant effect is observed for broad-scope trust (column 2a). This could imply that people are especially affected when their own bank closes a bank branch. Trust in one's own bank may be lower when there is no bank branch in the municipality as this reduces personal accessibility and the bank's visibility in the local community. In contrast, trust in the overall payment system remains unaffected, as it is likely based on broader institutional factors such as regulation, safety and technological infrastructure, which are not directly tied to local physical presence.

Last, we find that multiple bank branch closures have a negative effect on both trust measures. The opening of new bank branches has no significant effect on trust. The key independent variables in model 3 are the binary variables that capture the effect of net changes in the number of bank branches on broad-scope trust (column 3a) and narrow-scope trust (column 3b), while controlling for the number of bank branches in a municipality. The base

category refers to municipalities where the number of bank branches remained unchanged compared to the previous year. Closure of two or more bank branches reduce broad-scope and narrow-scope trust significantly by -0.026 and -0.020, respectively. No effect is found when the number of bank branches decreases by only one. A possible explanation is that multiple closures increase the likelihood that the respondent's own bank has closed a branch and is therefore affected.

5.2 Robustness analyses

To assess the reliability of the main findings, a series of robustness checks is conducted. First, the models are estimated with different thresholds for the minimum number of observations per municipality per year (robustness checks R1-R4). Second, only the first observation per respondent per year is included (robustness check R5). Note that respondents can participate up to four times per year. Third, one random observation per respondent per year is selected (robustness check R6). A model is considered robust if the same effects are significant, with the same sign (positive or negative), and similar magnitudes as in the baseline specification. Table 4 summarizes the results and Appendix B provides the full regression tables.

Overall, the findings prove to be notably robust. In the baseline model, municipalities are included in a particular year if they have at least 30 observations in that year. In the first set of robustness analyses, the minimum number of observations is varied to 10, 20, 40 and 50. As expected, there is a negative relation between the minimum number of observations and the number of municipalities that are included in the analyses. Results are robust when the minimum number of observations per municipality per year changes to 20 compared to the baseline model. Additionally, all models are robust except model 1a when at least 10 observations are considered. Models 3a and 3b do show an additional effect. Namely, a significant negative effect on trust when one bank branch is closed in a municipality in a year. When the minimum number of observations per respondent changes to 40 or 50, robust results are found for all models except 3a. Next, we examine if the results are robust when we only consider the first observation or a random observation per respondent per year. Only municipalities with at least 30 observations for broad-scope or narrow-scope trust are included. Both configurations give robust results for models 1a, 1b, 2a and 2b, and model 3a is robust when only the first observation per respondent is considered.

Table 4. Robustness analyses

Robustness check (Table)	Min. observations per municipality per year	Observations per respondent per year	Robust models	Additional effects	Number of municipalities
Baseline Model (3)	30	All	-	-	260 (broad-scope) 266 (narrow-scope)
R1 (B1)	10	All	All models except 1a	In model 3a and 3b a significant negative effect is found for the closure of one bank branch.	335 (broad-scope) 336 (narrow-scope)
R2 (B2)	20	All	All models	In model 3a and 3b a significant negative effect is found for the closure of one bank branch.	307 (broad-scope) 311 (narrow-scope)
R3 (B3)	40	All	All models except 3a	In model 3a a significant positive effect is found for the number of bank branches.	217 (broad-scope) 219 (narrow-scope)
R4 (B4)	50	All	All models except 3a	In model 3a a significant positive effect is found for the number of bank branches and a negative effect for the closure of one bank branch.	172 (broad-scope) 175 (narrow-scope)
R5 (B5)	30	Only the first observation	All models except 3b	In model 3a a significant positive effect is found for the number of bank branches. In model 3b a significant positive effect is found when one or more bank branches opened.	236 (broad-scope) 239 (narrow-scope)
R6 (B6)	30	One random observation	All models except 3a and 3b	In model 3b a significant positive effect is found when one or more bank branches opened.	236 (broad-scope) 239 (narrow-scope)

6. Discussion and conclusion

This study demonstrates that the presence of physical bank branches plays a meaningful role in shaping consumer trust in payment services, even in a highly digitalised context such as the Netherlands. The presence of bank branches has a small but significant positive effect on both broad-scope and narrow-scope trust. Additionally, the absence of any branch within a municipality significantly reduces narrow-scope trust, suggesting that narrow-scope trust declines more when banks disappear entirely from the local streets. These findings indicate that physical branches still matter, at least for part of the population that values face-to-face interaction. When closing bank branches, banks should ensure that reliable and accessible alternatives are in place to preserve the bank-customer relationship, particularly for those who face challenges with digitalisation.

Several factors may explain the modest effects on trust. At an aggregate level, bank branch closures have likely been accompanied by effective alternatives (such as telephone support, chatbots and face-to-face services), helping maintain the strong bank–customer relationship for the average Dutch consumer. However, the impact may be more pronounced for specific groups, –particularly for those struggling with digitalisation, while others may have even experienced increased trust in the payment system due to improved digital services. Prior research has shown that trust is relatively low among certain at-risk groups (Broekhoff et al., 2024). The data in our study do not allow for subgroup analysis.

While this study offers valuable insights into the relation between bank presence and consumer trust in payment services, several limitations should be acknowledged. These limitations also point to promising directions for future research to further deepen our understanding of consumer trust in banks and payment services. First, the trust measures focus on payments rather than a broader measure to capture trust in banks. The relation between branch presence and trust might be stronger with more comprehensive indicators, capturing general perceptions of reliability, integrity and service quality. These measures are currently insufficiently available at the regional level. Second, data limitations prevent the inclusion of all Dutch municipalities in the study. Data for smaller municipalities are lacking, and these are precisely the ones most likely to be left without a bank branch. This may cause attrition bias. The results are largely robust (R1 and R2) when the threshold of the minimum number of observations is lowered, and more municipalities are included. Third, the data do not indicate which bank each branch belongs to and the exact location of the bank branch. As a result, it is not possible to directly link branch closures to the specific banks where respondents hold their accounts, nor assess the impact of increased distance to the nearest branch of their own bank. More granular data, linking consumers to their local bank branch would allow for a more in-depth estimation of the effect of bank closures on trust. Fourth, the data do not allow to distinguish between individuals who adapt easily to digital banking and those who struggle with it. As a result, potential heterogeneity in trust levels cannot be assessed. It is plausible that the combination of fewer bank branches and improved digital payment services may enhance trust among certain groups, while it may undermine trust among those who find the digital environment challenging. Further research is needed to explore these differential effects. Finally, a potential avenue for future research could be to examine whether these findings hold in countries with different levels of digitalisation in banking services.

To conclude, the presence of bank branches matters for consumer trust in payment services. Branch closures should therefore be considered carefully by banks. When bank

branches close, it is essential that banks ensure sound alternatives are available and provide adequate support, particularly for groups facing digitalisation challenges. For policy makers it is important to emphasize the importance of trust in the payment system and to contribute to financial education to prevent financial exclusion and enhance the accessibility to digital services.

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Appendix A. Summary statistics

Table A1. Summary statistics of variables

Variable	N	Mean	Sd	Min	Max
Broad-scope trust	929	3.94	0.13	3.50	4.30
Narrow-scope trust	1166	4.58	0.11	3.97	4.91
Number of bank branches	1166	3.65	7.76	0	125
No bank branch	1166	0.14	0.35	0	1
Changes in the number of bank branches					
Unchanged number of branches (reference category)	1166	0.64	0.48	0	1
One branch closed	1166	0.22	0.42	0	1
Two or more branches closed	1166	0.10	0.30	0	1
One or more branches opened	1166	0.04	0.20	0	1

Note: This table summarizes the variables used in the regressions of Table 3. The number of observations (N), mean, standard deviation (sd), minimum (min) and maximum (max) are reported for the sample included in these regressions.

Appendix B. Robustness analyses

Table B1. Fixed effects models: at least 10 observations per municipality

	(1a) Broad-scope trust	(1b) Narrow-scope trust	(2a) Broad-scope trust	(2b) Narrow-scope trust	(3a) Broad-scope trust	(3b) Narrow-scope trust
Number of bank branches	0.003	0.010**			0.001	0.008**
	(0.002)	(0.004)			(0.002)	(0.004)
No bank branch			0.009	-0.036**		
			(0.017)	(0.014)		
Changes in number of bank branches						
One branch closed					-0.017*	-0.015*
					(0.009)	(0.008)
Two or more branches closed					-0.029**	-0.023**
					(0.013)	(0.011)
One or more branches opened					-0.024	0.005
					(0.021)	(0.016)
Constant	3.939***	4.555***	3.945***	4.590***	3.949***	4.564***
	(0.005)	(0.011)	(0.004)	(0.003)	(0.006)	(0.011)
Observations	1314	1643	1314	1643	1314	1643
Municipalities	335	336	335	336	335	336
Sample period	2021–2024	2020–2024	2021–2024	2020–2024	2021–2024	2020–2024
Fixed regional effects	YES	YES	YES	YES	YES	YES
R^2						
Within	0.001	0.014	0.000	0.007	0.006	0.019
Between	0.002	0.009	0.001	0.002	0.002	0.008
Overall	0.001	0.002	0.001	0.001	0.004	0.001
F-statistic	2.72	6.32**	0.26	6.65**	2.35*	5.26***

Note: Standard errors between parentheses are clustered on municipality level. Significance levels are shown as follows: *** p < 0.01, ** p < 0.05, * p < 0.1.

Table B2. Fixed effects models: at least 20 observations per municipality

	(1a) Broad-scope trust	(1b) Narrow-scope trust	(2a) Broad-scope trust	(2b) Narrow-scope trust	(3a) Broad-scope trust	(3b) Narrow-scope trust
Number of bank branches	0.003**	0.010**			0.002	0.008**
	(0.002)	(0.004)			(0.002)	(0.004)
No bank branch			-0.003	-0.043***		
			(0.017)	(0.014)		
Changes in number of bank branches						
One branch closed					-0.017**	-0.014*
					(0.009)	(0.008)
Two or more branches closed					-0.030**	-0.024**
					(0.013)	(0.011)
One or more branches opened					-0.028	0.010
					(0.020)	(0.013)
Constant	3.936***	4.549***	3.939***	4.588***	3.940***	4.559***
	(0.005)	(0.012)	(0.003)	(0.002)	(0.006)	(0.012)
Observations	1148	1436	1148	1436	1148	1463
Municipalities	307	311	307	311	307	311
Sample period	2021–2024	2020–2024	2021–2024	2020–2024	2021–2024	2020–2024
Fixed regional effects	YES	YES	YES	YES	YES	YES
R^2						
Within	0.002	0.023	0.000	0.014	0.010	0.029
Between	0.006	0.011	0.003	0.000	0.003	0.012
Overall	0.004	0.002	0.001	0.005	0.006	0.001
F-statistic	4.02**	6.23**	0.03	10.17***	3.02**	5.93***

Note: Standard errors between parentheses are clustered on municipality level. Significance levels are shown as follows: *** p < 0.01, ** p < 0.05, * p < 0.1.

Table B3. Fixed effects models: at least 40 observations per municipality

	(1a) Broad-scope trust	(1b) Narrow-scope trust	(2a) Broad-scope trust	(2b) Narrow-scope trust	(3a) Broad-scope trust	(3b) Narrow-scope trust
Number of bank branches	0.004**	0.009**			0.003*	0.007**
	(0.002)	(0.004)			(0.002)	(0.003)
No bank branch			-0.012	-0.050***		
			(0.022)	(0.018)		
Changes in number of bank branches						
One branch closed					-0.008	-0.009
					(0.008)	(0.007)
Two or more branches closed					-0.017	-0.024**
					(0.012)	(0.011)
One or more branches opened					-0.026	0.018
					(0.019)	(0.014)
Constant	3.924***	4.543***	3.940***	4.584***	3.931***	4.553***
	(0.007)	(0.016)	(0.003)	(0.002)	(0.008)	(0.015)
Observations	756	952	756	952	756	952
Municipalities	217	219	217	219	217	219
Sample period	2021–2024	2020–2024	2021–2024	2020–2024	2021–2024	2020–2024
Fixed regional effects	YES	YES	YES	YES	YES	YES
R^2						
Within	0.004	0.038	0.001	0.019	0.010	0.049
Between	0.012	0.011	0.013	0.009	0.011	0.009
Overall	0.009	0.004	0.009	0.007	0.009	0.002
F-statistic	4.70**	5.58**	0.33	7.54***	2.02*	5.58***

Note: Standard errors between parentheses are clustered on municipality level. Significance levels are shown as follows: *** p < 0.01, ** p < 0.05, * p < 0.1.

Table B4. Fixed effects models: at least 50 observations per municipality

	(1a) Broad-scope trust	(1b) Narrow-scope trust	(2a) Broad-scope trust	(2b) Narrow-scope trust	(3a) Broad-scope trust	(3b) Narrow-scope trust
Number of bank branches	0.003**	0.008**			0.002*	0.006*
	(0.001)	(0.003)			(0.001)	(0.003)
No bank branch			0.009	-0.040*		
			(0.025)	(0.020)		
Changes in number of bank branches						
One branch closed					-0.017*	-0.015**
					(0.010)	(0.007)
Two or more branches closed					-0.016	-0.026**
					(0.011)	(0.011)
Three or more branches opened					-0.023	0.021
					(0.017)	(0.014)
Constant	3.930***	4.543***	3.941***	4.582***	3.939***	4.557***
	(0.006)	(0.017)	(0.002)	(0.001)	(0.007)	(0.016)
Observations	599	757	599	757	599	757
Municipalities	172	175	172	175	172	175
Sample period	2021–2024	2020–2024	2021–2024	2020–2024	2021–2024	2020–2024
Fixed regional effects	YES	YES	YES	YES	YES	YES
R^2						
Within	0.003	0.041	0.001	0.011	0.015	0.064
Between	0.012	0.026	0.003	0.002	0.009	0.021
Overall	0.009	0.008	0.004	0.002	0.011	0.003
F-statistic	4.25**	5.04**	0.12	3.81*	2.13*	6.62***

Note: Standard errors between parentheses are clustered on municipality level. Significance levels are shown as follows: *** p < 0.01, ** p < 0.05, * p < 0.1.

Table B5. Fixed effects models: only the first response of the respondent per year

	(1a) Broad-scope trust	(1b) Narrow-scope trust	(2a) Broad-scope trust	(2b) Narrow-scope trust	(3a) Broad-scope trust	(3b) Narrow-scope trust
Number of bank branches	0.003**	0.008**			0.003*	0.007**
	(0.002)	(0.003)			(0.002)	(0.003)
No bank branch			-0.023	-0.049**		
			(0.020)	(0.019)		
Changes in number of bank branches						
One branch closed					-0.011	-0.002
					(0.008)	(0.007)
Two or more branches closed					-0.009	-0.020*
					(0.013)	(0.011)
One or more branches opened					-0.017	0.028**
					(0.022)	(0.014)
Constant	3.934***	4.563***	3.950***	4.602***	3.940***	4.570***
	(0.006)	(0.014)	(0.003)	(0.002)	(0.007)	(0.013)
Observations	829	1040	829	1040	829	1040
Municipalities	236	239	236	239	236	239
Sample period	2021–2024	2020–2024	2021–2024	2020–2024	2021–2024	2020–2024
Fixed regional effects	YES	YES	YES	YES	YES	YES
R^2						
Within	0.003	0.030	0.004	0.018	0.007	0.038
Between	0.010	0.014	0.002	0.003	0.009	0.015
Overall	0.007	0.003	0.006	0.004	0.008	0.001
F-statistic	4.48**	6.17**	1.40	6.74*	1.68	5.44***

Note: Standard errors between parentheses are clustered on municipality level. Significance levels are shown as follows: *** p < 0.01, ** p < 0.05, * p < 0.1.

Table B6. Fixed effects models: one random observation per respondent per year

	(1a) Broad-scope trust	(1b) Narrow-scope trust	(2a) Broad-scope trust	(2b) Narrow-scope trust	(3a) Broad-scope trust	(3b) Narrow-scope trust
Number of bank branches	0.003*	0.008**			0.003	0.007**
	(0.002)	(0.003)			(0.002)	(0.003)
No bank branch			-0.012	-0.042**		
			(0.020)	(0.019)		
Changes in number of bank branches						
One branch closed					-0.007	-0.002
					(0.008)	(0.007)
Two or more branches closed					-0.010	-0.019*
					(0.013)	(0.011)
One or more branches opened					-0.009	0.031**
					(0.022)	(0.013)
Constant	3.933***	4.561***	3.945***	4.598***	3.937***	4.568***
	(0.006)	(0.013)	(0.003)	(0.002)	(0.007)	(0.013)
Observations	827	1038	827	1038	827	1038
Municipalities	236	239	236	239	236	239
Sample period	2021–2024	2020–2024	2021–2024	2020–2024	2021–2024	2020–2024
Fixed regional effects	YES	YES	YES	YES	YES	YES
R^2						
Within	0.002	0.027	0.001	0.013	0.004	0.037
Between	0.011	0.017	0.004	0.001	0.010	0.018
Overall	0.008	0.004	0.007	0.004	0.008	0.002
F-statistic	3.55*	5.76**	0.34	4.85**	1.17	6.17***

Note: Standard errors between parentheses are clustered on municipality level. Significance levels are shown as follows: *** p < 0.01, ** p < 0.05, * p < 0.1.

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