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Exploring modern bank penetration: Evidence from early twentieth-century Netherlands

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Abstract

We analyse the estate composition of the richest 30 per cent of people who died in the Netherlands in 1921 to find that households used a broad range of institutions to meet their financial demands. Goods and services were either paid in cash or settled periodically with suppliers. Despite the strong growth of commercial banking in the previous decades, households still made extensive use of peer-to-peer loans, with or without the added security of notarial contracts. Banks only possessed a competitive edge in savings accounts for small surpluses and current accounts, the latter used most frequently by business owners born after 1870. Distance to the nearest bank office did not matter for these people, but wealthy urbanites were more inclined to use banks than their counterparts in the countryside.

KEYWORDS
banking, credit, the Netherlands, twentieth century

The tacit assumption underlying most if not all of financial history is that the penetration of financial services is driven by supply-side innovation. The arrival and spread of new institutions, whether they be medieval Italian public pawn banks or the nineteenth-century wave of savings banks, mortgage banks, joint-stock commercial banks, and Raiffeisen-type banks, is invariably interpreted as modern, efficient services either filling a gap or replacing obsolete, economically suboptimal arrangements. According to Gerschenkron, joint-stock banks in particular have been considered the standard bearers of economic modernity.[1]

This consensus about joint-stock banks has begun to crumble. The banks developed slower than once thought, and while they did offer some business finance, their impact remained as

[1] Gerschenkron, *Economic backwardness*. See also Cameron, *Banking*; Sylla and Toniolo, *Patterns*; Forsyth and Verdier, *Origins*; Grossmann, *Unsettled account*.

modest as their customer base was small.[2] In a recent study on the organization of credit markets in France between 1740 and 1914, Hoffman, Postel-Vinay, and Rosenthal show that banks and traditional peer-to-peer lending arranged by notaries complemented each other until the end of the nineteenth century. Extending their earlier work on Paris, Hoffman et al. demonstrate how recording real estate transactions and other contractual agreements gave notaries control over information on potential borrowers and lenders which they used to good effect to make a market for mortgage loans. As a result, commercial banks mainly served wealthy business people in big cities whose financial demands went beyond an occasional mortgage loan.[3]

Notarial credit was but one form of finance that made a successful transition from the middle ages to the twentieth century. Business owners also continued to use private, peer-to-peer loans and trade credit. Whenever historians have analysed what credit facilities people actually used in the nineteenth or early twentieth centuries, they found them combining these old forms with newer ones supplied by banks.[4] Earlier financial practices were therefore quite resilient, that is to say, not economically inferior to the new, bank-provided services, as the historiography tacitly assumes (Supporting Information).[5]

We add to this growing literature by investigating the pattern of financial services used by Dutch wealth owners in 1921. The question of commercial bank penetration versus non-bank financial services is particularly relevant for the Netherlands. Going back to its early modern economic leadership and financial sophistication, the country was both a late industrializer and a late developer of commercial joint-stock banking, though the supposed links between the two phenomena have been decisively rejected.[6] However, from 1870 banking developed quite rapidly, resulting in a countrywide, highly diverse financial system that by 1920 covered every demand segment imaginable with a wide variety of institutions: private firms, cooperatives, savings-and-loans-type mutuals, state-sponsored savings banks, mortgage banks, colonial banks, and joint-stock commercial banks.[7] The question is, then, to what extent did people actually use them?

The literature on Dutch banking provides a very incomplete answer to this question. Commercial joint-stock banks offered their services primarily to colonial and industrial firms.[8] Mortgage banks financed large urban housing projects rather than providing mortgages to individual

[2] See, for instance, on the United States: Lamoreaux, *Insider lending*, pp. 158–9 and Calomiris and Ramirez, 'Role', pp. 57–9; on the United Kingdom: Turner, *Banking*, pp. 35–6; on Germany: Edwards and Ogilvie, 'Universal banks', pp. 437–9, 443 and Fohlin, 'Universal banking'. A notable exception was Belgium, where universal banks, Société Générale in particular, dominated industrial finance from the second quarter of the nineteenth century onwards: Van Overfelt et al., 'Universal banks', pp. 254–6.

[3] Hoffman et al., *Dark matter credit*, continuing the analysis set out in idem, *Priceless markets* for the preceding period. See also idem, 'Entry'.

[4] On the combination of notarial loans and peer-to-peer credit in eighteenth century: Ogilvie, Küpker, and Maegraith, 'Household debt'; Dermineur, 'Peer-to-peer lending'; and Gelderblom et al., 'Public functions'; on the use of trade credit and personal loans in the Netherlands: Jonker, *Merchants*; and in France: Hautcoeur, 'Transformations' and Lemercier and Zalc, 'New approach'. Di Matteo, 'Determinants' and Di Matteo and Redish, 'Evolution' used inheritance tax returns to measure the use of different types of credit in Ontario, Canada. Lindgren, 'Modernization', did the same for the town of Kalmar in Sweden.

[5] Calomiris and Haber, *Fragile*; Demirguç-Kunt et al., 'Financial Inclusion'; Fontaine, *Moral Economy*; Guinnane, 'Delegated Monitors'; Muldrew, *Economy of Obligation*.

[6] Jonker, *Merchants*; idem, 'Alternative road'.

[7] For an overview: Jonker, 'Spoilt for choice?'; idem, 'Geld en bankwezen'.

[8] Barendregt, 'Op weg', pp. 172–82; van Zanden, 'Old rules', pp. 129–30.

homeowners.[9] The postal and general savings banks put almost two-thirds of their money in public and private securities and one-third in corporate mortgages and almost nothing else.[10] Rural credit cooperatives used private savings to fund agricultural industries like creameries and sugar refineries and they provided short-term loans to about half their membership.[11] In the cities, small and medium enterprise (SME) banks and credit unions lent money to retailers and other small business owners but their portfolios remained tiny in comparison to those of the commercial banks.[12] So far, the only banks known to offer loans to private individuals were pawn banks and commercial money lenders targeting poor households, and the so-called help banks created to offer the same services on friendlier terms and conditions.[13]

To find out how Dutch private households borrowed and lent money at the turn of the twentieth century, we adopt an approach pioneered by Di Matteo and Di Matteo and Redish (for Canada), and Lindgren (for Sweden).[14] We analyse the estate composition of wealth owners from the inheritance tax returns of 1921, at the close of a long period of strong economic growth and fast banking development. We take a step further than Di Matteo, Redish, and Lindgren by drawing a national sample stratified by location and by wealth categories to capture potential differences between wealth levels and between the economic core and periphery. We added personal and socio-economic information about the deceased listed in the summary tables to the information on asset holding from the death duties.[15]

The estate tax had a threshold of 1000 guilders, so our data capture the portfolio composition of the richest 20 per cent of estates in the Netherlands.[16] We chose 1921 for two reasons. First, data from death duty forms completed after 1927 are not yet publicly available for official privacy reasons. Second, the year allows us to capture banking at its widest expanse; bank assets to GDP peaked at about 70 per cent in 1920–1, just before the sharp drop following the financial crisis which hit the sector in 1922.[17] However, the results should be interpreted with care, as portfolios could have been influenced by speculation during the First World War and the economic instability immediately thereafter.[18]

The organization of our paper follows the logic of our enquiry into patterns of financial service use. We discuss the succession tax source which provides our private wealth data in section I. The various forms of borrowing and lending in the 1921 estates are broadly surveyed in section II before being examined category by category in section III. This leads to two additional questions: whether

[9] Glasz, *Hypotheekbanken*, pp. 7–14, 49–51; Klein and Vleesenbeek, ‘Geschiedenis’, pp. 13–6; van Bochove, ‘Modernization’.

[10] Dankers et al., *Spaarbanken*, pp. 115–20, 161–3; Barendregt and Overman, *Ondernemend*, pp. 63–70.

[11] van Haastert and Huysmans, *Veertig jaren*, p. 117; Jonker, ‘Welbegrepen’; idem, ‘Boerenvreugde’; Colvin, ‘Banking’, pp. 873–9.

[12] Colvin, ‘Organizational determinants’, pp. 667, 682-3; Peeters, ‘Getting a foot in the door’, p. 429; de Vicq, ‘Exploring’ 101-118.

[13] van Dam, *75 jaar*, pp. 13–9; Deneweth et al., ‘Microfinance’, pp. 83–7, 94–8; de Vicq and van Bochove, ‘Historical Diversity’, pp. 18-9.

[14] Di Matteo, ‘Determinants’; Di Matteo and Redish, ‘Evolution’; Lindgren, ‘Modernization’. See also Lilja and Bäcklund, ‘Savings banks’.

[15] de Vicq and Peeters, ‘Introduction’.

[16] Ibid., p. 3. One of the oldest surviving Dutch budget surveys for 212 labourers and civil servants in Amsterdam in 1923–4 found that most of them earned between 1800 and 3600 guilders per year: ‘Huishoudrekeningen van 212 gezinnen’, pp. 25–6.

[17] Jonker ‘Spoilt for choice’, pp. 192–4; Jonker and van Zanden, ‘Method’, pp. 79–81; Colvin et al., ‘Predicting the past’.

[18] Bonger, *Vermogen*, pp. 29–30.

distance and age mattered for financial behaviour. Section IV explores the availability and use of financial services across municipalities of different size, while section V analyses the relationship between people's age at death and their use of various types of loans. Section VI concludes.

I | DEATH DUTY FORMS

From 1878 onwards Dutch death duty forms (*Memories van Successie*) were required for all estates believed to be worth 1000 guilders or more, of both men and women separately, partible inheritance being the norm.[19] During 1921, around 77 000 people died in the Netherlands out of a total population of 6.8 million. Subtracting infants and minors from the total number of deceased left about 61 000 adults. Using the summary tables (*Tafel V-Bis*) from the fiscal administration, we identified 24 263 estates considered for assessment in the succession tax, that is, just over one-third of the 1921 total. About a third of that number ended up below the 1000 guilder threshold, leaving some 16 000 people who were taxed. That is to say, just over a quarter of adults who died in 1921 owned assets worth at least 1000 guilders.

Our sampling strategy follows that of Piketty, Postel-Vinay, and Rosenthal in their research on Parisian death duty forms so as to compensate for the well-known phenomenon that portfolio composition changes with growing wealth (see below). We drew a stratified sample of the 24 263 estates considered for assessment in a stratified mean, using the summary tables from the fiscal authorities with the net value of every estate. From those we reconstructed the national and provincial wealth distributions in percentile groups or wealth classes. We included in our sample all estates in the 100th percentile of the wealth distribution, half of those between the 95th and 99th percentile, a quarter of those between the 85th and 95th percentile, every eighth estate between the 70th and 85th percentile, and every sixteenth estate in the bottom 70 per cent, plus one out of 10 estates below the 1000 guilder threshold. We drew this sample not for the Netherlands as a whole, but for the wealth distributions of each of the 11 provinces to account for potential regional wealth differences and financial sector presence.

Our sampling resulted in a total of 2325 *Memories*, split about evenly between men and women. The death duty forms in our sample list over 75 000 assets and liabilities, each of which we coded using the codebook presented in the online appendix.[20] As table 1 shows, the sample obtained is smaller than the one we designed because 459 *Memories* referred to in the summary tables could not be found. These missing *Memories* are more or less randomly dispersed over the different wealth classes and provinces, except for the estates with a net value of less than 1000 guilders (class 1). We miss 210 estates there, probably because their estimated value ended up below the 1000 guilder threshold so they were discarded. Even so, our sample does retain 591 *Memories* with a net value below 1000 guilders, 53 of which actually owed debts exceeding 1000 guilders, some of them by substantial amounts. We classified this latter group of 53 estates as a separate class 7.

Our dataset allows us to extrapolate our sample to the population of all Dutch wealth holders who died in 1921.[21] However, we are aware of two sample biases. First, estates worth less than

[19] Before 1878, the tax applied only to people without offspring: Bos, 'Memories'; idem, 'Vermogensbezitters'.

[20] Replication data for the analysis can be found here: https://doi.org/10.34934/DVN/LXQRRX.

[21] Our stratified sample of the 1921 *Memories* underrepresents lower wealth classes because they were sampled less frequently. To correct for this, in tables 3, 4, 5, and 9, and figures 1–4, we multiply the assets and liability in the estates by the fraction of the total that was sampled within each provincial wealth class. This was by 10 when they are in wealth class 1, by 16 in wealth class 2, by 8 in wealth class 3, by 4 in wealth class 2, by 2 in wealth class 5, and by 1 in wealth class 6.

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TABLE 1 Stratified sample by percentiles drawn from *Memories van Successie* in the Netherlands in 1921

	Original sample		Drenthe	Friesland	Gelderland	Groningen	Limburg	Noord-Brabant	Noord-Holland	Overijssel	Utrecht	Zeeland	Zuid-Holland	Sample obtained
Class	Sample designed	2784	82	112	424	186	187	409	429	219	158	137	441	
6	99th–100th	169	5	7	18	11	12	17	23	13	7	7	25	145
5	95th–99th	330	7	12	43	22	16	37	43	22	19	12	45	278
4	85th–95th	409	12	14	51	27	22	44	53	31	24	15	54	347
3	70th–85th	306	9	12	40	20	19	36	43	19	16	14	38	266
2	0–70th	772	22	30	99	48	45	102	107	54	47	33	111	698
1	Wealth <1000 (guilders)	801	20	23	98	39	34	91	66	43	29	38	57	538
7	Negative assets		3	3	5	3	4	10	11	2	2	2	8	53
	Sample obtained		78	101	354	170	152	337	346	184	144	121	338	2325

Source: *Memories van Successie* (cf. de Vicq and Peeters, 'Introduction').

TABLE 2 Age distribution of the Dutch population, all decedents, and sampled population in 1921

Age	Population 1920		Decedents 1920[a]		*Memories* 1921	
	Male	Female	Male	Female	Male	Female
44 and younger	79%	77%	46%	42%	13%	13%
45–54 years	9%	10%	7%	7%	10%	10%
55–64 years	7%	7%	11%	10%	17%	18%
65–74 years	4%	4%	16%	17%	27%	29%
75 and older	2%	2%	20%	24%	33%	30%
Total	100%	100%	100%	100%	100%	100%

Source: Volkstelling 1921; *Memories* 1921 database.
[a]The exclusion of infants only holds for the total number of decedents in the Netherlands, not for our sample of death duty forms.

5000 guilders are underrepresented in the succession tax assessments.[22] We may therefore miss some evidence of financial services targeting lower middle class clientele, such as savings banks or credit unions. Second, owing to the nature of our source, the elderly are of course overrepresented in our sample. In 1920, men and women aged 65 years and older made up 6 per cent of the Dutch population, but they accounted for 45 per cent of the decedents in that year (table 2). As wealthy people tend to live longer, the age bias in our *Memories* is stronger still: 60 per cent of the people whose wealth was recorded in the death duty forms of 1921 died aged 65 years or older.[23]

Age obviously matters in our analysis. Older decedents were less likely to draw income from full-time work or to care for under-age children, and more likely to have reached the stage at which preserving wealth may be considered more important than aggressively seeking to grow it. We have to tread carefully, however, as life-cycle effects are notoriously difficult to observe at individual levels.[24] Also, for the elderly who had grown up without them, the financial institutions that had become common in 1921 were relatively new solutions for arranging one's affairs. We address this question in section V.

II | ASSETS AND LIABILITIES

The general literature on estate composition reveals a basic logic of investment behaviour unchanged from the early modern period until today.[25] Whenever people earned enough to build

Wealth class 6 (meaning the wealthiest 1% at the provincial level) was not sampled but entered in its entirety. Therefore, it is multiplied by 1. In doing this multiplication by wealth class, we extrapolate our sample to a dataset representative of the population of deceased wealth holders in the Netherlands in 1921. Through this correction, our dataset increases from 2325 real asset portfolios derived from the primary sources to an extrapolated 21 279 portfolios.

[22] See online appendix A. One possible reason is hidden movable wealth. Removing ready cash, paintings, and other portable values could bring the estate's value down to a level below the 1000 guilder tax threshold. End-of-life medical expenses and funeral costs may have played a role as well.

[23] On the differential mortality of more or less wealthy people, see Piketty et al., 'Wealth concentration', pp. 250–1.

[24] See Campbell, 'Household finance' and Bodie et al., 'Theory', on the difficulties establishing the age effect on investment behavior.

[25] See, for instance, on the Netherlands in the nineteenth and twentieth centuries: Wilterdink, *Vermogensongelijkheid*, pp. 181–214; on the Dutch Republic: Wijsenbeek-Olthuis, *Achter de gevels*, pp. 114–50; on early modern Germany: Ogilvie et al., 'Household debt'; on late nineteenth-century Canada: Di Matteo, 'Determinants'; on differences in investment behavior between elites, the middle class, and poor households: Hoffman et al., *Surviving*, pp. 75–100.

TABLE 3 Assets and liabilities as a share of the gross wealth of the estates of 1921

Wealth (guilders)	Mean gross wealth	Median gross wealth	Movables	Cash	Real estate	Securities	Receivables	Liabilities
0–1000	1528	792	15%	4%	66%	2%	13%	34%
1000–5000	4221	3273	12%	3%	52%	9%	19%	32%
5000–15 000	11 576	10 333	10%	3%	45%	10%	31%	23%
15 000–50 000	34 097	30 773	7%	2%	46%	20%	24%	21%
50 000–250 000	115 038	96 105	4%	2%	34%	34%	25%	16%
>250 000	674 248	492 869	3%	1%	24%	48%	25%	11%

Notes: Table 3 is constructed using the following categories of assets and liabilities: Movables: 6.1–6.3; Cash: 4.1–4.2; Real Estate: 5.1–5.2; Securities: 3.1.1–3.2.3; Receivables: 2.1.1–2.3.8; Liabilities: 1.1.1–1.5.3. See online appendix table A1 for further details.
Source: *Memories* 1921 database.

up savings, they first created a financial buffer for fluctuations in income and expenditure, then started buying more and better clothes, jewellery, furniture, and other household items.[26] As a next step they purchased real estate, that is, home, yard, and/or workshop.[27] Once past this threshold, people either extended their portfolio of real estate or bought financial assets, preferably relatively safe public bonds or loans to relatives and friends.[28] Finally, the wealthiest individuals increased both the value and variety of securities in their portfolios, though many amongst them clung to more conservative investments.[29]

Our data show the 1921 Dutch wealth owners conforming to this general pattern.[30] Table 3 reports the estate composition of six wealth classes, from decedents owning between zero and 1000 guilders up to people worth 250 000 guilders and more.[31] Cash was present in all estates with a negligeable share in total assets, while the relative value of movable goods dropped from 15 per cent in the smallest estates to 3 per cent in the big ones. For people owning up to 50 000 guilders, houses and land were the main store of wealth, making up 45–53 per cent of assets. As one would expect, the share of real estate in total assets fell with growing wealth, from two-thirds to

[26] Deneweth et al., 'Microfinance'. For the use of consumer goods as a material store of wealth to be converted in cash when need be, see McCants, 'Goods'.

[27] Wijsenbeek-Olthuis, *Achter de gevels*, pp. 116–20; Faber, 'Inhabitants'; Wilterdink, *Vermogensongelijkheid*, pp. 181–214; Korevaar, 'Reach for yield', figure 5.

[28] On the portfolio composition of urban elites in Holland in the eighteenth century: de Jong, *Met goed fatsoen*, pp. 108–18; Kooijmans, *Onder regenten*, pp. 99–106; Prak, *Gezeten burgers*, pp. 113–41. On the possessions of Amsterdam's middling groups: McCants, 'Inequality', pp. 19–20. On nineteenth-century Amsterdam elites: de Vries, 'Amsterdamse'. On investment portfolios of urban and landed elites in various parts of the Netherlands in the nineteenth and early twentieth centuries: Moes, *Onder aristocraten*, pp. 143–75.

[29] Zandvliet, *250 rijksten* and idem, *500 rijksten;* Wilterdink, *Vermogensongelijkheid*, pp. 186–7. See also, for a similar diversification of portfolios among Parisian elites in the nineteenth century: Piketty et al., 'Inherited', pp. 31–4; for the Netherlands: van Berckel, *Maatschappelijke*, pp. 143–50 and van der Valk, 'Household finance', pp. 14–7; for the United States and Sweden: Campbell, 'Household finance'.

[30] Wilterdink, *Vermogensongelijkheid*, observed this using the fiscal returns of 1916 and 1960. van der Valk, 'Household finance', used a different source to show the same pattern. de Vicq et al., Toussaint et al. 'Household wealth', use these succession tax returns to establish the same constancy from 1860 to the present.

[31] The variable wealth class groups estates by their position in the provincial wealth distribution and by their nominal net wealth as calculated from the death duty, not the value listed in the summary table. We did this because of the sometimes small difference between the two figures. See Peeters and de Vicq, 'Inheritance'.

TABLE 4 Financial relations recorded in the estates of 1921

Relationship	Number of estates	Share in sample	Extrapolated share
Suppliers of goods and services	1078	50.0%	40.2%
Peer-to-peer loans	1010	46.8%	38.4%
Notarial credit	781	36.2%	31.5%
Bank deposits and bank loans	1035	48.0%	43.0%
None of the above	482	22.3%	27.1%

Source: *Memories* 1921 database.

Notes: Table 4 is constructed combining the following categories of assets and liabilities for each of the four types of financial relations: Suppliers of Goods and Services: 1.3.1 and 1.3.4; Peer-to-Peer Loans: 1.3.3 and 2.3.3; Notarial Loans: 1.2.1 and 2.2.1; Bank Balances and bank loans: 1.5.1, 2.1.1 and 2.1.4–2.1.11; See online appendix table A2 for further details.

one-quarter, whereas the share of securities rose. In estates below 15 000 guilders, stocks and bonds made up 3–11 per cent of assets, against half for estates worth 250 000 guilders or more.[32] Those securities were bought through the country's dense network of brokers, directly at the Amsterdam stock exchange or via a bank.[33]

We first turn to receivables and debts. Estates below 5000 guilders held relatively few receivables (13–18 per cent), but then the tax statements in that category were generally much shorter than those of wealthier estates. Perhaps people in the lowest wealth class had less money to begin with and thus kept their credit lines short, or their inheritors might have been more assiduous in collecting receivables before drafting the tax statement. Among estates worth 5000 guilders or more, receivables made up a quarter to a third of total assets. As for debts, these weighed heavier on the smaller estates (33 per cent) than on the very big ones (11 per cent). Of course the nature of the source means that we need to be careful in drawing conclusions from these data. At time of death some people were still economically active with proportionally more receivables and debts, whereas others had become passive investors; in addition, some estates held more death-related items than others, such as funeral expenses, doctor's bills, and claims on life insurance policies or other pension schemes.

We then grouped receivables and debts by the type of relationship and by their relative occurrence in the dataset (table 4). We distinguished four relationship types: (1) money owed to suppliers of goods and services; (2) peer-to-peer loans, that is, items without mention of either a bank or a notary; (3) notarized contracts; and (4) bank facilities. The first column lists the number of estates in our sample, the second their share in the sample, and the third the extrapolated shares taking into account the bias towards larger estates in our data.

Table 4 shows that all four types were used in about equal measure, with notarized contracts appearing slightly less frequently than the others. Banks were important, but not essential. Only 48 per cent of our wealth owners had a bank account, of which half were simple deposits with a general savings bank, postal savings bank, or a rural credit cooperative.

Let us further unpick the aggregate data by looking, first, at the smallest and most common items – cash and household bills due (figure 1). At this point in time the Netherlands was still a

[32] We set the threshold at 250 000 guilders because a 5 per cent yield on the investment of such an amount is about equal to what a Dutch cabinet minister earned in 1921: 12 000 guilders.

[33] van der Werf, *De bond*; de Vicq, 'Exploring', 23. Mutual funds were not very important as supplier of investment services. Slot, *Iedereen*, p. 90, identified eight funds active between 1900 and 1920, but their names appear in only 46 of the 2325 estates in our sample.

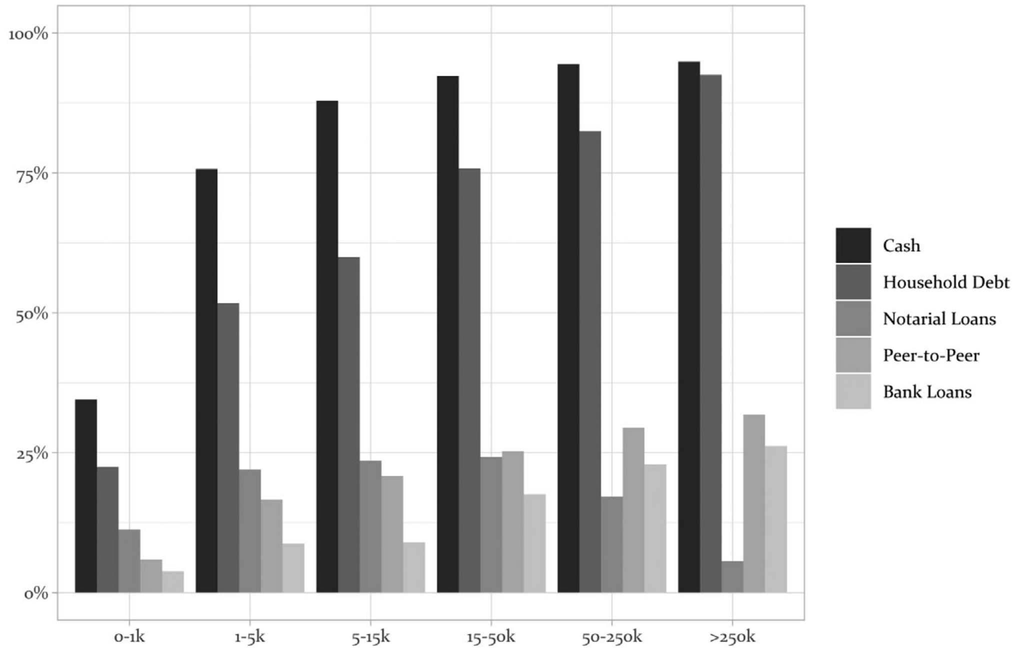

FIGURE 1 The share of estates with cash, household debt, or loans received from peers, notaries, and banks in 1921. *Notes*: Figure 1 is constructed using the following categories of liabilities: *Cash*: 4.1; Household debt: 1.3.1 and 1.3.4; Notarial loans: 1.2.1; Peer-to-peer loans: 1.3.3; Bank loans: 1.5.1. See online appendix table A2 for further details. *Source*: *Memories* 1921 database

highly cash-oriented society, with bank money amounting to just over half of the total supply of currency and liquid deposits (M1).[34] It is no surprise then that coins and banknotes were present in 75–90 per cent of the estates worth 1000 guilders or more, with the median amount rising from 66.5 guilders in the bracket between 1000 and 5000 guilders to almost 850 guilders in estates worth 250 000 guilders or more. People clearly kept money on hand to settle all kinds of bills from shopkeepers, artisans, landlords, and other suppliers of goods or services, but of course some of them remained unpaid at time of death. We coded as household debt items with either a clear description (i.e. for food, fuel, clothing, and other household items purchased and services, house rents, contributions, subscriptions, insurance premiums).[35] The amounts were small, ranging from a few guilders to perhaps 200 or so, with a median of 31.1 guilders.[36]

[34] Kuné and van Nieuwkerk, 'Ontwikkeling'.

[35] We excluded death-related liabilities such as medical bills and funeral costs (codes 1.1.1 and 1.1.2, see online appendix table A1) as not reflecting what people normally did with their money. In some cases, we have only the name of a counterparty. For instance, the death duty form of a shipbuilder in Martenshoek (RefReg 14#525) contains 11 debts owed to people who are only mentioned by name. Eight of them were for non-rounded sums (e.g. 47 guilders and 47 cents; Idno 55939) and three were for rounded sums (e.g. 30 guilders; Idno 55940). We coded the former as household debts and the latter as peer-to-peer loans.

[36] Among the liabilities in our full sample of 2325 estates are 13 779 household bills (codes 1.3.1 and 1.3.4) with a median value of 31.1 guilders and an average value of 159 guilders, the latter pushed up by very wealthy individuals sometimes owing several thousand guilders to suppliers. In addition, the database also contains about 1000 debts receivable for goods and services sold by the decedents, with a higher median value (99 guilders) and a much larger mean value (1711 guilders).

Household debts were present in up to half of the estates in the two lower categories and rose to over 80 per cent in the two highest groups, reflecting the greater creditworthiness of the persons concerned and perhaps the then-common retailers' complaint that the rich paid late.[37] Coupled with the frequent occurrence of cash in the estates and the low share of bank money in the Dutch money supply, those household debts underline that most people did not need a bank account for their payments.[38] Indeed, only 30 clients among the 2325 people in our 1921 sample had an account with the *Postcheque and Girodienst*, created two years earlier to offer giro transfers via the national post office network.[39]

The second most common category was loans from individuals, with notarized loans coming second, and bank loans third. Disaggregating these loans by wealth class highlights slightly different preferences for loan types (figure 1). Appearing in one out of four estates, notarial loans were the most common form of credit in the three lowest wealth groups, but as people got wealthier the incidence of peer-to-peer credit outstripped it. Three out of ten individuals worth between 50 000 and 250 000 guilders borrowed from peers.[40] Bank loans and notarized mortgage debt scissored just above the 50 000 guilder mark, the former rising from less than 10 per cent of estates below 15 000 guilders to about 25 per cent in the two highest categories, and the latter dropping from about 20 per cent in the lower categories to less than 5 per cent in the highest one. This suggests that, as people became richer, they were more likely to turn to a bank if they needed to borrow.[41]

The relationship between people's wealth and their preference for a particular counterpart was more marked still for the loans they supplied themselves (figure 2). Peer-to-peer loans stand out again, occurring in 5–15 per cent of the smallest estates, rising to two-thirds of the biggest ones. Bank balances came second, up to the 50 000 guilders estate mark mostly in the form of claims on savings banks. Deposits at commercial banks were as common as notarial loans, rising from less than 10 per cent in the lowest classes to 35 per cent among people whose estate was valued between 50 000 and 250 000 guilders. Only the richest people were more likely to deposit money with a bank (65 per cent) rather than provide a notarized loan (40 per cent). Thus, as in France, the Netherlands had a huge and heretofore undiscovered mass of 'dark matter credit' – loans provided by private individuals and notaries that, taken together, dwarfed bank loans.[42]

[37] On rising debts owed by customers of shops at the beginning of the twentieth century: Pyfferoen, *Petite bourgeoisie*, p. 293 and Peeters, 'Getting a foot in the door'. See also, for the payment habits of French elite customers: Lemercier and Zalc, 'New approach', pp. 673, 684.

[38] See, for the predominance of cash payment of household expenses until the 1960s, Boter, 'Male and female', and Boter and Gelderblom, 'Explaining the financial turn'. On Dutch bank money, see Kuné and van Nieuwkerk, 'Ontwikkeling'.

[39] Only four decedents with an account in the *Postcheque and Girodienst* (PCGD) had an estate worth less than 15 000 guilders; all the others were in the higher wealth classes. The median balance (not adjusted for joint ownership) in their PCGD accounts was 550 guilders, while the average balance was 1223 guilders. One person had an account in two different post offices. On the PCGD, see Niesten, 'Betalingsverkeer'. Two years before the PCGD was created, the city of Amsterdam established its own *Gemeentegiro* for the payment of salaries to some of its senior civil servants. In the 1921 *Memories* three people had an account in this local giro bank, bringing the total number of giro accounts in our sample to 31 for 30 decedents.

[40] We excluded claims on and debts to siblings or spouses as death-related and not reflecting day-to-day financial behaviour.

[41] See table 6 for the various types of loans provided by banks.

[42] Hoffman et al., *Dark matter credit*.

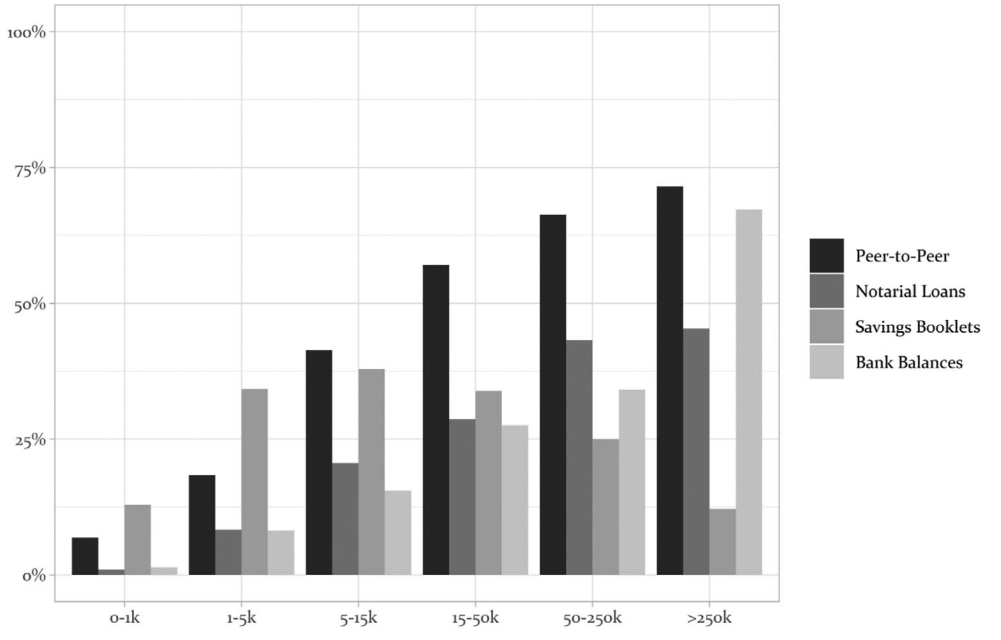

FIGURE 2 The share of estates with savings booklets, bank balances, notarized contracts, or peer-to-peer loans in 1921. *Notes*: Figure 2 is constructed using the following categories of assets: Cash: 4.1; Notarial loans: 2.2.1; Peer-to-peer loans: 2.3.3; Savings Booklets: 2.1.4 through 2.1.6; Bank balances: 2.1.1 and 2.1.7 through 2.1.11. See online appendix table A2 for further details. We classify all accounts with the rural credit cooperatives as 'savings booklets' but the descriptions in the death duty forms show that a handful (3 out of 186) actually were *lopende rekeningen*, that is, current accounts that could also be used to obtain short-term credit. The annual report of the Boerenleenbanken, headquarted in Eindhoven from 1921, put the number of current accounts at 5269 against 113 008 savings booklets; see van Haastert & Huysmans, Veertig jaren, 117. *Source*: Memories 1921 database

However, half of the people in our sample used two of the three channels, and 20 per cent used all three, suggesting that people used specific forms of credit for particular purposes.[43] We cannot tell what drove them to choose one type of credit or another, since we only observe their liabilities and receivables at a specific point in time, but we can use reported details of transactions to tease out more information about the functions which the respective credit channels appear to have performed.

III | THE USE OF PRIVATE LENDERS, NOTARIES, AND BANKS

We begin by comparing the value and price of different loan types. Table 5 reports these numbers for all debt titles in the 2325 estates sampled, that is, including those which turned out

[43] Our sample includes 781 people who used a notary to borrow or lend money, 206 of whom (26%) had that one type of loan only. Among the 1010 people with personal loans, there were 327 (32%) without any other type of loan. The share of such 'single users' was smallest among the 628 people with a commercial bank loan or deposit (i.e. excluding savings bank deposits): 121 (19%) of them did not contract loans through notaries or personal relations. Beyond these single users of each of the three channels, there were 263 people who had only personal loans and notarial loans, 195 people with only personal loans and commercial bank loans/deposits, and 87 people with only notarial loans and commercial bank loans/deposits in their portfolio. Finally, 734 people were without any of these loans, while there were 225 who used all three channels.

TABLE 5 Value and price of credit transactions reported in the estates of 1921

	Number of loans		Total value	Loan principal			Interest rate[a]	
	Sample	Extrap.	Extrapolated	Max	Avg.	Med.	Avg.	Med.
Liabilities			68 305 240					
Notaries	664	6158	27 079 881	106 800	4398	2200	5.0%	5.0%
Peer-to-peer	1142	7160	18 777 361	149 211	2626	749	4.6%	5.0%
Banks	456	2538	23 946 650	224 340	9435	3000	5.3%	5.0%
Receivables			111 922 849					
Notaries	2545	8441	37 607 702	350 000	4455	2300	5.1%	5.0%
Peer-to-peer	4114	17 236	53 697 649	1 084 094	3115	1100	4.8%	5.0%
Commercial banks	805	3439	15 339 329	2 194 338	4460	1000	4.7%	4.0%
Savings booklets	717	6888	6 528 184	19 683	948	500	4.0%	4.0%

Notes: Table 5 is constructed using the following categories: Peer-to-peer loans: liabilities, 1.3.3; receivables: 2.3.3; Notarial loans: liabilities 1.2.1; receivables 2.2.1; Bank balances: liabilities, 1.5.1; receivables: 2.1.1 and 2.1.7–2.1.11; Savings booklets: 2.1.4 through 2.1.6; see online appendix table A2 for further details.
Source: *Memories* 1921 database.
[a] Average interest rates weighed by loan size.

to be too poor to be taxed but nevertheless contain valuable information on the credit instruments used by the decedents. The first two columns report both the number of loans in our stratified sample and the estimated number of loans of all wealth owners deceased in 1921 extrapolated from this sample. We extrapolate because, as we have seen, the composition of estates varies with their size. The loan volumes, principals, and interest rates charged are based on this extrapolation.

The relative volumes of the three main lending and borrowing channels throw the limited bank penetration into sharp relief. Loans raised through notaries or personal networks made up two-thirds of the total sum.[44] The dominance of notaries and personal networks was even greater on the receivables side, providing 82 per cent of the total. The respective ratios are perhaps more telling: the amount of peer-to-peer receivables was more than three times the amount held in bank accounts and savings deposits and the amount of notarized receivables almost 2.5 times, underlining a clear preference for peer-to-peer and notarized transactions over bank intermediation. Therefore, even at its 1921 peak, after some 50 years of development and growth, Dutch banking as a whole had made only quite modest inroads into the dark matter credit of peer-to-peer lending and notarized loans.

The notarized loans received and extended were overwhelmingly mortgages, at 80 per cent. Notaries possessed a legal monopoly on registering real estate transactions and liens. They recorded some very large loans of several hundred thousand guilders, but the median notarial loan of 2000–2500 guilders was not very high, equalling the annual wage of a skilled labourer, while the average notarial loan of 5000 guilders matched a civil servant's salary.[45] Though we did find occasional references to notaries acting as local bankers taking deposits, making loans, or keeping

[44] Dividing the estimated total number of loans received through notaries (6158), peers (7160), and banks (2538) between decedents aged 25–65 and 65 and over yields the following share for economically active people: peers 40%, notaries 42%, and banks 18%; and for those aged 65 and older: peers 49%, notaries 38%, and banks 13%.

[45] Bureau van de statistiek der gemeente Amsterdam, *Uitgaven*, pp. 18–20; Statistisch Bureau der gemeente's-Gravenhage, *Uitkomsten*, pp. 35–7.

current accounts, there is little evidence of Dutch notaries taking a similar active role intermediating between lenders and borrowers like their French counterparts, as documented by Hoffman et al.[46] The other 20 per cent of notarized loans were simple IOUs, formalized presumably because lenders wanted formal proof.[47]

The notarized loans were dwarfed in number and amount by the thousands of peer-to-peer IOUs. These highlight another striking aspect of Dutch dark matter credit: its amazing informality. A handful of cases apart, such IOUs had no specified collateral, that is to say, the providers of those loans had sufficient confidence in getting their money back to accept a minimum of formalities – a handwritten contract, or simply a ledger entry, and in some rare cases oral testimony alone.[48] Therefore, this dark matter credit reveals a close-knit society in which lenders and borrowers knew each other as family members, business relations, members of a social group, links in a supply chain, neighbours in a particular area, or perhaps were simply introduced to each other by a mutual acquaintance.

Knowing one other also made it easy for lenders to tailor amounts and maturities to the borrowers' specific needs, giving both parties a wide variety of options. Loans were priced at very similar mean and median interest, almost identical to the rates of notarial loans. While we cannot exclude the possibility that these rates resulted from private lenders rationing credit, the overall volume of peer-to-peer loans suggests it was a popular, smoothly functioning, and capacious lending system.[49] Some of the lenders came close to being bankers, holding loan

[46] Besides the loans contracted before a notary, the death duty forms contain numerous other financial claims involving a notary, but these are typically related to their active role in the execution of an estate or the sale of movable or immovable property. Strictly financial relations were rare: two notaries held cash money for a client (Idno. 12388, 13862) and one notary signed two *prolongaties* for a decedent (Idno. 37072, 37074). Among the 2325 people in our sample, we counted 17 who kept a current account with a notary, the purpose of which we do not know (Idno.'s 72653, 3196, 4568, 6870, 15004, 15103, 21754, 25136, 26462, 31904, 32507, 38279, 76598, 46453, 48648, 54240, 67472). Finally, among the peer-to-peer loans (codes 1.3.3 and 2.3.3) there were 18 loans from notaries, 21 loans to notaries, and 6 deposits made with a notary. The quasi-banking activities of notaries are discussed in de Vries, 'Notarispapier' and Hoffman et al., *Dark matter credit*, pp. 4–5, 57–60.

[47] This is also documented for the early modern Netherlands: Gelderblom et al., 'Public functions', p. 183. In Dutch bankruptcy law only mortgages and collateralized debts took precedence in case of bankruptcy; all other creditors were concurrent.

[48] The inheritance returns would have listed the collateral specified in the IOU as belonging to the estate and thus taxable. The filing of inheritance tax returns was based on a careful study of the decedent's private administration. Some registrars chose to record claims in very succinct wording, but out of the 1077 personal loans received in our sample, more than half (594) explicitly refer to the paper proof underlying the transaction. The most common descriptions were '(*onderhandse*) *schuldbekentenissen*' [(privately contracted) promissory notes], '*schuldbewijzen*' (debt recognizances), '*akten*' (deeds), '(*ondertekende onderhandse*) *akten*' [(signed, privately contracted) deeds], '(*onderhandse*) *obligaties*' (privately contracted) obligations, '*rekeningen* (*courant*)' [(current) accounts]. It is telling that in a small number of cases (12) the registrar explicitly mentioned the lack of evidence ('*zonder bewijs*'), adding to the impression that the use of some form of paper evidence was very common in the registration of private loans. Remarkably, the paper trail produced by money lent others is hardly visible in the 1921 *Memories*. Out of 4060 receivables there are only 128 with an explicit description of the contract signed ['*schuldbewijs*', '(*onderhandse*) *akte*', '*rekening courant*,' or '*obligatie*']. While this could in theory mean that no paper trail existed, it is far more likely that the claims were directly copied from the decedent's private papers because no less than half of the personal loans mentioned the loan maturity and the exact date on which interest was due, loan characteristics that could only be retrieved from some kind of register.

[49] Hoffman et al. document how French notaries combined the information they had on their clients with a widely accepted cap on the loan-to-collateral to ration credit. This effectively created a priceless market in which virtually every loan carried the same interest rate – an outcome very similar to the interest rates recorded in the Dutch death duties of 1921. See Hoffman et al., *Dark matter credit*, p. 197; idem, *Priceless markets*.

TABLE 6 Value and price of bank transactions reported in 2325 estates in 1921

Type of transaction	Number of entries	Maximum value	Average value	Median value	Median interest[a]
Bank loans (liabilities)					
Current accounts	142	129 622	11 810	2736	NA
Mortgages	100	115 000	11 535	7290	5.0%
'*Prolongaties*'	74	224 340	19 141	10 000	6.0%
Other	145	140 000	12 477	3000	6.0%
Savings booklets (assets)					
General savings banks	223	17 225	1165	600	4.0%
Postal savings bank[b]	310	3690	464	242	2.6%
Rural cooperative banks	184	19 683	2053	1000	4.0%
Specialized bank balances					
Postal cheque and giro services	31	6697	1184	550	NA
SME banks	45	30 614	2558	755	NA
Commercial bank balances (assets)[c]					
Current accounts	235	2 194 338	17 241	1912	NA
Deposit	207	400 000	7455	2000	4.0%
'*Prolongaties*'	27	60 000	13 204	10 000	NA
Other	311	400 794	6475	900	4.0%

Notes: Table 6 reports different types of loans in the categories Bank loans (1.5.1), Savings bank balances (2.1.4–2.1.6), Specialized bank balances (2.1.7 and 2.1.9), and Commercial bank balances plus Credit union balances (2.1.1, 2.1.8, 2.1.10 and 2.1.11). See online appendix table A3 for further details.
Source: *Memories* 1921 database.
[a]Interest rates reported for categories with at least 20 given rates.
[b]The statutory interest rate on savings accounts with the Rijkspostspaar bank was 2.64%.
[c]Includes credit unions (61 contracts).

portfolios worth 100 000 guilders or more, but the vast majority provided only a handful of loans.[50]

The bank balances in our sample were not just a fraction of the huge volume of peer-to-peer and notarized loans, they also served quite specific purposes. Table 6 splits the bank transactions by type.[51] Deposits with one of the three savings bank networks were surprisingly popular given the fact that these institutions targeted customers of modest means and paid interest on balances up to a certain amount only.[52] Interest-bearing deposits at commercial banks attracted clients

[50] Personal loans were recorded among the receivables of 803 of the 1655 fully documented estates worth 1000 guilders or more. One such loan appeared in 268 estates (33.4%); 2–4 in 303 estates (37.7%); 5–9 in 122 estates (15.2%); 10–25 in 77 estates (9.6%), and 25–50 in 26 estates (3.2%); five estates had 54, 69, 105, 202, and 301 loans, respectively.

[51] The number of recorded bank transactions is too small and their distribution across wealth classes and specific loan types too uneven to extrapolate their value to all decedents in 1921.

[52] The maximum interest-bearing amount of a savings booklet with Rijkspostspaarbank (RPS) was 1200 guilders in 1921: Barendregt and Overman, *Ondernemend*, pp. 81, 84. The general savings banks set the bar higher but Dankers et al., *Spaarbanken*, pp. 167, 236, do not give the amount. Our *Memories* 1921 database holds 285 decedents with one savings account, 56 with two, 14 with three, and 4 with four.

probably for the same reasons, safely storing surplus sums with which one would not or could not buy other assets. Loans backed by securities were the most common type of bank facility used on the estates' debit side, signalling the well-known shift away from the Amsterdam stock exchange's *prolongatie* system to the banks after its August 1914 collapse.[53] The Nederlandsche Bank provided a considerable slice of those loans, confirming the thesis that its countrywide network weakened provincial banking.[54] On the other hand, the huge volume of peer-to-peer and notarized loans versus the paucity of bank balances belies the often cited opinion that the *prolongatie* system caused the Dutch banks to be short of deposits.[55] People with money to spare clearly preferred those alternatives to bank accounts. Nor did joint-stock banking possess a competitive edge in mortgage loans. Specialized mortgage banks had existed since the 1860s, but by 1921 they had made hardly any inroads on private mortgage lending. Just over one-fifth of the bank loans in the sample (102) consisted of mortgages, averaging 8000 guilders per loan. These loans were bigger than the ones contracted directly through notaries, but their overall volume remained small. Indeed, if we extrapolate these numbers to all deceased wealth owners in 1921, the estimated amount of bank-supplied mortgage debt to people who died in that year was 4.2 million guilders, only a quarter of the (extrapolated) value of their notarized loans (15.9 million guilders). Clearly people liked privately arranged mortgages more than bank-supplied ones.[56]

Joint-stock banking's only competitive products were current accounts and overdrafts, the most common form in the estates, with average amounts clearly above that of the notarial and peer-to-peer loans (table 6). However, the low median value of 1912–2736 guilders suggests that these current accounts were either used for payments or for temporary storage purposes rather than borrowing facilities. The same was true for the *Postcheque and Girodienst* and the SME banks.

To summarize, by 1921 banking's penetration of household finance at the top end of the wealth distribution was still very limited because people preferred lending and borrowing via their social networks. Supplies of goods and services were paid in cash or bought with short-term credit. Bank deposits and savings banks were used to store small amounts of money, and the bulk went into peer-to-peer lending and notarized loans. Further down the wealth distribution that pattern is likely to have been more widespread simply because the amounts concerned were smaller and therefore unremunerative for banks other than the mutuals, cooperatives, and savings banks designed to provide low-cost services.[57] However, before coming to a final conclusion, two issues still need to be addressed: whether distance to the nearest service point mattered and whether the age bias in our data has an impact on our outcomes. We turn first to the distance issue.

IV | PROXIMITY AND BANK SERVICES USE

During the late nineteenth century, the Netherlands became a much more homogeneous country, as large infrastructure projects and regular postal services, telegraph, and telephone drew the country together.[58] By 1921 all provincial capitals possessed commercial banking firms of one sort

[53] Jonker, *Merchants*; idem, 'Geld en bankwezen'. The estates possessed very little money put on *prolongatie* via banks on the receivables side.

[54] Jonker, 'Alternative road', pp. 109–12; idem, 'Cradle', pp. 85–9.

[55] Eisfeld, *Niederländische Bankwesen*, pp. 270–1.

[56] Klein and Vleesenbeek, 'Geschiedenis', p. 12; van Bochove and Hasken, 'Modernization'.

[57] Colvin and McLaughlin, 'Raiffeisenism'; de Vicq, 'Exploring'; Peeters, 'Getting a foot in the door'.

[58] Knippenberg and de Pater, *Eenwording.*

TABLE 7 Bank diffusion by agglomeration size, the Netherlands in 1921 (population × 1000)

Bank type	Number	<5 thousand	5–15 thousand	15–100 thousand	Four cities
General saving banks	440	20%	54%	86%	100%
Postal savings bank	1241	74%	95%	98%	100%
Rural cooperatives[67]	1194	65%	90%	86%	75%
SME cooperatives	394	17%	47%	88%	100%
Credit unions	75	1%	12%	46%	100%
Mortgage banks	118	1%	3%	29%	100%
Commercial banks	1323	23%	69%	91%	100%

Notes: Neither the *Boerenleenbank* nor the *Raiffeisenbank* had an office in Amsterdam in 1921. The *Raiffeissenbank* did have offices in Utrecht, Rotterdam, and The Hague.

Source: de Vicq, Gelderblom, and Jonker (2021): Dutch Banking Database, 1880-1940. DANS. https://doi.org/10.17026/dans-xre-kfdf

or another, one or two stockbrokers, plus a pawn bank, a savings bank, and a cooperative bank for small and medium enterprises, while smaller towns and big villages would normally have, in addition to a post office, a savings bank and a credit cooperative.[59] Even so, people might have considered banks too far away to bother.

To answer the question of whether distance mattered, we first grouped known banking firms and facilities by municipality and number of inhabitants and then calculated the percentage of firms or facilities present in them (table 7). Unsurprisingly the rural credit cooperatives, then close to the point of their widest expansion, and the Postal Savings Bank, which piggybacked on post offices, had the densest networks, present in 65–74 per cent of the smallest communities. By contrast, savings banks and SME banks were spread thinner beyond the four big cities of Amsterdam, Rotterdam, The Hague, and Utrecht, to only half of the towns with 5000–15 000 inhabitants and no more than a fifth of communities with fewer than 5000 inhabitants. Joint-stock commercial banks showed a similar pattern, available in nearly all cities, most mid-size towns, and rarely in small communities. The handful of credit unions and mortgage banks were urban phenomena.

To explore the effect of population size on financial service use we compare the composition of estates worth 50 000 guilders or more across municipalities of different size (figure 3). Peer-to-peer loans, received or extended, were clearly the most popular in all communities, marginally less so in cities though still present in 65 per cent of estates there. Commercial bank accounts appeared in less than half of estates from communities with fewer than 15 000 inhabitants, but in two-thirds of urban estates. Notarized loans did not show a clear pattern, but the use of savings facilities was clearly more popular in small communities than in large ones, but even there, they were only present in 30 per cent of the estates worth 50 000 guilders or more.

To find out more about whether location mattered for the type of financial transaction used, we calculated the percentage of transactions which occurred in the same municipality. For about

[59] On the spread of commercial banks and stock brokers: Jonker, 'Spoilt for choice'; idem, 'Geld en bankwezen'; idem, 'Alternative road'. On credit unions: idem, *Merchants*; de Vicq, 'Caught'. On rural credit cooperatives: Knippenberg and de Pater, *Eenwording*, pp. 109–11; Jonker 'Welbegrepen'; Colvin et al., 'Origins'; Colvin and McLaughlin, 'Raiffeisenism'. On SME Banks: Colvin 'Organizational determinants'; Peeters, 'Getting a foot in the door'. On the Postal Savings Bank and general savings banks: Dankers et al., *Spaarbanken*; Deneweth et al., 'Microfinance'. On mortgage banks: van Bochove and Hasken, 'Modernization'. Not included in the table are the so-called *hulpbanken*, local banks offering small loans to retailers: Deneweth et al. 'Microfinance'; de Vicq and van Bochove, 'Historical Diversity'.

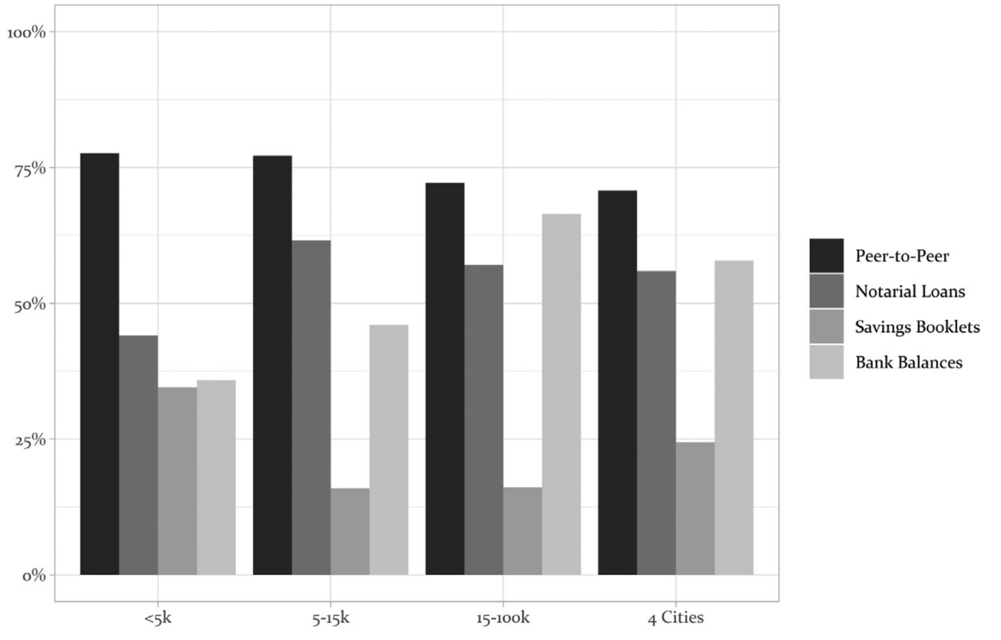

FIGURE 3 The share of 508 estates worth 50 000 guilders or more using financial services in agglomerations of different size in the Netherlands in 1921. *Notes*: For the data coding used, see figure 2. *Source*: *Memories* 1921 database

two-thirds of the almost 13 000 credit transactions recorded in estates worth 1000 guilders or more, we know the location of the bank, the notary, or the private individual with whom the decedent had a loan. With this information we calculated the distance as the crow flies from the decedent's residence to the bank, the notary, or the counterparty concerned. Table 8 reports the percentage share of contracts for which this distance was zero.[60] To throw these percentages into relief and capture the everyday reality of people in small communities always having to travel to purchase goods and services, we added the percentage of doctor's bills in the same community, calculated in the same way.

Most of the outcomes are what one would expect. In the four big cities, 80 per cent of people visited a local doctor, whereas only 44 per cent of people in rural communities did so, presumably because no doctor lived there or they needed specialized services elsewhere. The bank balances pattern closely reflects the institutional spread of table 7: savings banks and general commercial banks were a predominantly urban phenomenon, so people in cities used their local bank whereas most rural savers had to find a commercial bank or savings bank outside their own community. Conversely, more than 70 per cent of people living in communities of up to 15 000 inhabitants entrusted money to their local cooperative bank.

The pattern of peer-to-peer loans is fairly stable across the board: around 50 per cent of borrowers and lenders in all communities, big and small, had a local counterparty. That is to say,

[60] The incomplete registration of loan characteristics in the source renders calculating median or average distances between borrower and lender located in different places impractical. Indeed, our positive identification of loans contracted locally (i.e. in the decedent's place of residence) may still underestimate the percentage share of such local loans, simply because registrars familiar with the counterparty of any contract they found in the decedent's administration may have refrained from recording their place of residence.

TABLE 8 The percentage share of counterparties located in the same municipality in credit transactions reported in the estates of 1921

	Number of transactions	% Known location	<5 thousand	5–15 thousand	15–100 thousand	Four cities
Doctor's bills[a]	2839	59%	44%	55%	71%	80%
Liabilities						
Peer-to-peer loans	1122	60%	52%	44%	50%	62%
Notarized loans	646	89%	14%	36%	52%	71%
Bank loans	443	78%	26%	39%	47%	67%
Receivables						
Peer-to-peer loans	4101	64%	47%	48%	41%	48%
Notarized loans	2535	81%	27%	47%	41%	48%
Bank balances						
General savings banks	219	75%	30%	52%	84%	89%
Rural cooperative banks	183	92%	75%	72%	NA[b]	NA[b]
General banks[c]	770	64%	7%	19%	54%	84%

Notes: Table 8 reports the calculated 'zero' distances for Medical bills (1.1.2); Peer-to-peer loans received (1.3.3); Notarial loans received (1.2.1); Bank loans received (1.5.1); Peer-to-peer loans extended (2.3.3); Notarial loans extended (2.2.1); Commercial bank balances plus Credit union balances (2.1.1, 2.1.8, 2.1.10 and 2.1.11) and two kinds of savings bank balances: those from the General savings banks (2.1.4) and the Rural credit cooperatives (2.1.6). Results for the Postal Savings Bank are not reported because the location of the post office is mentioned for only eight savings booklets.
Source: *Memories* 1921 database.
[a]Including apothecary's bills.
[b]Less than five transactions.
[c]Including credit unions.

those borrowers and lenders were likely to have known each other. Notarized loans followed a similar pattern as far as the lenders were concerned: they signed 27–48 per cent of loans with a local notary. For borrowers things were different. In the smallest communities with fewer than 5000 inhabitants, they almost always had to travel to a notary. In bigger places it was easier to find one locally, up to the point that in Amsterdam, Rotterdam, The Hague, and Utrecht 71 per cent of the borrowers signed their loan with a local notary. These patterns are similar to the geography of notarial credit in France: borrowers in smaller places who could not find a counterparty locally turned to notaries in bigger places to find one.[61] For lenders in these bigger places local notaries were the logical go-between with people in the wider region they served.

V | DID AGE MATTER?

We now turn to explore the relationship between people's age and their use of different forms of credit. Some 60 per cent of the estates we sampled belonged to men and women who died aged 65 and over. Was their financial behaviour different because of their age, or because they had become economically active before banks became an alternative to personal networks?[62]

[61] Hoffman et al, *Dark matter credit*.

[62] The question of whether or not being economically active made a difference is hard to settle. Since there were no pensions as we know them today, it was quite common for people to keep working into old age. Except for civil servants and

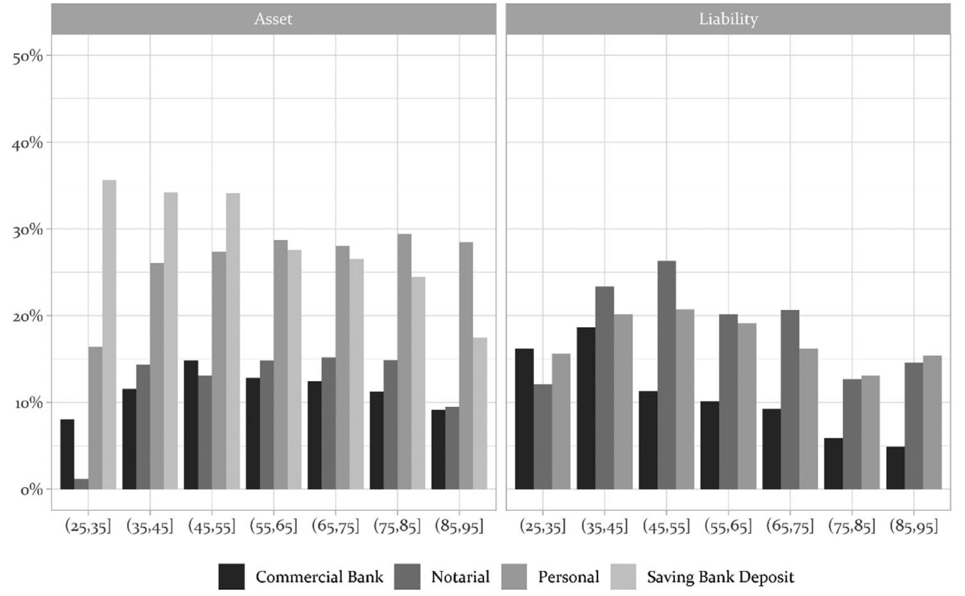

FIGURE 4 The percentage share of estates with notarial loans, personal loans, and bank balances in the Netherlands in 1921, according to age groups. *Notes*: For the data coding used, see figure 2. *Source*: *Memories* 1921 database; not included are decedents under 25 and decedents older than 95

Ideally, we would use differential mortality rates across age groups to extrapolate our estates data into a projection of financial service use patterns amongst the living, in the way wealth inequality researchers sometimes do.[63] Dutch demographic data would allow us to create such 'estate multipliers' but our estates data do not. Bank loans appear in small numbers only, as do young decedents, and these two factors combined would lead to unacceptably high error margins. We therefore limit ourselves to a simple description of loans received and extended by the people who died in 1921.[64]

Figure 4 reports the presence of notarial loans, bank loans, and personal loans in the estates of people in different age groups. The assets show that except for people who died very young (under

the managerial staff of big companies, there were no pension schemes for Dutch workers: Nijhof, 'Pensions'; van den Berg and Nijhof, *Menselijk*, pp. 147–69; van Nederveen Meerkerk and Peet, *Peertje*; van Gerwen and van Leeuwen, *Zoeken*, pp. 63–6. At the same time, very few decedents were wealthy enough to live entirely off investment income. At the going interest rate of 5%, an estate had to be worth 120 000 guilders to earn an income equal to that of a civil servant (6000 guilders). Only 3.3% of the people who died in 1921 had an estate worth that much.

[63] Piketty et al., 'Wealth concentration'.

[64] To isolate the effect of age, wealth, location, and other factors on the composition of the 1921 estates, we ran a series of logit regressions with the absence or presence of notarized loans, peer-to-peer loans, savings booklets, commercial bank accounts, and accounts with a rural credit cooperative as dependent variables, and decedent's wealth, residence, age, age-squared, gender, and number of children as independent variables. The regression results (online appendix C) show that wealth was the principal determinant of a person's use of different types of loans, while the size of the population in the place they lived was also related to their financial sector use in the way we observed in the descriptive statistics. Controlling for these factors and additional personal characteristics we observe only some significant, but at the same time, very weak correlations between people's age and their use of various types of loans. Older people were slightly more likely to have household debts or borrow money from peers (table C3), while older people were somewhat less likely to loan money to peers and somewhat more likely to have a commercial bank account (table C4).

TABLE 9 Share of different types of credit across age groups in the estates of 1921

	Loans extended					Loans received			
Age	Value (millions of guilders)	Notarial	Personal	Bank	Savings	Value (millions of guilders)	Notarial	Personal	Bank
25–34	9	24%	68%	5%	2%	1	36%	41%	24%
35–44	22	15%	77%	7%	3%	7	24%	12%	64%
45–54	37	35%	58%	6%	2%	38	22%	20%	58%
55–64	111	29%	67%	3%	1%	35	50%	28%	21%
65–74	351	60%	38%	1%	0.3%	50	24%	66%	11%
75–84	427	69%	27%	3%	0.3%	25	12%	78%	11%
85–94	39	39%	60%	1%	1%	8	37%	21%	43%
All	995	57%	39%	3%	0.5%	164	28%	44%	28%

Source: *Memories* 1921 database.

the age of 35) or very old (aged 85 and over) the use of different channels to extend loans was quite similar across age groups. About 30 per cent had personal loans outstanding while 15 per cent had notarials loans. Savings booklets did appear more frequently among younger decedents, but other bank balances – current accounts in most cases – were only slightly more common for them than for older people. Loans received do appear more frequently in the estates of people who died between 35 and 54 years. We also observe a possible cohort effect with regard to bank loans: they were just as common as personal loans for people below 45 years but they occurred much less frequently among the liabilities of older people.

Table 9 reports the total value of loans extended and received by decedents of different ages in 1921, and the distribution of these loans across the main lending channels. Among the assets, the value of bank balances was very small in every age group, since people used their accounts to make payments, not to store wealth. Savings bank deposits did serve that purpose but only for small amounts, as banks capped the interest-paying balances.[65] Personal loans and notarial loans, on the other hand, were an attractive store of wealth, with notarial loans – mortgages in many cases – the most popular one, especially for people aged 65 and over.

The value of loans received by decedents in 1921 was six times smaller than the value of loans extended. Notarial loans and personal loans made up 72 per cent of the total value but banks were the most important suppliers of credit to decedents under 55 years, notably because the average bank loan was twice as large as a notarial loan, and 3.5 times the size of a personal loan (cf. table 6). Still, even among the youngest decedents, notaries and peers made up one-third to one-half of all credit supplied. This suggests that by 1921 bank penetration may have been deeper among younger borrowers but it did not end their use of other channels.

VI | CONCLUSIONS

We analysed the estates of 2325 top Dutch wealth owners who died in 1921 to discover their financial behaviour. Only half of those people had a bank account at all. Banks were clearly irrelevant for their payments, done by cash or the periodic settling of suppliers' bills. Nor did people need

[65] Barendregt and Overman, *Ondernemend*, p. 75.

banks for trading the large volume of securities owned; they could do that through stockbrokers. The banking system's main competitive advantages existed in savings accounts for people unwilling or unable to buy securities, and in current accounts for businesses. Our sample probably underestimates both, the former because savings accounts will have been more widespread among younger people, and the latter because many if not most of the people in our sample were no longer in active business.

The most surprising outcome, however, is the sheer volume of financial services which, in a country with a developed economy and a financial system to match, continued to bypass that system. Peer-to-peer and notarized loans, including mortgages, dwarfed bank loans and deposits in the estates of wealthy people who died in 1921. Whereas cost and distance were not a factor determining bank access, wealth level and location did have some impact: put simply, top urban wealth owners were more likely to have a bank account. Therefore, in the early twentieth century the Netherlands still possessed, to a surprising degree, the mutual financial service patterns well known from pre-industrial economies. To a certain extent this was a matter of transaction amounts. Many peer-to-peer loans were simply too small, that is to say, unremunerative, for banks so they did not seek to provide them.

However, the apparent familiarity between lenders and borrowers combined with the casual character of so many contracts, that is, their formality and frequent lack of collateral even for large loan amounts, alert us to the social dimension of all this mutual lending and borrowing. In 1921, turning to one's family, neighbours, business relations, or local investors was still far more common than going to a bank, if there even was one. Therefore, the pace with which banks penetrated Dutch society depended, not just on personal income levels, cost and quality of service, or ease of access, but also on a social evolution, changing people's preferences from mutual dependency to formalized contracting with more or less anonymous institutions. With this finding we add a dimension to the growing body of literature on the social history of finance which, rich for the early modern period, still awaits exploration for the twentieth century and beyond.[66]

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