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Monetary policy and borrowing costs for different household income groups

Kerschyl Singh and David Fowkes¹

Abstract

Repo rate changes transmit differently to different income groups. Some debt instruments (mainly mortgages and vehicle loans) are more closely tied to the repo rate than others (like microloans or informal loans). Because richer South Africans' debt portfolios include a much larger proportion of repo-sensitive instruments than those of poorer South Africans, monetary policy changes mainly affect borrowing costs for households in the top 20% of the income distribution. By contrast, the large majority of the population are more or less unaffected by this channel of the monetary policy transmission mechanism.

1. Introduction

Repo rate changes transmit differently to different income groups. Some debt instruments (mainly mortgages and vehicle loans) are more closely tied to the repo rate than others (like microloans or informal loans). Richer South Africans' debt include a larger proportion of repo-sensitive instruments than that of poorer South Africans. For this reason – considering only the borrowing cost channel of the monetary policy transmission mechanism – a lower repo rate disproportionately benefits higher-income South Africans, while a higher rate has the opposite effect. This fact appears to be under-appreciated by richer South Africans, who do not to grasp the scale of their advantage vis-à-vis their poorer compatriots.² Higher mortgage costs, for instance, are mainly a problem for the upper-portion of the income distribution, rather than for people at the middle or lower end of this spectrum – even though many people with mortgages consider themselves middle class.

2. Literature review

Since the Great Recession, there has been growing interest in the distributional consequences of monetary policy. This literature has focused overwhelmingly on advanced economy dynamics. In particular, critics have accused expansionary policies (quantitative easing, record-low interest rates) of raising asset prices and thereby exacerbating inequality. Defenders of these policies have argued that by boosting growth and labour markets, they have benefitted less wealthy people.³

Theoretically, it is not clear whether changes in interest rates should raise or lower inequality. Different transmission channels work in different directions (for instance, as per the debate just discussed, lower

¹ Special thanks to Manuela Günther, Adèl Bosch, Lesego Morope, Alex Smith and Witness Simbanegavi for data and comments.

² As the creators of SALDRU's income comparison tool put it, "Most people are wrong about where they are located in the income distribution." See <https://www.saldru.uct.ac.za/income-comparison-tool/>

³ See Bernanke (2015).

rates could simultaneously benefit better-off homeowners and poor jobseekers). Monetary policy choices are also likely to have varying effects given different starting points (e.g. different asset portfolios or national labour shares of income), and will probably transmit differently depending on the stage of the business cycle.⁴

Empirically, it appears the overall distributional consequences of monetary policy tend to be relatively modest, with the sign of the inequality coefficient changing in different cases.⁵ For instance, Coibion et al. (2016) find that, for the United States, an unexpected monetary policy contraction of 100 basis points raises the Gini coefficient by 0.007 points. Guerello (2016) reports similar results for the euro area. O’Farrel et al. (2016) notes that inequality effects via the financial-channel (asset prices, returns on assets and costs of debt servicing) vary, for a sample of eight OECD countries, but are generally small. The intensity of the debate does not appear proportional to the mild and inconclusive evidence available.

There is a substantial literature on the broad topic of inequality in South Africa, but relatively little on the relationships between monetary policy and inequality. A recent exception is IMF (2018), which presents evidence that monetary tightening is pro-poor in South Africa, chiefly because it reduces inflation.⁶ Some popular discourse displays a reflex sentiment that looser monetary policy benefits poorer people. (A prominent example was the September 2018 statement issued by an ANC spokesperson, and later retracted, urging the MPC ‘to prioritise the plight of the poor’.⁷) Empirical evidence for this is scarce, however.

3. Data and methodology

Monetary policy has distributional consequences through a range of variables, such as asset prices, employment rates, borrowing costs and inflation.⁸ This study focuses on one specific channel connecting monetary policy decisions to changes in inequality: household borrowing costs. It is not intended to map every possible distributive consequence of monetary policy. Rather, it aims to provide an empirically valid description of one significant channel. We care about this channel for several reasons. It is an important part of the monetary policy transmission mechanism, directly impacting the spending power of households.⁹ It is also important for households’ felt experiences of monetary policy: many ordinary people notice monetary policy principally because they see their debt costs changing when the MPC moves the repo rate. (By contrast, other channels – such as employment or wealth effects – are experienced more indirectly.) Finally, the links between repo rate changes and different income groups’ borrowing costs have not been spelled out previously, at least to our knowledge.

To understand how borrowing costs affect different income groups, we construct borrowing profiles for each quintile of households, based on the kinds of debt products used at each income level. The data for income levels and debt products are drawn from the South African Social Attitudes Survey (SASA). We then match these portfolios with the applicable interest rate for each kind of borrowing product, using SARB data for average interest rates across different kinds of interest rates. Our core intuition is that different households borrow for different things, and therefore face different kinds of interest rates, with different degrees of responsiveness to monetary policy changes.

⁴ See Coibion et al. (2012); O’Farrel et al. (2016), Amaral (2017) and Fuceri & Loungani (2016).

⁵ See Coibion et al. (2012); Bivens (2015); Guerello (2016) and O’Farrell et al. (2016).

⁶ Miyajima (2018)

⁷ Carin Smith. 2018, September 20. “ANC sends, then retracts SARB monetary policy statement”

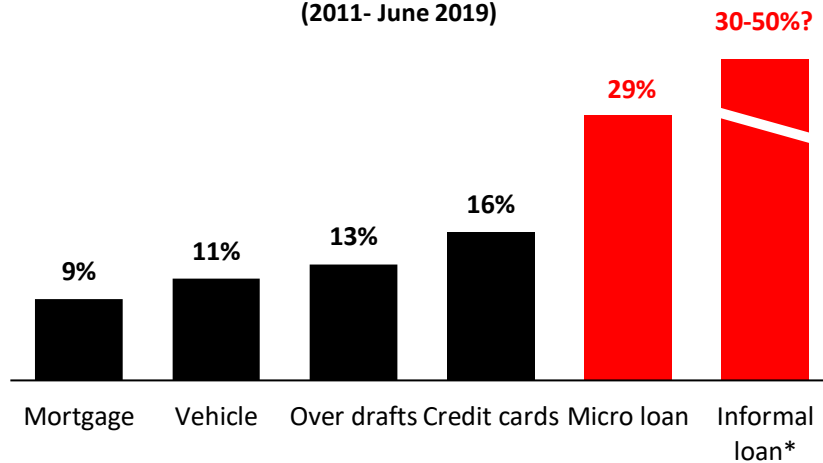
<https://www.fin24.com/Economy/anc-sends-then-retracts-sarb-monetary-policy-statement-20180920>

⁸ For a broader review of the relationships between inequality and monetary policy in South Africa, see Kganyago (2018).

⁹ Smal and de Jager (2001)

Figure 1 below reports weighted average interest rates for various kinds of loans, ranked from lowest to highest. The most costly debt is micro loans¹⁰ and informal loans. The cheapest debt is home and vehicle loans, with average interest rates of 9% and 11%, respectively (for the period 2011 to June 2019).

**Figure 1: Average interest rates
(2011- June 2019)**



Source: SARB and Wonga(2018). *There is no official data for interest rates on informal loans, but surveys suggest these loans pay around 30-50% annually.

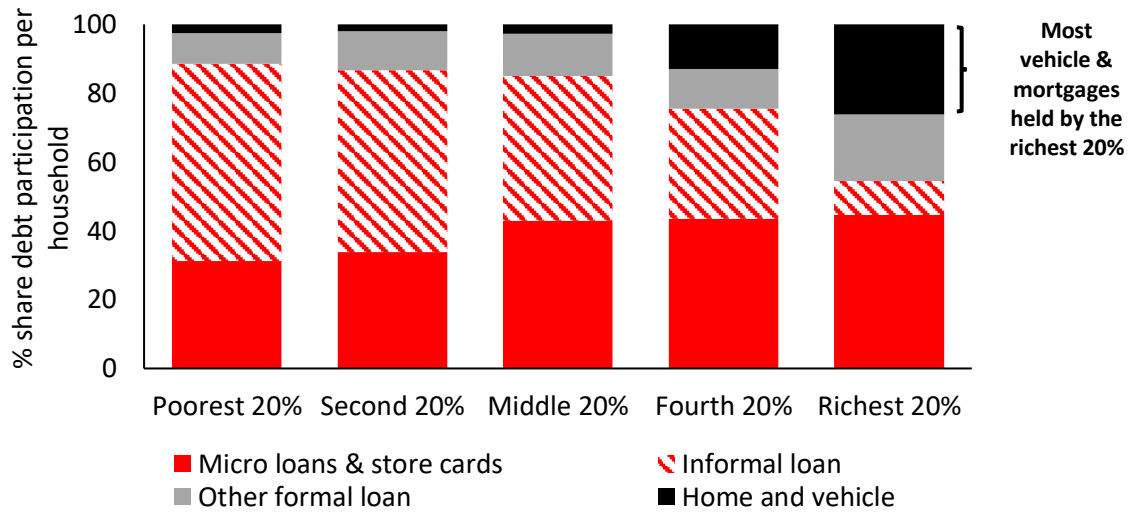
To estimate average debt service costs for each quintile of households, we first calculate a weighted basket of different types of debt¹¹ used per income group based on debt participation for each year of the SASA¹² survey (2011, 2012, 2013, and 2015). The weights reflect the relative importance of the various types of debt products for each quintile of households. As figure 2 shows, most home and vehicle debt is held by the richest 20% of South Africans. Moving down the income ladder, the composition of debt changes substantially, with micro loans, store cards and informal loans becoming more prevalent.

¹⁰ For the SARB data, which is used in figure 1, micro loans are defined as unsecured loans from a bank, excluding credit card and overdraft facilities.

¹¹ SASA sub-categories of debt are follows: 1. Home and vehicle, 2. Other formal loans (overdraft, credit cards and leasing agreements), 3. Micro loans and store card, 4. Informal loans.

¹² In periods without SASA survey results (2014, 2016, 2017, and 2018), we relied on the most recent year's weight. Our database does not distinguish between mortgages and vehicle loans, instead recording them jointly. For the purposes of establishing an interest rate for this class of debt, we assume it is half mortgages and half vehicles.

Figure 2: Debt composition by income group, average 2011-2015



Source: SASA

We then match each debt category in the five baskets to the relevant interest rate, and calculate overall lending rates for each income group, using the formula below:

$$i_t^q = \text{home and vehicle}(w_t^q \times i_t) + \text{other formal}(w_t^q \times i_t) \\ + \text{informal}(w_t^q \times i_t) + \text{micro and store card}(w_t^q \times i_t)$$

Where q = quintile of income category (1, 2, 3, 4, 5), w = weight of debt in each income category, i = weighted average interest rate, and t = time period 2011 to June 2019, on a monthly basis.

The average interest rates reflect numbers of debt products, not the value of debts. This is required because the SASA data do not include values: respondents just say whether or not they use different debt products.¹³ Were we able to weight by value, mortgages and vehicle loans would likely have a bigger share. This would nonetheless reflect the experience of fewer people with larger value debts.

Appropriating terms used in the inflation literature, we think of our measure as democratically weighted, rather than a plutocratically weighted.

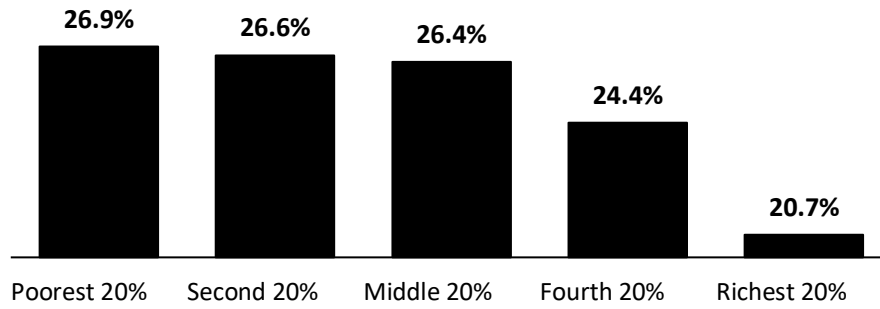
Unfortunately, our data do not cover interest rates on informal loans or debt instruments such as store cards. To overcome this limitation, we use micro loan rates as a proxy for these other kinds of high-interest debt. This is a conservative assumption, in that interest rates on informal loans are likely to be higher than for formal loans, and even less responsive to the repo rate than micro-loans. Our results therefore probably overstate the effect of repo rate changes on poorer households' borrowing costs.

4. Results

Figure 3 shows the average borrowing interest rate by income group for the period 2011 to June 2019. As expected, the lending rate for the richest quintile is the lowest. The borrowing cost spread for the other four quintiles is in the range of 4-7 percentage points above the richest quintile. This gap is likely explained by lender risk: better-off borrowers are acquiring property that is more easily re-possessed, which reduces the cost of defaults.

¹³ The National Credit Regulator database has debt by value, but this data is not usable as the income brackets are not adjusted for inflation, and the top bracket is relatively low.

Figure 3: Average borrowing cost



Source: Author's own calculation

Figure 4 reports the correlation results between the lending rate by income group to the repo rate over the period 2011 to June 2019. Across all household groups, only the borrowing costs of the richest 20% are positively correlated with the repo rate, and even this correlation is weak. For the bottom four quintiles, by contrast, a repo rate move either leaves borrowing costs unaffected or, counterintuitively, moves them in the opposite direction to a repo rate adjustment. This is interesting because it suggests adjustments in the repo rate are essentially immaterial for the borrowing costs of most South Africans.

Figure 4: Lending rate by income group correlation to repo rate

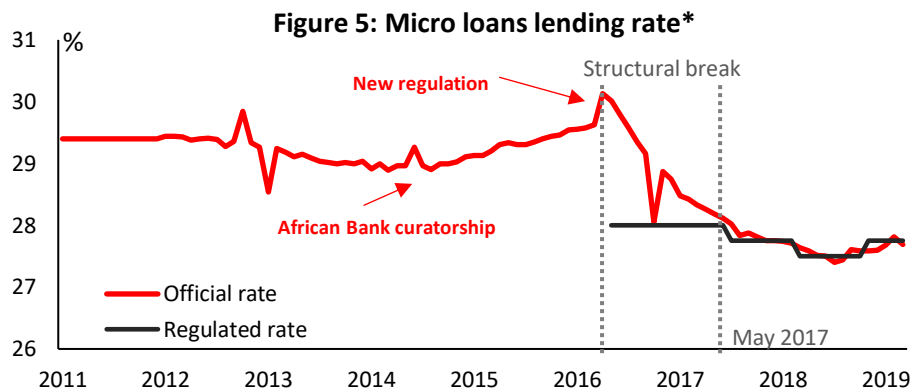


Source: Author's own calculations

One drawback to this analysis is that the series contains a structural break. From May 2016, new regulations from the Department of Trade and Industry (the dti) tied household debt to the repo rate by capping loans at various spreads over repo (for instance, mortgages are regulated to repo plus 12pp; unsecured credit is capped at repo plus 21pp). This measure should have created a more reliable correlation between the repo rate and higher-cost debt than we see in our full sample. Using only data from May 2017 to date, a strong correlation¹⁴ emerges between all quintile's borrowing costs and the repo rate. Even with this correlation, however, it remains clear that monetary policy changes transmit more strongly to vehicle and mortgage debts than microloans: a hypothetical 100 basis point adjustment to a loan paying the Prime rate of 10.25% is nearly three times larger than the same 100 basis point adjustment to a loan at 27.75%. Furthermore, interest rate caps tend to shift riskier borrowers into the unregulated market, where interest rates are higher still. This further weakens the connection between monetary policy

¹⁴ A strong correlation above 0.8. However, we are aware that less than two years of observations is not enough observations for a meaningful relationship.

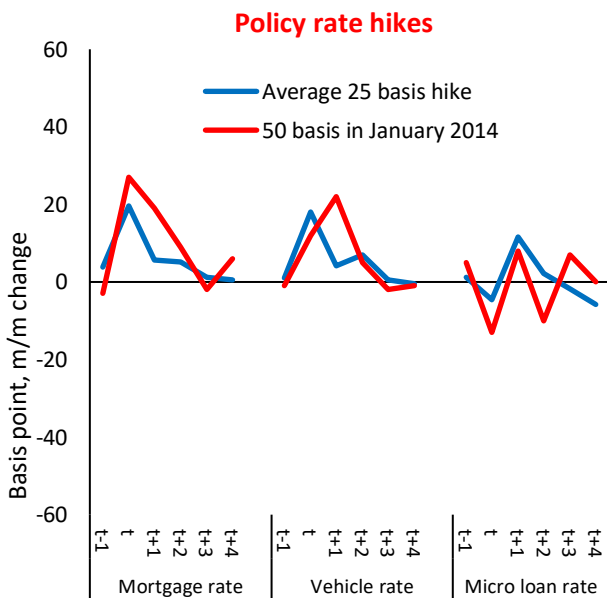
and high-rate debt – although marginal borrowers might find repo rates shift them out of the formal market and the informal market, in which case a monetary policy change might inadvertently affect poorer people’s borrowing costs.



*Data points more than 10 percentage points to the mean were removed and imputed (one data point). We are satisfied there was an error in this data point. Unfortunately the bank-level data is confidential and cannot be published here.
Source: SARB

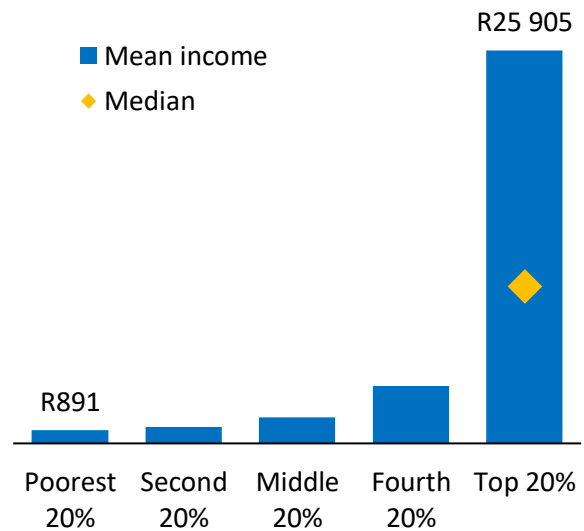
To further elucidate the effects of repo rate changes on different income groups and debt instruments, we calculate how borrowing costs change following a repo adjustment, for the post-crisis period. (See also appendix for Table 1 -4). The impulse response charts below show clear effects on vehicles and mortgages, as expected, but the effects on micro-loans are less clear. In particular, repo increases appear not to have affected microloans at all, for this period.

Figure 6: Impulse response by debt rates



Source: Author's own calculation

Figure 7: Average income* profile of individuals (monthly in rands)



*Constant price terms based on November 2014
Source: SASA

5. Limitations of the study and future research

There are a number of limitations to this study. First, South African income groups do not fall neatly into quintiles. Rather, approximately 5% of households are high income; about 20% are middle class; a further

25% or so are poor or vulnerable to being poor, and the remaining 50% are chronically poor.¹⁵ Unfortunately, it is difficult to adapt the available data on borrowing patterns to this class structure. In particular, survey data like those from SASA typically under-sample richer households. However, it is likely that the patterns described in this note would be even more marked with a separate category for the richest 5% of households, as these households are likely to borrow overwhelmingly for housing and vehicles, the cheapest forms of debt.

Second, we use average borrowing costs for each debt instrument to create borrowing rates per quintile. However, it is possible different quintiles have different interest rates for the same kind of debt (e.g. mortgages). Unfortunately, existing data are not adequate to identify variations in debt costs for the same kinds of debt instruments. Once again, however, it is likely that this data, were it available, would amplify the effects shown in this note, as richer borrowers probably do not face higher rates than poorer borrowers.

6. Conclusion

We show that interest rate cuts reduce borrowing costs for richer South Africans, but the effects are smaller or non-existent for those further down the income scale. This is because richer households hold the majority of repo-sensitive debt, especially home and vehicle loans. Poorer South Africans are less affected, not because this group avoids debt but because the debt instruments used are less closely tied to the central bank rate. This contrast means monetary policy transmits more strongly to richer South Africans than poorer South Africans, at least through the borrowing cost channel.

¹⁵ See Schotte et al. (2017) p. 20

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Appendices

Figure 8: Borrowing cost by income group

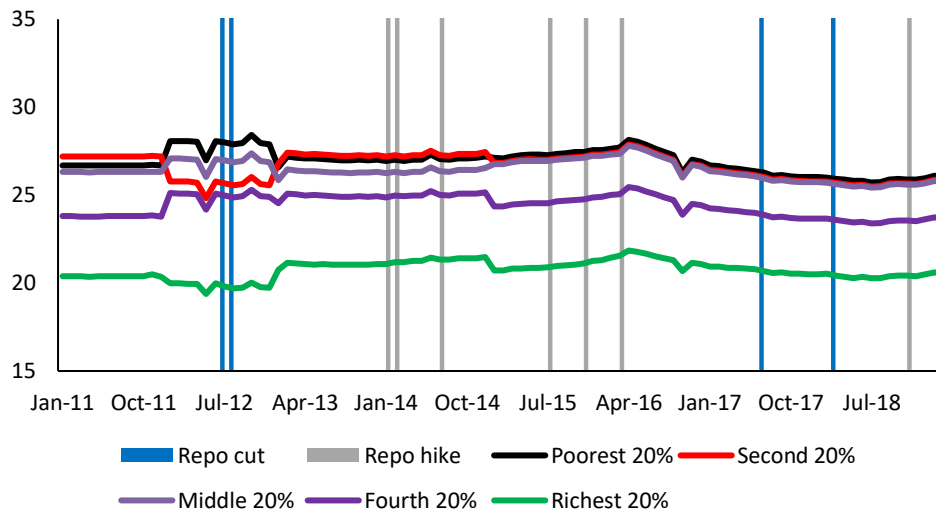


Table 1: Reaction per income group to cuts in the repo rate

Date	Repo	Change in repo	Poorest 20%	Second 20%	Middle 20%	Fourth 20%	Richest 20%
2012-06-01	5.5						
2012-07-01	5	-0.5	-0.04	-0.08	-0.06	-0.09	-0.18
2012-08-01	5	0	-0.12	-0.11	-0.11	-0.11	-0.08
2012-09-01	5	0	0.07	0.04	0.06	0.05	0.01
2012-10-01	5	0	0.45	0.40	0.43	0.39	0.28
2012-11-01	5	0	-0.46	-0.39	-0.43	-0.38	-0.25
			-0.09	-0.13	-0.11	-0.14	-0.23
2017-06-01	7						
2017-07-01	6.75	-0.25	-0.10	-0.10	-0.10	-0.11	-0.12
2017-08-01	6.75	0	-0.16	-0.16	-0.16	-0.14	-0.10
2017-09-01	6.75	0	0.04	0.04	0.04	0.04	0.03
2017-10-01	6.75	0	-0.07	-0.07	-0.07	-0.06	-0.05
2017-11-01	6.75	0	-0.05	-0.05	-0.05	-0.04	-0.02
			-0.34	-0.33	-0.33	-0.31	-0.26
2018-02-01	6.75						
2018-03-01	6.5	-0.25	-0.08	-0.08	-0.08	-0.09	-0.10
2018-04-01	6.5	0	-0.06	-0.06	-0.06	-0.07	-0.07
2018-05-01	6.5	0	-0.07	-0.07	-0.07	-0.06	-0.05
2018-06-01	6.5	0	0.02	0.02	0.02	0.03	0.05
2018-07-01	6.5	0	-0.10	-0.09	-0.10	-0.08	-0.07
			-0.29	-0.29	-0.29	-0.27	-0.25

Table 2: Reaction per income group to hikes in the repo rate

Date	Repo	Change in Repo	Poorest 20%	Second 20%	Middle 20%	Fourth 20%	Richest 20%
2013-12-01	5						
2014-01-01	5.5	0.5	-0.09	-0.09	-0.08	-0.06	0.01
2014-02-01	5.5	0	0.09	0.08	0.09	0.10	0.12
2014-03-01	5.5	0	-0.07	-0.07	-0.06	-0.06	-0.01
2014-04-01	5.5	0	0.07	0.07	0.07	0.06	0.06
2014-05-01	5.5	0	0.00	0.00	0.00	0.00	0.01
			-0.01	-0.01	0.03	0.05	0.18
2014-06-01	5.5						
2014-07-01	5.75	0.25	-0.24	-0.25	-0.22	-0.19	-0.09
2014-08-01	5.75	0	-0.05	-0.05	-0.04	-0.04	-0.10
2014-09-01	5.75	0	0.09	0.09	0.09	0.08	-0.03
2014-10-01	5.75	0	0.00	0.00	0.00	0.00	-0.03
2014-11-01	5.75	0	0.03	0.02	0.02	0.03	-0.03
			-0.18	-0.18	-0.15	-0.13	-0.28
2015-06-01	5.75						
2015-07-01	6	0.25	-0.02	-0.02	-0.02	0.00	0.02
2015-08-01	6	0	0.07	0.08	0.08	0.09	0.11
2015-09-01	6	0	0.04	0.04	0.04	0.03	0.02
			0.10	0.10	0.10	0.12	0.14
2015-10-01	6						
2015-11-01	6.25	0.25	0.03	0.03	0.03	0.05	0.08
2015-12-01	6.25	0	0.12	0.12	0.12	0.12	0.14
2016-01-01	6.75	0.5	-0.01	0.00	-0.01	0.02	0.05
			0.14	0.14	0.14	0.19	0.26
2016-02-01	6.75						
2016-03-01	7	0.25	0.06	0.06	0.05	0.07	0.08
2016-04-01	7	0	0.46	0.45	0.45	0.39	0.31
2016-05-01	7	0	-0.11	-0.11	-0.11	-0.10	-0.08
2016-06-01	7	0	-0.19	-0.19	-0.18	-0.15	-0.11
2016-07-01	7	0	-0.20	-0.20	-0.20	-0.18	-0.14
			0.01	0.01	0.01	0.04	0.07
2018-10-01	6.5						
2018-11-01	6.75	0.25	-0.01	-0.01	-0.01	0.00	0.01
2018-12-01	6.75	0	-0.02	-0.02	-0.02	-0.03	-0.04
2019-01-01	6.75	0	0.10	0.10	0.10	0.10	0.11
2019-02-01	6.75	0	0.13	0.13	0.13	0.11	0.10
2019-03-01	6.75	0	-0.13	-0.12	-0.13	-0.12	-0.10
			0.07	0.07	0.06	0.07	0.08

Table 3: Reaction per lending rate to hikes in the repo rate

		25 basis point hike in...					50 basis point hike in...	
		July 2014	July 2015	Nov. 2015	March 2016	Nov. 2018	Average	January 2014
Mortgage rate	t	21	19	21	21	16	19.6	27
	t+1	7	7	5	10	-1	5.6	19
	t+2	0	-9	27	-5	13	5.2	9
	t+3	1	0	0	3	2	1.2	-2
	t+4	1	0	0	1	1	0.6	6
Vehicle rate	t	19	14	20	20	17	18	12
	t+1	1	12	2	1	5	4.2	22
	t+2	-1	0	36	1	-1	7	5
	t+3	1	0	0	1	1	0.6	-2
	t+4	0	0	0	-3	1	-0.4	-1
Micro loan rate	t	-30	-1	2	6	0	-4.6	-13
	t+1	-6	5	8	50	1	11.6	8
	t+2	9	5	1	-12	8	2.2	-10
	t+3	0	0	0	-22	13	-1.8	7
	t+4	4	0	0	-21	-12	-5.8	0

Table 4: Reaction per lending rate to cuts in the repo rate

		25 basis point cut in...			50 basis point cut in...
		July 2017	March 2018	Average	July 2012
Mortgage rate	t	-14	-16	-15	-38
	t+1	-6	-7	-7	-6
	t+2	2	0	1	1
	t+3	-1	1	0	11
	t+4	1	0	0	-8
Vehicle rate	t	-14	-14	-14	-40
	t+1	0	-6	-3	1
	t+2	0	1	0	-1
	t+3	1	1	1	1
	t+4	2	3	2	0
Micro loan rate	t	-9	-7	-8	-2
	t+1	-19	-5	-12	-12
	t+2	5	-8	-1.5	9
	t+3	-7	-1	-4	48
	t+4	-6	-10	-8	-50