Observed and Expected Interest Rate Pass-Through under Remarkably High Market Rates

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Outline

Introduction

- The interest rate pass-through unveil the transmission channel of the monetary policy to the financial sector of the economy.
- In an ideal scenario, changes in the policy rate should be fully and symmetrically transmitted to the market rates.
- An efficient monetary policy would affect the financial market and so the business cycle through the credit channel.
- In practice, however, the monetary policy interest rate might not affect market rates as desired due to either incomplete or over-proportional pass-through.
- This is of special concern in the Brazilian economy, which is historically characterized by persistently high interest-rate levels and spreads.
- Financial institutions might even anticipate asymmetric adjustments in lending rates by forecasting future changes in the policy rate.
- Departing from high margins, an over-proportional and positively asymmetric pass-through from both observed and expected policy rates, for instance, might sustain the remarkably high loan interest rates in the country.

Objectives

- To estimate the pass-through from observed and expected policy interest rates to lending rates in the Brazilian economy.
- To account for financial-institutions specific characteristics, asymmetric behavior and partial adjustment due to persistence in lending rates.
- To assess whether financial institutions anticipate adjustments in loan rates by forecasting the next target level of the policy rate in an expected pass-through environment.
- We use a unique and non-public dataset with the expected policy rate identified by professional forecasters (financial institutions) on a weekly basis.
- We apply a fixed effects approach to panels of financial institutions and non-earmarked lending rates disaggregated by households and non-financial corporations loan types.

Literature review

- **Interest rate pass-through from monetary policy to lending rates**: Cottarelli and Kourellis (IMF 1994); Hofmann and Mizen (Economica 2004); Hristov et a. (JBF 2014); Von Borstel et al. (JIMF 2016); Holton and d'Acri (JBF 2018); Altavilla et al. (JME 2020).
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- **Market power, bank concentration, competition**: Hannan and Berger (1991); Cottarelli and Kourelis (IMF 1994); Berger et al. (JMCB 2004); Hristov et al. (JBF 2014); Holton and d'Acri (JBF 2018); Ornelas et al. (IADB 2020).
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Major findings

- Convincing evidence of full (and over-proportional) pass-through from both the observed and the expected policy interest rates to the majority of lending rates.
- The pass-through is:
  - Over-proportional for the complete sample, sub-samples by households and non-financial corporations and some specific lending types.
  - Positively asymmetric, meaning that banks refrain from downward adjustments.
  - Strongly correlated with the interest rate margins so that higher spreads are coupled with larger pass-through estimates.
  - Similar for both observed and expected policy rates, suggesting that banks anticipate adjustments in loan rates.
  - Heterogeneous among different types of lending operations.
- These findings are robust to additional control variables and partial adjustment, which in turn unveils persistence in the loan rates.
- Taken together, they contribute to explain the remarkably high loan interest rates in Brazilian economy.

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Data

- Interest rates from new credit operations, observed policy rate (Over-Selic), expectations of the next target level of the Over-Selic rate and control variables (Open Data Portal from the Central Bank of Brazil).
- Sample from January 5^{th}, 2012 to April 4^{th}, 2019 on a weekly basis.
- Only the last expected target level of the Selic rate to be decided in the next Copom meeting, as reported by the financial institutions in the Focus system.
- Up to 378 weekly observations by financial institution.
- 58 Copom meetings during the period.
- Outliers above the 97^{th} percentile of each loan type were trimmed.
- More accurate information than using aggregate median expectations.
- Expected Selic precisely identified by professional forecasters (financial institutions) and matched with the lending rates by financial institution.

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Observations and financial institutions by borrower and lender types

	All financial institutions				S1 financial institutions			
	Total	Public	Private	Foreign	Total	Public	Private	Foreign
Number of observations								
Total	92,552	21,279	48,528	22,745	52,002	13,893	28,335	9,774
Households	42,423	9,865	23,981	8,577	27,978	6,595	15,950	5,433
Non-financial corporations	50,129	11,414	24,547	14,168	24,024	7,298	12,385	4,341
Number of financial institutions								
Total	57	4	34	19	30	3	20	7
Households	49	4	33	12	30	3	20	7
Non-financial corporations	32	3	17	12	11	2	7	2

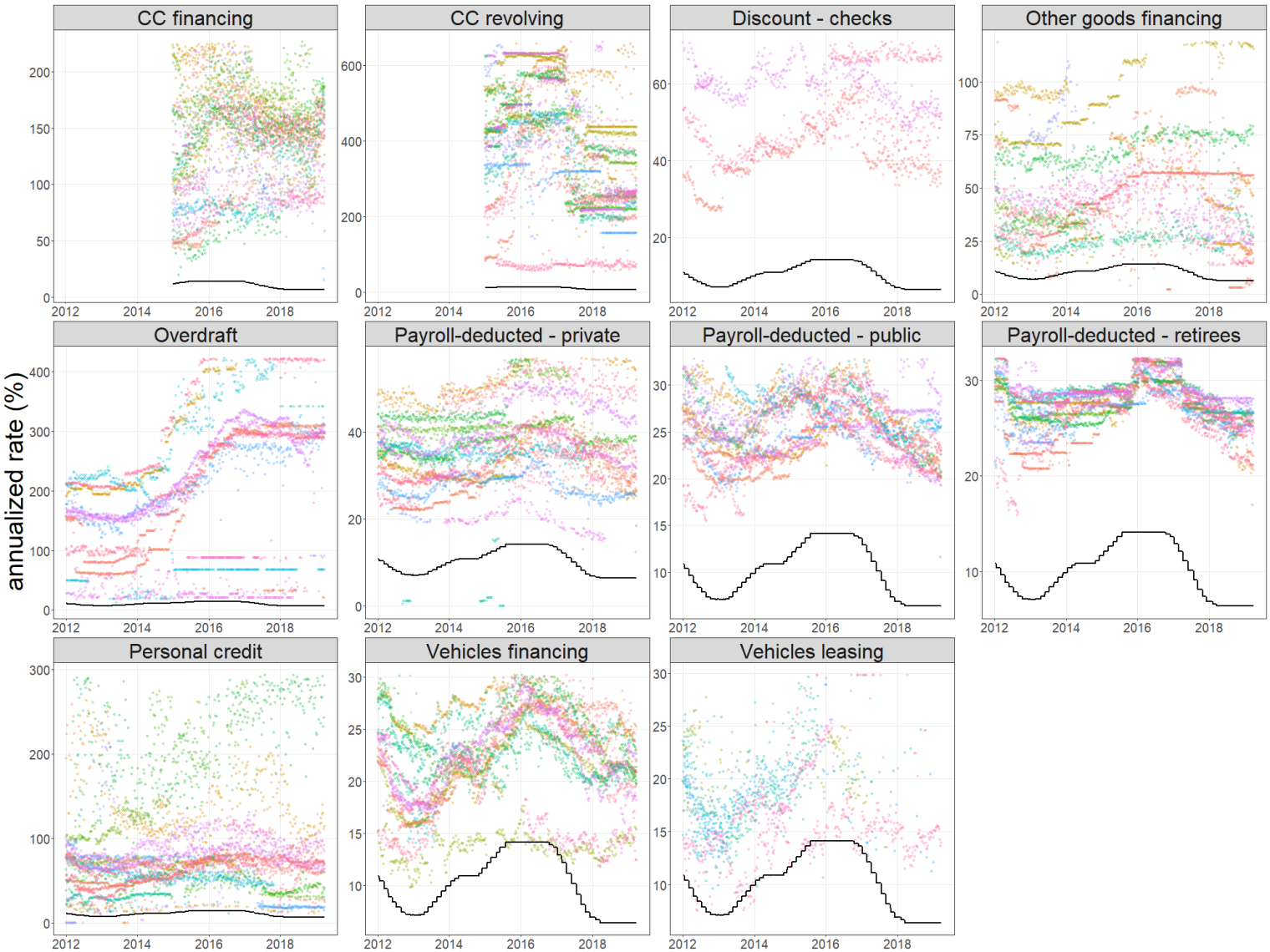
Note: S1 stands for systemically important banks.

Descriptive statistics

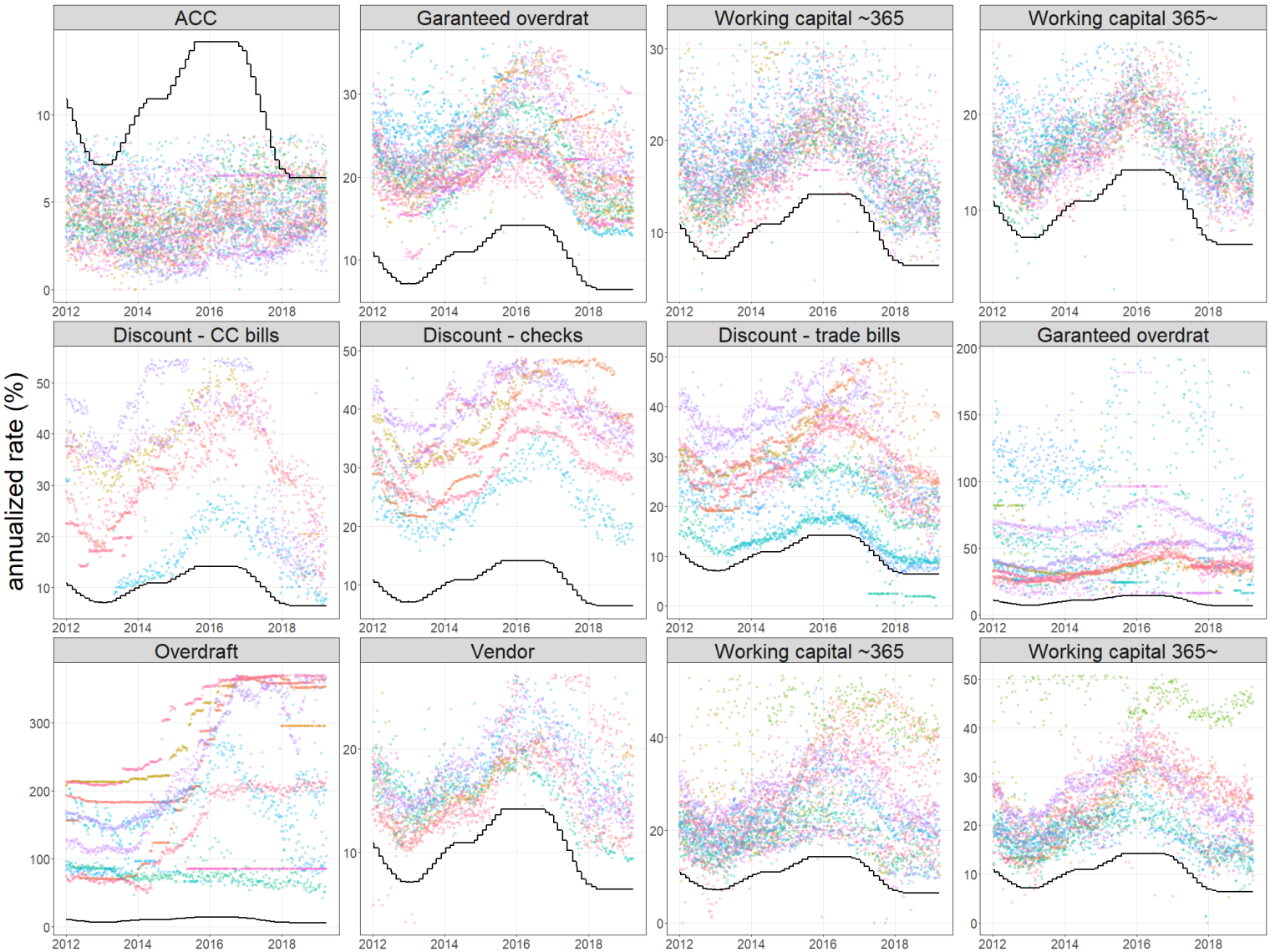
Loan Type	Observations	Mean	Std. dev.	Minimum	25%	Median	75%	Maximum
Households								
CC financing	3,611	137.3	42.7	15.1	103.2	145.9	166.3	226.6
CC revolving	4,035	384.2	154.8	53.9	253.8	399.5	495.5	662.3
Discount - checks	1,259	51.5	11.0	26.9	42.3	51.4	60.6	70.8
Other goods financing	3,468	49.5	24.5	2.1	29.6	44.3	66.4	118.6
Overdraft	3,732	201.9	106.0	12.7	101.4	207.6	292.5	422.3
Payroll-deducted - private	4,914	36.2	8.8	0.0	29.9	35.7	41.2	56.8
Payroll-deducted - public	4,630	25.4	3.2	11.6	23.0	25.4	27.8	32.8
Payroll-deducted - retirees	5,184	27.4	2.5	15.9	26.1	27.6	28.9	32.3
Personal credit	4,992	84.7	57.4	0.0	51.6	70.9	93.2	293.4
Vehicle financing	5,190	22.0	4.4	9.8	19.3	22.4	25.3	30.2
Vehicle leasing	1,408	17.7	4.1	7.5	14.7	17.2	20.3	29.8
Non-financial corporations								
ACC (FCI)	5,995	4.2	1.7	0.0	2.9	4.0	5.4	8.8
Discount - CC bills	2,095	31.1	12.0	6.6	20.6	32.6	40.3	54.8
Discount - checks	2,834	34.6	7.8	15.8	28.6	34.9	40.6	48.6
Discount - trade bills	4,542	26.3	10.1	0.0	18.9	26.4	33.8	49.6
Garanteed overdrat	3,689	51.7	32.3	9.6	31.2	39.5	62.9	192.2
Garanteed overdrat (Float)	5,542	22.4	4.8	7.2	19.2	22.0	25.1	36.3
Overdraft	3,581	196.6	101.6	42.7	92.1	185.7	281.4	370.9
Vendor	2,905	16.6	3.6	3.2	14.0	16.2	18.9	27.2
Working capital ∼365	4,859	24.8	9.5	0.0	18.0	22.4	29.9	53.4
Working capital ∼365 (Float)	5,151	17.8	4.5	3.7	14.5	17.5	20.7	30.7
Working capital 365∼	4,386	23.6	8.6	0.0	17.2	21.9	28.4	50.9
Working capital 365∼ (Float)	4,550	16.5	3.8	1.7	13.8	16.2	19.0	27.6
Over-Selic rate								
Observed Selic	378	10.1	2.8	6.4	7.2	10.2	12.9	14.2
Expected Selic	14,390	10.0	2.8	6.0	7.2	10.0	12.8	15.2

Notes: CC, ACC and FCI stand for Credit Card, Advances on Exchange Contracts and Foreign-Currency-Indexed Interest Rate.

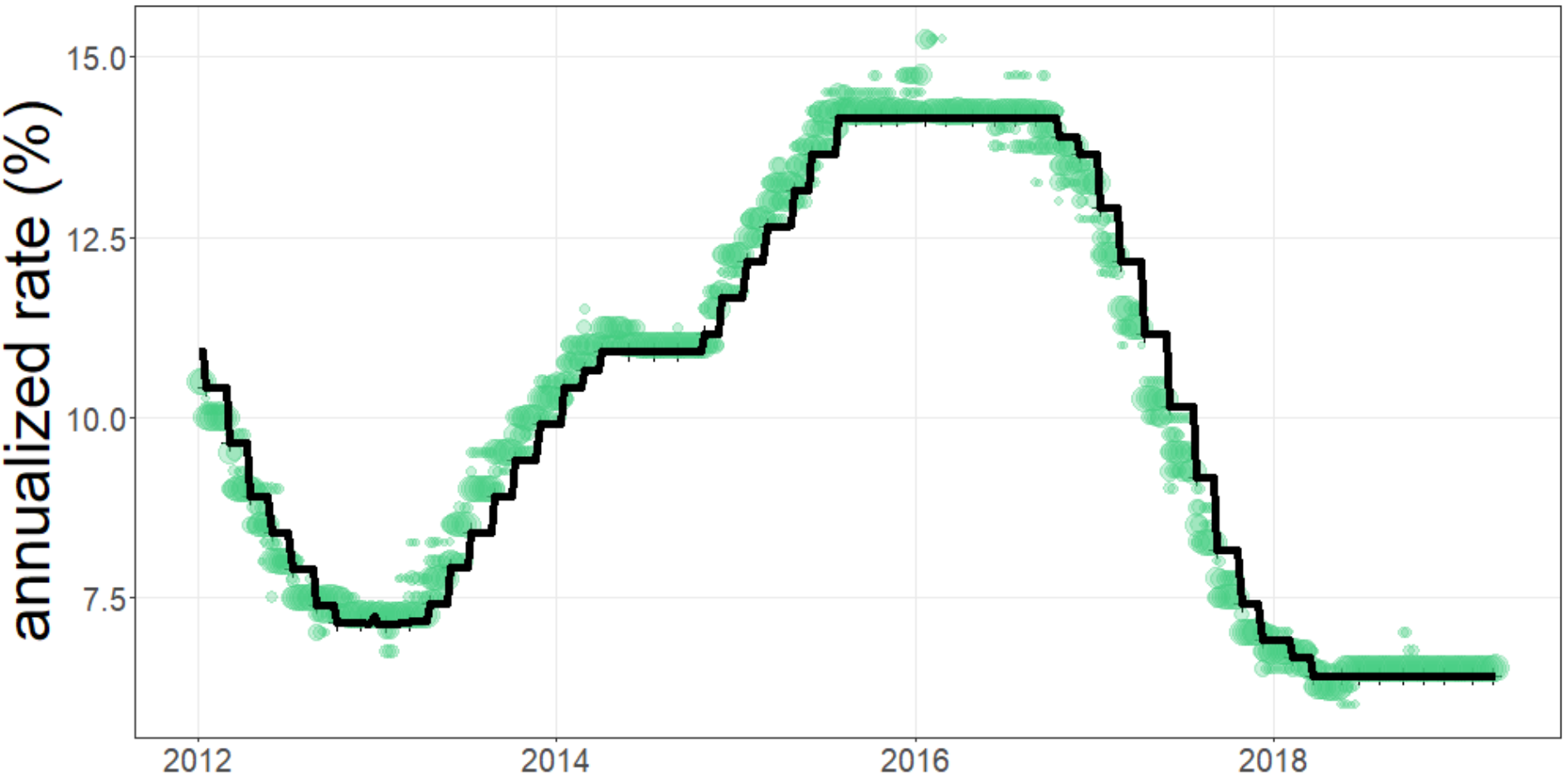
Observed Over-Selic and household lending rates



Observed Over-Selic and non-financial corporation lending rates



Observed and expected Over-Selic rates



Empirical strategy: Baseline specification

- Panel data approach to estimate the observed and expected interest rate pass-through.

$$LendingRate_{m,i,t} = \alpha + \beta BaseRate_{i,t} + C_t\delta + \varepsilon_{m,i,t} \quad (1)$$

$$\varepsilon_{m,i,t} = \mu_{m,i} + \gamma_t + \nu_{m,i,t} \quad (2)$$

- $LendingRate_{m,i,t}$ is the lending rate type m for financial institution i during time t;
- $BaseRate_{i,t}$ is the explanatory variable (either $Selic_t$ or $Expec_{i,t}$);
- C_t is a common vector of control variables $[Inflation^e_t \quad EMBI_t]$, except for:
  - Advances on exchange contracts (ACC): $[Inflation^e_t \quad EMBI_t \quad Libor_t]$;
  - Credit card revolving: $\left[Inflation^e_t \quad EMBI_t \quad D(CC)_t \quad BaseRate_{i,t} \times D(CC)_t\right]$;
- We test if $\beta > 1$, $\beta = 1$, $0 < \beta < 1$ and $\beta = 0$ for over-proportional, full, incomplete and no pass-through, respectively.
- α is an average bank margin (mark up or spread) over the policy rate.
- FE specification (no significant changes with RE); Huber/White/sandwich estimator for within-groups; Standard errors clustered by loan type and financial institution.

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  - Advances on exchange contracts (ACC): $[Inflation^e_t \quad EMBI_t \quad Libor_t]$;
  - Credit card revolving: $\left[Inflation^e_t \quad EMBI_t \quad D(CC)_t \quad BaseRate_{i,t} \times D(CC)_t\right]$;
- We test if $\beta > 1$, $\beta = 1$, $0 < \beta < 1$ and $\beta = 0$ for over-proportional, full, incomplete and no pass-through, respectively.
- α is an average bank margin (mark up or spread) over the policy rate.
- FE specification (no significant changes with RE); Huber/White/sandwich estimator for within-groups; Standard errors clustered by loan type and financial institution.

Empirical strategy: Baseline specification

- Panel data approach to estimate the observed and expected interest rate pass-through.

$$LendingRate_{m,i,t} = \alpha + \beta BaseRate_{i,t} + C_t\delta + \varepsilon_{m,i,t} \quad (1)$$

$$\varepsilon_{m,i,t} = \mu_{m,i} + \gamma_t + \nu_{m,i,t} \quad (2)$$

- $LendingRate_{m,i,t}$ is the lending rate type m for financial institution i during time t;
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Empirical strategy: Asymmetric interest rate pass-through

- To test asymmetric responses of the loan rates to the observed or expected Over-Selic rates, we estimate:

$$
\begin{aligned}
LendingRate_{m,i,t} = \alpha &+ \beta BaseRate_{i,t} \\
&+ \theta^{-} \left(BaseRate_{i,t} \times D(\Delta BaseRate < 0)_{i,t} \right) \\
&+ \theta^{+} \left(BaseRate_{i,t} \times D(\Delta BaseRate > 0)_{i,t} \right) \\
&+ \gamma^{-} D(\Delta BaseRate < 0)_{i,t} \\
&+ \gamma^{+} D(\Delta BaseRate > 0)_{i,t} \\
&+ C_t \delta + \varepsilon_{m,i,t}
\end{aligned} \tag{3}
$$

with $\varepsilon_{m,i,t} = \mu_{m,i} + \gamma_t + \nu_{m,i,t}$.

- $D(\Delta BaseRate < 0)_{i,t} = 1$ if $\Delta Selic_{i,t} < 0$ (or $\Delta Expec_{i,t} < 0$) and zero otherwise;
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Results: Baseline specification

- Over-proportional pass-through in aggregate samples: complete, HH and NFC.
  Aggregate
- Presence of pass-through for all loan types, except for credit card financing (HH) and ACC (NFC).
- Over-proportional pass-through ($\beta > 1$) for six loan types:
  - HH: credit card revolving and overdraft;
  - NFC: disc. CC bills, disc. checks, disc. trade bills and overdraft.
- Similar estimates for both observed and expected Selic rates.
- Banks anticipate adjustments by forecasting the next Selic rate target-level.
- Significant heterogeneity in lending rates depending on the loan characteristics.
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Results: Correlation between margins and pass-through estimates

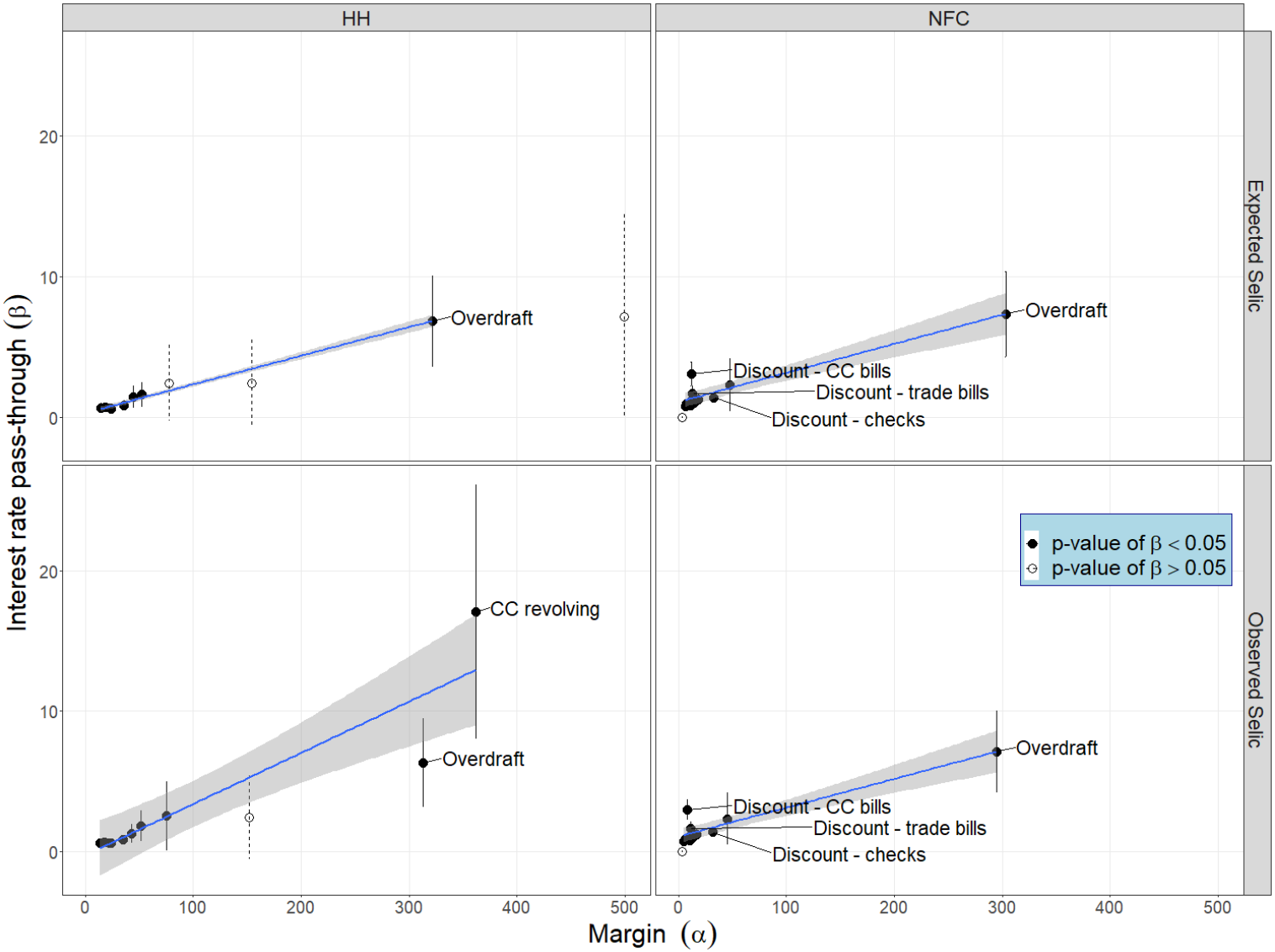

Figure: Interest rate margins and pass-through estimates for observed and expected Selic rates.

Results: Asymmetric interest rate pass-through

- Positive asymmetric pass-through in the complete and NFC samples: smaller downward adjustments for both observed and expected Selic.
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- Positive asymmetric pass-through (OBS, EXP or both) for:
  - HH: overdraft, payroll-deducted public, vechicle financing;
  - NFC: disc. checks, disc. trade bills, overdraft, working capital (float).
- Negative asymmetric pass-through for: CC financing, payroll-deducted retirees (HH); vendor, discount CC bills (NFC).
- No significant changes relatively to the baseline.
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Robustness: Size and ownership control of the financial institutions

- We test if bank specific-characteristics might affect the pass-through by accounting for size, ownership (private or public) and capital origin (domestic or foreign) in the following model:

$$\begin{aligned} LendingRate_{m,i,t} = \; & \alpha + \beta BaseRate_{i,t} \\ & + \sigma \left(BaseRate_{i,t} \times D(\text{non-S1})_i \right) \\ & + \psi \left(BaseRate_{i,t} \times D(\text{Public})_i \right) \\ & + \phi \left(BaseRate_{i,t} \times D(\text{Foreign})_i \right) \\ & + C_t \delta + \varepsilon_{m,i,t}, \end{aligned} \quad (4)$$

with $\varepsilon_{m,i,t} = \mu_{m,i} + \gamma_t + \nu_{m,i,t}$.

- The dummy variables $D(\text{non-S1})_i$, $D(\text{Public})_i$, and $D(\text{Foreign})_i$ are equal to 1 for non-systemically important institutions, public-owned government institutions and foreign-controlled private institutions, respectively, and equal to 0 otherwise.
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Robustness: Size and ownership control of the financial institutions

- For the aggregate samples, none of the iterative dummies was statistically significant.
- The previous findings were not driven by the financial-institutions specific characteristics.

Aggregate

- For the disaggregated loan types, in general, the baseline results were also robust to the new dummy variables.
- The pass-through differentials, whenever present, were very similar between the observed or the expected Selic rates.
- Financial institutions anticipate adjustments, regardless of their specific characteristics.

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Robustness: Persistence in lending rates

- To investigate how persistence in the lending rates might affect the pass-through, we estimate a dynamic panel-data:

$$LendingRate_{m,i,t} = \rho LendingRate_{m,i,t-1} + (1-\rho)[\alpha + \beta BaseRate_{i,t} + C_t\delta] + \varepsilon_{m,i,t} \quad (5)$$

with $\varepsilon_{m,i,t} = \mu_{m,i} + \gamma_t + \nu_{m,i,t}$.

- ρ measures the persistence in lending rates.
- $(1-\rho)\beta$ is the short-run pass-through, while β accounts for the long-run pass-through.
- Given the large T and relatively small N, the correlation induced by the within transformation vanishes and the FE estimator is consistent [Bond (2002)].
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Robustness: Persistence in lending rates

- In the aggregate samples, the pass-trough estimates were lower than in the static models, for both observed and expected Selic rates.
- Point estimates of the long-run pass through are still bigger than 1, but not statistically.
- There is high persistence in all aggregate samples (complete, HH and NFC).

Aggregate

- For the HH and NFC disaggregated loan types, most of the baseline results were kept unchanged.
- Lending rates are highly persistent for most loan types.
- Overall, the major results are robust to the dynamic panel data specification.

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Background

- The results of full (or over-proportional) and positively asymmetric pass-through coupled with high margins and persistent lending rates do not have a unique explanation. We might consider:
  - Structure-conduct-performance hypothesis: Market power creates an environment that affects the banks' conduct and performance in unfavourable ways from a social perspective.
  - Collusive behavior: Due to switching costs from one bank to another.
  - Adjustment costs: Incurred by banks when changing interest rates.
  - Lack of confidence: changes in policy rate are perceived as temporary.
  - Efficient structure hypothesis: differences in bank-specific efficiencies make market concentration endogenous.
- The pass-through estimates here reported contribute to explain why the loan interest rates are remarkably high in Brazil.

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Conclusion

- This paper estimated the pass-through from the observed and expected policy rates to the remarkably high market rates in Brazil, accounting for loan and borrower types, bank specific characteristics, asymmetric adjustment and persistence in the lending rates.
- For the complete sample, sub-samples by households and non-financial corporations and some specific loan types, there is evidence of over-proportional pass-through from both observed and expected policy rates.
- Due to asymmetry, the pass-through for some loan types is smaller for decreases than for increases in either the observed or expected policy rates.
- In general, the higher the interest rate margin, the bigger the degree of pass-through.
- Banks anticipate adjustments in lending rates by forecasting the next target level of the policy interest rate.
- Heterogeneity across loan types imply that margins, degrees of pass-through, asymmetry and persistence are quite different among lending rates.
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Thanks!

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Hausman specification test

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Sub-samples	*Over-Selic rate* χ^2	p-value	*Expected Over-Selic* χ^2	p-value
Overall	2.446	0.485	2.476	0.480
Households	3.409	0.333	7.655	0.054
Non-financial corporations	0.073	0.995	0.074	0.995
Household modalities				
CC financing	9.259	0.026	9.285	0.026
CC revolving	2.066	0.840	1.805	0.875
Discount - checks	0.108	0.991	0.913	0.822
Other goods financing	9.245	0.026	9.112	0.028
Overdraft	0.605	0.895	0.563	0.905
Payroll-deducted - private	0.059	0.996	0.063	0.996
Payroll-deducted - public	0.572	0.903	1.188	0.756
Payroll-deducted - retirees	1.075	0.783	0.774	0.856
Personal credit	0.890	0.828	0.904	0.824
Vehicle financing	2.235	0.525	2.203	0.531
Vehicle leasing	165.917	0.000	60.868	0.000
Non-financial corporation modalities				
ACC (FCI)	1.417	0.702	1.245	0.742
Discount - CC bills	0.076	0.995	0.074	0.995
Discount - checks	3.385	0.336	0.569	0.904
Discount - trade bills	0.104	0.991	0.283	0.963
Garanteed overdrat	0.361	0.948	0.211	0.976
Garanteed overdrat (Float)	10.297	0.016	11.063	0.011
Overdraft	0.988	0.804	1.031	0.794
Vendor	17.918	0.000	138.110	0.000
Working capital $\sim$365	0.405	0.939	2.833	0.418
Working capital $\sim$365 (Float)	38.818	0.000	34.631	0.000
Working capital 365$\sim$	5.383	0.146	2.986	0.394
Working capital 365$\sim$ (Float)	1.142	0.767	5.912	0.116

Note: CC and ACC are for credit cards and advances on exchange contracts; FCI is for foreign-currency-indexed rate.

Interest rate pass-through: Aggregate samples

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Table: Interest rate pass-through: Aggregate samples

Type	Pass-through (β)	Interest rate margin (α)	Selic
Overall (1)	1.77^{***}	55.1^{***}	OBS
	(1.36, 2.18)	(47.9, 62.3)	
Overall (2)	1.80^{***}	57.0^{***}	EXP
	(1.37, 2.23)	(49.7, 64.3)	
Households (3)	1.78^{***}	74.3^{***}	OBS
	(1.07, 2.50)	(63.1, 85.5)	
Households (4)	1.79^{***}	76.2^{***}	EXP
	(1.04, 2.54)	(64.9, 87.5)	
Non-financial corporations (5)	1.76^{***}	38.1^{***}	OBS
	(1.33, 2.20)	(29.1, 47.1)	
Non-financial corporations (6)	1.82^{***}	40.0^{***}	EXP
	(1.37, 2.27)	(30.8, 49.3)	

Notes: *p$<$0.1; **p$<$0.05; ***p$<$0.01. 95% confidence interval in parentheses.

Interest rate pass-through: Household loan types

Table: Interest rate pass-through: Household loan types

Type	Pass-through (β)	Interest rate *margin*(α)	Selic
CC financing (1)	2.44	151.8***	OBS
	(-0.53, 5.40)	(115.5, 188.2)	
CC revolving (3)	17.07***	361.6***	OBS
	(8.03, 26.11)	(236.1, 487.0)	
Discount - checks (5)	1.31***	42.9***	OBS
	(0.63, 1.98)	(35.4, 50.4)	
Other goods financing (7)	1.82***	51.4***	OBS
	(0.72, 2.91)	(36.0, 66.8)	
Overdraft (9)	6.34***	312.9***	OBS
	(3.18, 9.49)	(276.3, 349.4)	
Payroll-deducted (11) - private	0.85***	34.8***	OBS
	(0.54, 1.16)	(32.0, 37.5)	
Payroll-deducted (13) - public	0.65***	22.1***	OBS
	(0.47, 0.82)	(19.9, 24.4)	
Payroll-deducted (15) - retirees	0.59***	23.4***	OBS
	(0.48, 0.70)	(22.0, 24.8)	
Personal credit (17)	2.53**	75.4***	OBS
	(0.09, 4.98)	(36.8, 113.9)	
Vehicle financing (19)	0.66***	17.7***	OBS
	(0.49, 0.83)	(15.7, 19.7)	
Vehicle leasing (21)	0.61***	13.8***	OBS
	(0.29, 0.93)	(7.6, 19.9)	

Type	Pass-through (β)	Interest rate *margin*(α)	Selic
CC financing (2)	2.41	154.0***	EXP
	(-0.69, 5.50)	(119.9, 188.2)	
CC revolving (4)	7.14*	499.1***	EXP
	(-0.15, 14.42)	(369.9, 628.3)	
Discount - checks (6)	1.44***	44.5***	EXP
	(0.65, 2.24)	(37.9, 51.1)	
Other goods financing (8)	1.59***	52.4***	EXP
	(0.68, 2.50)	(38.0, 66.8)	
Overdraft (10)	6.81***	321.3***	EXP
	(3.55, 10.08)	(283.2, 359.4)	
Payroll-deducted (12) - private	0.86***	35.7***	EXP
	(0.52, 1.19)	(32.9, 38.6)	
Payroll-deducted (14) - public	0.64***	22.8***	EXP
	(0.45, 0.83)	(20.6, 24.9)	
Payroll-deducted (16) - retirees	0.59***	24.1***	EXP
	(0.48, 0.71)	(22.7, 25.4)	
Personal credit (18)	2.43*	77.8***	EXP
	(-0.25, 5.11)	(41.7, 113.9)	
Vehicle financing (20)	0.69***	18.4***	EXP
	(0.51, 0.87)	(16.4, 20.4)	
Vehicle leasing (22)	0.65***	14.5***	EXP
	(0.28, 1.02)	(8.7, 20.3)	

Notes: * p<0.1; ** p<0.05; *** p<0.01. 95% confidence interval in parentheses. Estimated with fixed effects. CC is for credit cards. All regressions are controlled by expected inflation and EMBI. CC revolving is also controlled by the structural change in the rules of this loan type. OBS indicates that the explanatory variable in the regression is Selic_t while EXP indicates that the explanatory variable is Expec_{it}.

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Interest rate pass-through: Non-financial corporation loan types

Table: Interest rate pass-through: Non-financial corporation loan types

Type	Pass-through (β)	Interest rate *margin*(α)	Selic
ACC (1)	0.00 (-0.05, 0.06)	3.4*** (2.3, 4.4)	OBS
Discount - CC bills (3)	2.96*** (2.23, 3.69)	8.3 (-8.4, 25.0)	OBS
Discount - checks (5)	1.38*** (1.22, 1.54)	31.4*** (25.0, 37.8)	OBS
Discount - trade bills (7)	1.66*** (1.17, 2.15)	11.2*** (4.5, 18.0)	OBS
Garanteed overdraft (9)	2.34** (0.49, 4.19)	45.4*** (33.6, 57.3)	OBS
Garanteed overdraft (11) (Float)	1.00*** (0.81, 1.19)	12.8*** (9.8, 15.8)	OBS
Overdraft (13)	7.13*** (4.24, 10.02)	295.1*** (223.0, 367.1)	OBS
Vendor (15)	0.82*** (0.62, 1.02)	10.7*** (7.4, 13.9)	OBS
Working capital (17) ∼365	1.21*** (0.84, 1.58)	17.0*** (9.3, 24.7)	OBS
Working capital (19) ∼365 (Float)	0.90*** (0.77, 1.03)	6.2*** (4.5, 8.0)	OBS
Working capital (21) 365∼	1.12*** (0.77, 1.47)	10.6*** (4.6, 16.6)	OBS
Working capital (23) 365∼ (Float)	0.74*** (0.52, 0.95)	5.1*** (3.8, 6.4)	OBS
ACC (2)	-0.02 (-0.07, 0.03)	3.6*** (2.5, 4.7)	EXP
Discount - CC bills (4)	3.07*** (2.21, 3.92)	11.6* (-4.2, 27.3)	EXP
Discount - checks (6)	1.40*** (1.22, 1.58)	32.8*** (26.5, 39.1)	EXP
Discount - trade bills (8)	1.69*** (1.16, 2.21)	13.0*** (6.5, 19.5)	EXP
Garanteed overdraft (10)	2.28** (0.41, 4.14)	47.6*** (36.4, 58.8)	EXP
Garanteed overdraft (12) (Float)	1.03*** (0.84, 1.22)	14.0*** (11.1, 16.9)	EXP
Overdraft (14)	7.34*** (4.30, 10.38)	303.0*** (229.2, 376.9)	EXP
Vendor (16)	0.83*** (0.61, 1.05)	11.5*** (8.5, 14.5)	EXP
Working capital (18) ∼365	1.26*** (0.87, 1.64)	18.4*** (10.9, 25.8)	EXP
Working capital (20) ∼365 (Float)	0.96*** (0.82, 1.11)	7.4*** (5.7, 9.1)	EXP
Working capital (22) 365∼	1.20*** (0.81, 1.59)	12.0*** (6.3, 17.7)	EXP
Working capital (24) 365∼ (Float)	0.78*** (0.56, 1.01)	6.0*** (4.6, 7.5)	EXP

Notes: *p<0.1; **p<0.05; ***p<0.01. 95% confidence interval in parentheses. Estimated with fixed effects. ACC is for advances on exchange contracts. All regressions are controlled by expected inflation and EMBI. ACC is also controlled by the Libor rate. OBS indicates that the explanatory variable in the regression is Selic_t while EXP indicates that the explanatory variable is Expec_{it}.

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Asymmetric pass-through: Aggregate samples

Table: Asymmetric pass-through: Aggregate samples

Type	Pass-through (β)	Asymmetry (θ^-)	Asymmetry (θ^+)	Selic
Overall (1)	1.80***	-0.24**	-0.19	OBS
	(1.39, 2.22)	(-0.44, -0.03)	(-0.50, 0.12)	
Overall (2)	1.84***	-0.30**	-0.13	EXP
	(1.41, 2.28)	(-0.54, -0.06)	(-0.33, 0.07)	
Households (3)	1.82***	-0.22	-0.22	OBS
	(1.09, 2.54)	(-0.56, 0.13)	(-0.87, 0.43)	
Households (4)	1.83***	-0.21	-0.12	EXP
	(1.08, 2.59)	(-0.65, 0.23)	(-0.51, 0.27)	
Non-financial corporations (5)	1.80***	-0.28**	-0.13	OBS
	(1.35, 2.24)	(-0.51, -0.04)	(-0.37, 0.11)	
Non-financial corporations (6)	1.86***	-0.38***	-0.11	EXP
	(1.39, 2.33)	(-0.62, -0.15)	(-0.29, 0.08)	

Notes: * p<0.1; ** p<0.05; *** p<0.01. 95% confidence interval in parentheses. Estimated with fixed effects. All regressions are controlled by expected inflation and EMBI. OBS indicates that the explanatory variable in the regression is Selic_t while EXP indicates that the explanatory variable is Expec_{it}.

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Asymmetric pass-through: Household loan types

Table: Asymmetric pass-through: Household loan types

Type	Pass-through (β)	Asymmetry (θ^-)	Asymmetry (θ^+)	Selic
CC financing (1)	2.43	0.24	-9.12***	OBS
	(-0.54, 5.40)	(-0.88, 1.37)	(-13.51, -4.73)	
CC revolving (3)	18.20***	0.20	-11.39*	OBS
	(8.82, 27.58)	(-3.80, 4.19)	(-24.89, 2.11)	
Discount - checks (5)	1.28***	0.09*	0.44*	OBS
	(0.59, 1.97)	(-0.01, 0.19)	(-0.07, 0.96)	
Other goods financing (7)	1.87***	-0.66	-0.58	OBS
	(0.74, 3.00)	(-1.54, 0.23)	(-1.63, 0.48)	
Overdraft (9)	6.22***	-0.96	5.28***	OBS
	(2.91, 9.53)	(-3.14, 1.22)	(2.69, 7.86)	
Payroll-deducted (11) - private	0.86***	-0.06	-0.14	OBS
	(0.56, 1.17)	(-0.27, 0.15)	(-0.50, 0.22)	
Payroll-deducted (13) - public	0.65***	-0.08*	-0.01	OBS
	(0.47, 0.83)	(-0.16, 0.00)	(-0.19, 0.16)	
Payroll-deducted (15) - retirees	0.60***	0.00	-0.19***	OBS
	(0.49, 0.70)	(-0.03, 0.04)	(-0.30, -0.08)	
Personal credit (17)	2.69**	-0.53	-1.90*	OBS
	(0.30, 5.08)	(-1.74, 0.69)	(-3.96, 0.16)	
Vehicle financing (19)	0.65***	-0.00	0.15*	OBS
	(0.48, 0.83)	(-0.09, 0.08)	(-0.02, 0.33)	
Vehicle leasing (21)	0.61***	-0.17	0.18*	OBS
	(0.28, 0.93)	(-0.40, 0.07)	(-0.02, 0.38)	

Type	Pass-through (β)	Asymmetry (θ^-)	Asymmetry (θ^+)	Selic
CC financing (2)	2.40	0.03	-1.32***	EXP
	(-0.72, 5.53)	(-1.55, 1.61)	(-2.22, -0.43)	
CC revolving (4)	8.08**	0.16	-2.32	EXP
	(0.38, 15.77)	(-3.50, 3.83)	(-5.94, 1.30)	
Discount - checks (6)	1.39***	0.14*	0.16	EXP
	(0.57, 2.21)	(-0.02, 0.31)	(-0.42, 0.75)	
Other goods financing (8)	1.67***	-1.46	-0.36	EXP
	(0.73, 2.61)	(-3.33, 0.42)	(-1.05, 0.34)	
Overdraft (10)	7.03***	-2.18*	2.61**	EXP
	(3.74, 10.31)	(-4.51, 0.16)	(0.42, 4.80)	
Payroll-deducted (12) - private	0.87***	-0.07	-0.08	EXP
	(0.52, 1.21)	(-0.26, 0.12)	(-0.25, 0.08)	
Payroll-deducted (14) - public	0.64***	-0.13***	0.03	EXP
	(0.44, 0.84)	(-0.23, -0.04)	(-0.05, 0.12)	
Payroll-deducted (16) - retirees	0.59***	-0.01	-0.09**	EXP
	(0.47, 0.71)	(-0.07, 0.05)	(-0.17, -0.01)	
Personal credit (18)	2.41*	0.84	-0.46	EXP
	(-0.28, 5.09)	(-0.22, 1.90)	(-1.19, 0.28)	
Vehicle financing (20)	0.70***	-0.11***	0.01	EXP
	(0.51, 0.88)	(-0.19, -0.03)	(-0.08, 0.10)	
Vehicle leasing (22)	0.64***	0.04	0.16	EXP
	(0.27, 1.00)	(-0.22, 0.30)	(-0.08, 0.39)	

Notes: *p<0.1; **p<0.05; ***p<0.01. 95% confidence interval in parentheses. Estimated with fixed effects. CC is for credit cards. All regressions are controlled by expected inflation and EMBI. CC revolving is also controlled by the structural change in the rules of this loan type. OBS indicates that the explanatory variable in the regression is Selic_t while EXP indicates that the explanatory variable is Expec_{it}.

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Asymmetric pass-through: Non-financial corporation loan types

Table: Asymmetric pass-through: Non-financial corporation loan types

Type	Pass-through (β)	Asymmetry (θ^-)	Asymmetry (θ^+)	Selic
ACC (1)	0.01	-0.06**	-0.09**	OBS
	(-0.04, 0.07)	(-0.11, -0.00)	(-0.17, -0.02)	
Discount - CC bills (3)	2.98***	0.00	-0.58**	OBS
	(2.25, 3.71)	(-0.50, 0.50)	(-1.02, -0.13)	
Discount - checks (5)	1.38***	-0.07	-0.01	OBS
	(1.23, 1.54)	(-0.19, 0.05)	(-0.33, 0.31)	
Discount - trade bills (7)	1.69***	-0.31**	-0.44**	OBS
	(1.21, 2.18)	(-0.57, -0.05)	(-0.86, -0.02)	
Garanteed overdraft (9)	2.52**	-1.64*	-1.11	OBS
	(0.59, 4.46)	(-3.60, 0.31)	(-2.72, 0.50)	
Garanteed overdraft (11) (Float)	1.00***	-0.05	-0.08	OBS
	(0.81, 1.20)	(-0.19, 0.10)	(-0.33, 0.16)	
Overdraft (13)	7.32***	-2.13**	1.01	OBS
	(4.35, 10.29)	(-3.80, -0.47)	(-1.63, 3.65)	
Vendor (15)	0.83***	-0.06	-0.07*	OBS
	(0.64, 1.02)	(-0.25, 0.13)	(-0.13, 0.00)	
Working capital (17) ∼365	1.20***	0.10	0.14	OBS
	(0.82, 1.57)	(-0.20, 0.40)	(-0.25, 0.53)	
Working capital (19) ∼365 (Float)	0.91***	-0.13***	0.06	OBS
	(0.77, 1.04)	(-0.21, -0.05)	(-0.02, 0.14)	
Working capital (21) 365∼	1.11***	-0.03	0.16	OBS
	(0.77, 1.46)	(-0.21, 0.16)	(-0.05, 0.37)	
Working capital (23) 365∼ (Float)	0.73***	0.06	-0.06	OBS
	(0.51, 0.95)	(-0.08, 0.19)	(-0.20, 0.08)	

Type	Pass-through (β)	Asymmetry (θ^-)	Asymmetry (θ^+)	Selic
ACC (2)	-0.02	-0.03	-0.04*	EXP
	(-0.07, 0.03)	(-0.08, 0.02)	(-0.08, 0.00)	
Discount - CC bills (4)	3.06***	-0.05	-0.44***	EXP
	(2.23, 3.90)	(-0.72, 0.63)	(-0.70, -0.17)	
Discount - checks (6)	1.41***	-0.19**	0.04	EXP
	(1.23, 1.59)	(-0.38, -0.01)	(-0.10, 0.18)	
Discount - trade bills (8)	1.70***	-0.19**	-0.10	EXP
	(1.17, 2.22)	(-0.38, -0.00)	(-0.29, 0.08)	
Garanteed overdraft (10)	2.33**	-0.43	-0.55	EXP
	(0.41, 4.25)	(-1.58, 0.72)	(-1.87, 0.76)	
Garanteed overdraft (12) (Float)	1.03***	-0.08	-0.07	EXP
	(0.84, 1.23)	(-0.23, 0.07)	(-0.22, 0.08)	
Overdraft (14)	7.68***	-3.52***	0.31	EXP
	(4.63, 10.74)	(-5.09, -1.95)	(-1.74, 2.35)	
Vendor (16)	0.83***	-0.03	-0.14***	EXP
	(0.61, 1.05)	(-0.14, 0.08)	(-0.23, -0.05)	
Working capital (18) ∼365	1.26***	-0.14	0.05	EXP
	(0.85, 1.66)	(-0.42, 0.14)	(-0.15, 0.25)	
Working capital (20) ∼365 (Float)	0.97***	-0.05	0.01	EXP
	(0.82, 1.11)	(-0.17, 0.08)	(-0.09, 0.11)	
Working capital (22) 365∼	1.21***	-0.16*	0.09	EXP
	(0.82, 1.60)	(-0.33, 0.00)	(-0.02, 0.19)	
Working capital (24) 365∼ (Float)	0.78***	-0.03	-0.04	EXP
	(0.55, 1.01)	(-0.11, 0.06)	(-0.13, 0.06)	

Notes: *p<0.1; **p<0.05; ***p<0.01. 95% confidence interval in parentheses. Estimated with fixed effects. ACC is for advances on exchange contracts. All regressions are controlled by expected inflation and EMBI. ACC is also controlled by the Libor rate. OBS indicates that the explanatory variable in the regression is Selic_t while EXP indicates that the explanatory variable is Expec_{it}.

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Size and ownership control: Aggregate samples

Table: Size and ownership control: Aggregate samples

Type	Pass-through (β)	Size (σ)	Ownership (ψ)	Origin (ϕ)	Selic
Overall (1)	1.79***	-0.06	0.03	-0.02	OBS
	(1.12, 2.46)	(-0.68, 0.56)	(-0.79, 0.86)	(-0.74, 0.69)	
Overall (2)	1.83***	0.04	-0.20	0.01	EXP
	(1.16, 2.50)	(-0.55, 0.63)	(-0.98, 0.59)	(-0.66, 0.67)	
Households (3)	1.49***	0.43	0.14	0.55	OBS
	(0.40, 2.58)	(-0.81, 1.68)	(-1.34, 1.62)	(-0.93, 2.03)	
Households (4)	1.55***	0.47	-0.13	0.57	EXP
	(0.45, 2.66)	(-0.70, 1.65)	(-1.56, 1.30)	(-0.80, 1.94)	
Non-financial corporations (5)	2.19***	-0.54*	-0.17	-0.41	OBS
	(1.46, 2.92)	(-1.15, 0.08)	(-0.86, 0.53)	(-1.11, 0.28)	
Non-financial corporations (6)	2.22***	-0.41	-0.35	-0.39	EXP
	(1.51, 2.93)	(-0.98, 0.16)	(-0.98, 0.27)	(-1.02, 0.23)	

Notes: * p<0.1; ** p<0.05; *** p<0.01. 95% confidence interval in parentheses. Estimated with fixed effects. All regressions are controlled by expected inflation and EMBI. OBS indicates that the explanatory variable in the regression is Selic_t while EXP indicates that the explanatory variable is Expec_{it}.

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Size and ownership control: Household loan types I

Type	Pass-through (β)	Size (σ)	Ownership (ψ)	Origin (ϕ)	Selic
CC financing (1)	1.80 (-1.81, 5.40)	4.84 (-1.13, 10.81)	-5.59 (-12.50, 1.31)	3.30 (-0.70, 7.29)	OBS
CC financing (2)	1.85 (-1.70, 5.41)	4.80 (-0.94, 10.54)	-6.04* (-12.71, 0.64)	3.01 (-1.03, 7.06)	EXP
CC revolving (3)	24.28*** (13.59, 34.97)	-7.99 (-19.15, 3.17)	-16.47*** (-28.90, -4.05)	-11.85 (-32.68, 8.98)	OBS
CC revolving (4)	15.06*** (5.98, 24.14)	-7.57 (-18.37, 3.24)	-17.00*** (-29.27, -4.73)	-10.89 (-31.25, 9.46)	EXP
Discount - checks (5)	1.37*** (1.23, 1.52)	-2.10*** (-2.26, -1.94)	0.89*** (0.87, 0.91)	-0.22*** (-0.25, -0.18)	OBS
Discount - checks (6)	1.54*** (1.40, 1.68)	-2.11*** (-2.22, -2.00)	0.88*** (0.86, 0.90)	-0.30*** (-0.35, -0.26)	EXP
Other goods financing (7)	1.20 (-0.25, 2.66)	2.18*** (1.33, 3.03)	0.03 (-1.28, 1.33)	0.15 (-1.61, 1.92)	OBS
Other goods financing (8)	1.12 (-0.28, 2.52)	2.33*** (1.49, 3.18)	-0.46 (-1.92, 1.00)	0.09 (-1.71, 1.89)	EXP
Overdraft (9)	7.38*** (3.49, 11.28)	-4.67** (-8.96, -0.37)	1.74 (-2.69, 6.17)	4.23** (0.13, 8.33)	OBS
Overdraft (10)	7.91*** (3.85, 11.98)	-3.91* (-8.05, 0.23)	0.81 (-3.49, 5.11)	3.30* (-0.32, 6.92)	EXP
Payroll-deducted (11) - private	0.80*** (0.43, 1.17)	-0.06 (-0.50, 0.39)	0.56* (-0.06, 1.18)	-0.46 (-1.15, 0.23)	OBS
Payroll-deducted (12) - private	0.78*** (0.43, 1.13)	0.02 (-0.41, 0.45)	0.53* (-0.05, 1.10)	-0.44 (-1.12, 0.23)	EXP

Notes: *p<0.1; **p<0.05; ***p<0.01. 95% confidence interval in parentheses. Estimated with fixed effects. All regressions are controlled by expected inflation and EMBI. CC revolving is also controlled by the structural change in the rules of this loan type. OBS indicates that the explanatory variable in the regression is Selic_t while EXP indicates that the explanatory variable is Expec_{it}.

Continue on next slide

Size and ownership control: Household loan types II

Continued from previous slide

Type	Pass-through (β)	Size (σ)	Ownership (ψ)	Origin (ϕ)	Selic
Payroll-deducted (13) - public	0.43*** (0.15, 0.70)	0.12 (-0.19, 0.43)	0.34 (-0.10, 0.79)	0.37*** (0.16, 0.59)	OBS
Payroll-deducted (14) - public	0.43*** (0.16, 0.69)	0.11 (-0.21, 0.43)	0.32 (-0.15, 0.80)	0.37*** (0.16, 0.58)	EXP
Payroll-deducted (15) - retirees	0.41*** (0.30, 0.52)	0.12** (0.01, 0.23)	0.41*** (0.30, 0.53)	0.24*** (0.11, 0.37)	OBS
Payroll-deducted (16) - retirees	0.42*** (0.30, 0.53)	0.12** (0.01, 0.22)	0.40*** (0.27, 0.54)	0.25*** (0.13, 0.36)	EXP
Personal credit (17)	3.40 (-1.43, 8.23)	-1.64 (-5.91, 2.63)	0.39 (-3.88, 4.66)	-1.77 (-5.65, 2.10)	OBS
Personal credit (18)	3.24 (-1.91, 8.39)	-1.53 (-6.05, 2.99)	0.26 (-4.14, 4.67)	-1.43 (-5.52, 2.65)	EXP
Vehicle financing (19)	0.68*** (0.40, 0.95)	0.05 (-0.21, 0.30)	0.06 (-0.28, 0.39)	-0.14 (-0.58, 0.30)	OBS
Vehicle financing (20)	0.71*** (0.42, 0.99)	0.04 (-0.22, 0.30)	0.02 (-0.33, 0.38)	-0.11 (-0.54, 0.31)	EXP
Vehicle leasing (21)	0.85*** (0.50, 1.19)	0.03 (-0.25, 0.32)	0.43*** (0.23, 0.62)	-0.66*** (-0.99, -0.32)	OBS
Vehicle leasing (22)	0.90*** (0.53, 1.27)	0.01 (-0.28, 0.31)	0.39*** (0.26, 0.52)	-0.69*** (-1.05, -0.33)	EXP

Notes: *p<0.1; **p<0.05; ***p<0.01. 95% confidence interval in parentheses. Estimated with fixed effects. All regressions are controlled by expected inflation and EMBI. CC revolving is also controlled by the structural change in the rules of this loan type. OBS indicates that the explanatory variable in the regression is Selic_t while EXP indicates that the explanatory variable is Expec_{it}.

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Size and ownership control: Non-financial corporation loan types I

Type	Pass-through (β)	Size (σ)	Ownership (ψ)	Origin (ϕ)	Selic
ACC (1)	0.01 (-0.07, 0.09)	-0.02 (-0.12, 0.07)	-0.05 (-0.18, 0.08)	0.05 (-0.06, 0.17)	OBS
ACC (2)	-0.01 (-0.10, 0.07)	-0.03 (-0.12, 0.06)	-0.06 (-0.18, 0.07)	0.06 (-0.05, 0.16)	EXP
Discount - CC bills (3)	3.76*** (2.83, 4.68)	-2.08*** (-3.28, -0.89)	-0.44 (-1.47, 0.59)	-1.70*** (-2.72, -0.68)	OBS
Discount - CC bills (4)	3.92*** (2.81, 5.04)	-2.19*** (-3.52, -0.86)	-0.59 (-1.75, 0.57)	-1.88*** (-3.04, -0.72)	EXP
Discount - checks (5)	1.60*** (1.48, 1.72)	-0.15 (-0.40, 0.09)	-0.27* (-0.57, 0.03)	-0.52*** (-0.63, -0.42)	OBS
Discount - checks (6)	1.64*** (1.48, 1.79)	-0.15 (-0.45, 0.15)	-0.32* (-0.71, 0.06)	-0.50*** (-0.66, -0.34)	EXP
Discount - trade bills (7)	2.34*** (1.77, 2.90)	-1.28*** (-1.76, -0.80)	0.28 (-0.20, 0.76)	0.09 (-0.44, 0.61)	OBS
Discount - trade bills (8)	2.38*** (1.80, 2.96)	-1.28*** (-1.77, -0.79)	0.14 (-0.32, 0.61)	0.12 (-0.43, 0.66)	EXP
Garanteed overdraft (9)	2.04** (0.25, 3.84)	0.70 (-1.81, 3.21)	-0.74 (-3.03, 1.56)	0.75 (-1.33, 2.83)	OBS
Garanteed overdraft (10)	2.07** (0.23, 3.91)	0.58 (-1.80, 2.95)	-0.71 (-2.85, 1.43)	0.59 (-1.38, 2.56)	EXP
Garanteed overdraft (11) (Float)	1.04*** (0.66, 1.42)	0.10 (-0.40, 0.61)	-0.09 (-0.59, 0.42)	-0.20 (-0.69, 0.29)	OBS
Garanteed overdraft (12) (Float)	1.07*** (0.70, 1.43)	0.13 (-0.35, 0.60)	-0.12 (-0.62, 0.38)	-0.20 (-0.66, 0.26)	EXP

Notes: * p<0.1; ** p<0.05; *** p<0.01. 95% confidence interval in parentheses. Estimated with fixed effects. All regressions are controlled by expected inflation and EMBI. ACC is also controlled by the Libor rate. OBS indicates that the explanatory variable in the regression is Selic_t while EXP indicates that the explanatory variable is Expec_{it}.

Continue on next slide

Size and ownership control: Non-financial corporation loan types II

Continued from previous slide

Type	Pass-through (β)	Size (σ)	Ownership (ψ)	Origin (ϕ)	Selic
Overdraft (13)	9.25***	-0.11	-3.84*	-3.73	OBS
	(5.24, 13.27)	(-4.08, 3.87)	(-7.92, 0.23)	(-8.25, 0.80)	
Overdraft (14)	9.03***	1.04	-4.45**	-3.15	EXP
	(4.84, 13.22)	(-2.94, 5.02)	(-8.40, -0.49)	(-7.77, 1.46)	
Vendor (15)	0.95***	-0.14	-0.10	-0.18	OBS
	(0.73, 1.17)	(-0.39, 0.10)	(-0.48, 0.27)	(-0.46, 0.10)	
Vendor (16)	0.96***	-0.17	-0.12	-0.14	EXP
	(0.71, 1.21)	(-0.44, 0.11)	(-0.54, 0.29)	(-0.45, 0.17)	
Working capital (17) ∼365	0.91**	0.37	0.74	-0.21	OBS
	(0.15, 1.66)	(-0.35, 1.09)	(-0.46, 1.94)	(-0.78, 0.36)	
Working capital (18) ∼365	0.98**	0.38	0.60	-0.22	EXP
	(0.21, 1.74)	(-0.36, 1.13)	(-0.69, 1.89)	(-0.79, 0.35)	
Working capital (19) ∼365 (Float)	1.00***	-0.13	0.04	-0.07	OBS
	(0.79, 1.20)	(-0.33, 0.08)	(-0.20, 0.28)	(-0.28, 0.14)	
Working capital (20) ∼365 (Float)	1.08***	-0.14	-0.00	-0.07	EXP
	(0.86, 1.29)	(-0.34, 0.07)	(-0.25, 0.24)	(-0.28, 0.14)	
Working capital (21) 365∼	1.16***	-0.40	0.76*	-0.22	OBS
	(0.95, 1.37)	(-0.89, 0.08)	(-0.13, 1.64)	(-0.65, 0.22)	
Working capital (22) 365∼	1.25***	-0.37	0.68	-0.24	EXP
	(0.98, 1.52)	(-0.89, 0.15)	(-0.27, 1.63)	(-0.69, 0.21)	
Working capital (23) 365∼ (Float)	0.79***	-0.12	0.13	-0.10	OBS
	(0.53, 1.06)	(-0.31, 0.07)	(-0.10, 0.36)	(-0.27, 0.06)	
Working capital (24) 365∼ (Float)	0.85***	-0.12	0.09	-0.10	EXP
	(0.58, 1.12)	(-0.29, 0.05)	(-0.10, 0.29)	(-0.26, 0.06)	

Notes: *p<0.1; **p<0.05; ***p<0.01. 95% confidence interval in parentheses. Estimated with fixed effects. All regressions are controlled by expected inflation and EMBI. ACC is also controlled by the Libor rate. OBS indicates that the explanatory variable in the regression is Selic_t while EXP indicates that the explanatory variable is Expec_{it}.

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Persistence in lending rates: Aggregate samples

Table: Persistence in lending rates: Aggregate samples

Type	Persistence (ρ)	Pass-through (β)	Selic
Overall (1)	0.90^{***}	1.54^{***}	OBS
	(0.85, 0.95)	(0.78, 2.30)	
Overall (2)	0.90^{***}	1.61^{***}	EXP
	(0.85, 0.95)	(0.86, 2.36)	
Households (3)	0.90^{***}	1.64^{***}	OBS
	(0.85, 0.96)	(0.73, 2.56)	
Households (4)	0.90^{***}	1.76^{***}	EXP
	(0.85, 0.96)	(0.84, 2.68)	
Non-financial corporations (5)	0.89^{***}	1.50^{**}	OBS
	(0.79, 0.98)	(0.16, 2.83)	
Non-financial corporations (6)	0.89^{***}	1.53^{**}	EXP
	(0.79, 0.98)	(0.18, 2.88)	

Notes: *p$<$0.1; **p$<$0.05; ***p$<$0.01. ρ measures the persistence in the lending rates and β corresponds to the identified long-run interest rate pass-through coefficient according to Equation **??**. 95% confidence interval in parentheses. Estimated with fixed effects. All regressions are controlled by expected inflation and EMBI. OBS indicates that the explanatory variable in the regression is Selic_t while EXP indicates that the explanatory variable is Expec_{it}.

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Persistence in lending rates: Household loan types

Table: Persistence in lending rates: Household loan types

Type	Persistence (ρ)	Pass-through (β)	Selic
CC financing (1)	0.85*** (0.78, 0.92)	2.03 (-1.01, 5.07)	OBS
CC revolving (3)	0.69*** (0.38, 1.00)	20.07** (4.44, 35.69)	OBS
Discount - checks (5)	0.73*** (0.52, 0.94)	1.31** (0.24, 2.39)	OBS
Other goods financing (7)	0.86*** (0.78, 0.94)	1.88*** (0.55, 3.22)	OBS
Overdraft (9)	0.92*** (0.86, 0.98)	7.38*** (2.89, 11.87)	OBS
Payroll-deducted (11) - private	0.91*** (0.87, 0.96)	0.93*** (0.43, 1.43)	OBS
Payroll-deducted (13) - public	0.91*** (0.86, 0.96)	0.63*** (0.36, 0.91)	OBS
Payroll-deducted (15) - retirees	0.93*** (0.90, 0.96)	0.47*** (0.18, 0.76)	OBS
Personal credit (17)	0.69*** (0.61, 0.76)	1.98** (0.20, 3.77)	OBS
Vehicle financing (19)	0.89*** (0.79, 0.98)	0.52** (0.05, 0.99)	OBS
Vehicle leasing (21)	0.43*** (0.21, 0.65)	0.61** (0.01, 1.21)	OBS
CC financing (2)	0.85*** (0.78, 0.92)	2.15 (-1.09, 5.39)	EXP
CC revolving (4)	0.70*** (0.39, 1.01)	9.54** (0.23, 18.86)	EXP
Discount - checks (6)	0.73*** (0.52, 0.93)	1.46** (0.33, 2.58)	EXP
Other goods financing (8)	0.86*** (0.78, 0.94)	1.76*** (0.43, 3.10)	EXP
Overdraft (10)	0.92*** (0.86, 0.98)	7.87*** (3.09, 12.65)	EXP
Payroll-deducted (12) - private	0.91*** (0.87, 0.95)	0.99*** (0.51, 1.46)	EXP
Payroll-deducted (14) - public	0.91*** (0.87, 0.96)	0.64*** (0.40, 0.88)	EXP
Payroll-deducted (16) - retirees	0.94*** (0.91, 0.96)	0.50*** (0.21, 0.79)	EXP
Personal credit (18)	0.69*** (0.61, 0.76)	1.93* (-0.02, 3.88)	EXP
Vehicle financing (20)	0.89*** (0.79, 0.98)	0.57** (0.06, 1.08)	EXP
Vehicle leasing (22)	0.43*** (0.21, 0.66)	0.65* (-0.03, 1.32)	EXP

Notes: *p<0.1; **p<0.05; ***p<0.01. ρ measures the persistence in the lending rates and β corresponds to the identified long-run interest rate pass-through coefficient according to Equation **??**. 95% confidence interval in parentheses. Estimated with fixed effects. All regressions are controlled by expected inflation and EMBI. CC revolving is also controlled by the structural change in the rules of this loan type. OBS indicates that the explanatory variable in the regression is Selic_t while EXP indicates that the explanatory variable is Expec_{it}.

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Persistence in lending rates: Non-financial corporation loan types

Table: Persistence in lending rates: Non-financial corporation loan types

Type	Persistence (ρ)	Pass-through (β)	Selic
ACC (1)	0.38***	0.01	OBS
	(0.29, 0.47)	(-0.05, 0.07)	
Discount - CC bills (3)	0.89***	3.05**	OBS
	(0.80, 0.98)	(0.69, 5.41)	
Discount - checks (5)	0.90***	1.32	OBS
	(0.78, 1.02)	(-0.26, 2.90)	
Discount - trade bills (7)	0.78***	1.62***	OBS
	(0.66, 0.90)	(0.83, 2.42)	
Garanteed overdraft (9)	0.36***	2.20***	OBS
	(0.17, 0.55)	(0.73, 3.68)	
Garanteed overdraft (11) (Float)	0.53***	0.96***	OBS
	(0.35, 0.71)	(0.54, 1.38)	
Overdraft (13)	0.91***	7.15*	OBS
	(0.81, 1.01)	(-1.36, 15.66)	
Vendor (15)	0.61***	0.80***	OBS
	(0.39, 0.83)	(0.27, 1.33)	
Working capital (17) ∼365	0.31**	1.20***	OBS
	(0.03, 0.59)	(0.64, 1.76)	
Working capital (19) ∼365 (Float)	0.27***	0.90***	OBS
	(0.16, 0.39)	(0.69, 1.10)	
Working capital (21) 365∼	0.63***	1.08***	OBS
	(0.51, 0.75)	(0.66, 1.50)	
Working capital (23) 365∼ (Float)	0.34***	0.78***	OBS
	(0.23, 0.46)	(0.56, 1.00)	

Type	Persistence (ρ)	Pass-through (β)	Selic
ACC (2)	0.38***	-0.02	EXP
	(0.29, 0.47)	(-0.07, 0.04)	
Discount - CC bills (4)	0.89***	3.25***	EXP
	(0.82, 0.97)	(1.09, 5.41)	
Discount - checks (6)	0.90***	1.40*	EXP
	(0.79, 1.02)	(-0.15, 2.95)	
Discount - trade bills (8)	0.78***	1.72***	EXP
	(0.66, 0.90)	(0.83, 2.61)	
Garanteed overdraft (10)	0.36***	2.13***	EXP
	(0.17, 0.55)	(0.66, 3.61)	
Garanteed overdraft (12) (Float)	0.54***	1.00***	EXP
	(0.36, 0.72)	(0.57, 1.43)	
Overdraft (14)	0.91***	7.30*	EXP
	(0.81, 1.01)	(-0.97, 15.57)	
Vendor (16)	0.62***	0.81***	EXP
	(0.42, 0.83)	(0.30, 1.33)	
Working capital (18) ∼365	0.31**	1.23***	EXP
	(0.03, 0.59)	(0.63, 1.83)	
Working capital (20) ∼365 (Float)	0.27***	0.96***	EXP
	(0.16, 0.38)	(0.75, 1.17)	
Working capital (22) 365∼	0.63***	1.16***	EXP
	(0.51, 0.75)	(0.67, 1.64)	
Working capital (24) 365∼ (Float)	0.35***	0.83***	EXP
	(0.23, 0.47)	(0.60, 1.05)	

Notes: *p<0.1; **p<0.05; ***p<0.01. ρ measures the persistence in the lending rates and β corresponds to the identified long-run interest rate pass-through coefficient according to Equation **??**. 95% confidence interval in parentheses. Estimated with fixed effects. All regressions are controlled by expected inflation and EMBI. ACC is also controlled by the Libor rate. OBS indicates that the explanatory variable in the regression is Selic_t while EXP indicates that the explanatory variable is Expec_{it}.

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