

# Assessing the impact of conventional monetary policy on the capital-labor ratio in Brazil.

*Master thesis defense*

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Programa de Pós-Graduação em Economia - PPGEco/UFSC.

Florianópolis, March 15, 2019.

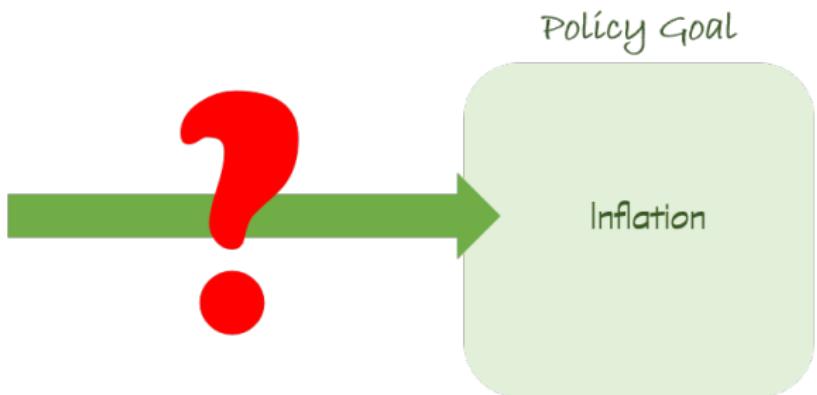


# Motivation

How the Central Bank affects the economy?



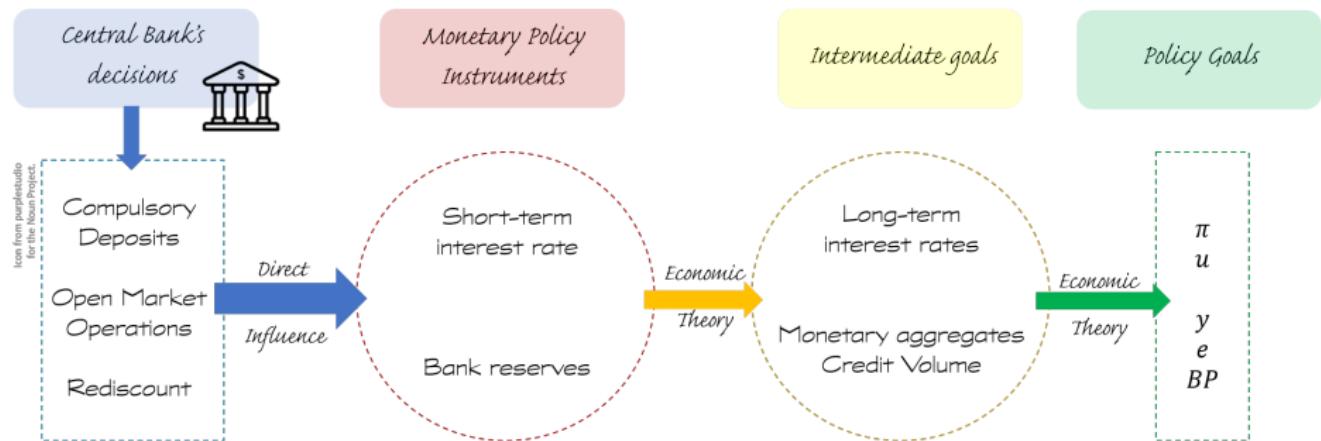
Central Bank



Icon from purplestudio  
for the Noun Project.

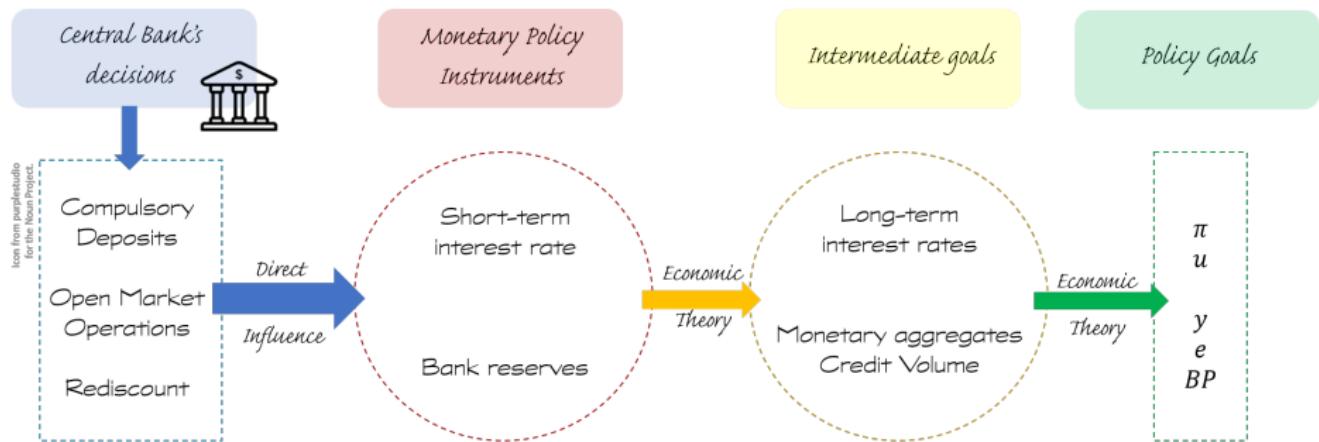
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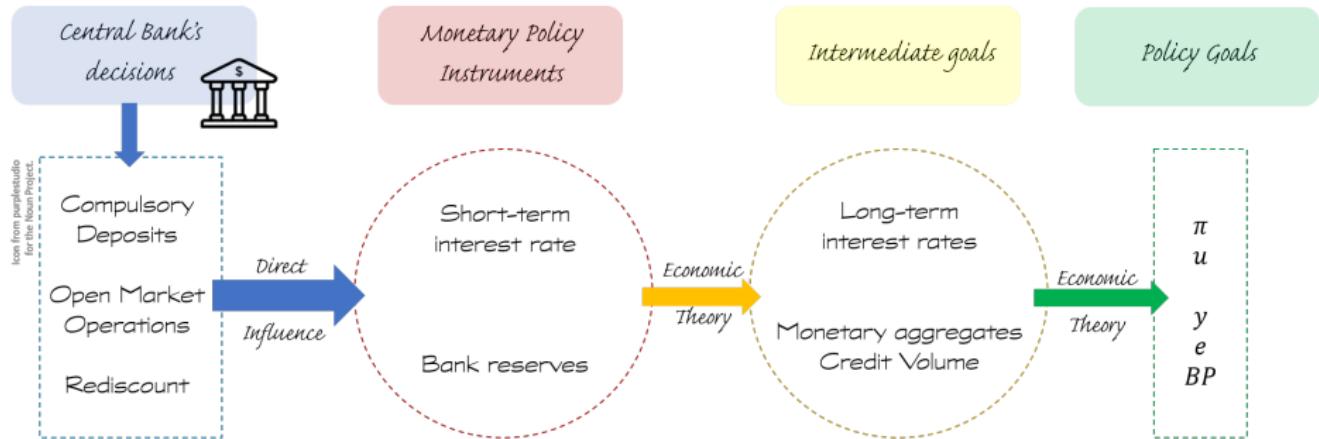
## How the Central Bank affects the economy?



- ▶ Is it reasonable to assume that the MP effects will be **homogeneous** among households?

# Motivation

## How the Central Bank affects the economy?



- ▶ Is it reasonable to assume that the MP effects will be **homogeneous** among households?
- ▶ What if the overall effect of monetary policy is conditional to the degree of **heterogeneity** among households?

# Outline

Introduction: the  
heterogeneous  
effects of MP



You are here!



# Outline

*Introduction: the heterogeneous effects of MP*

*The redistribution channels of MP and empirical results*

"Economics background"



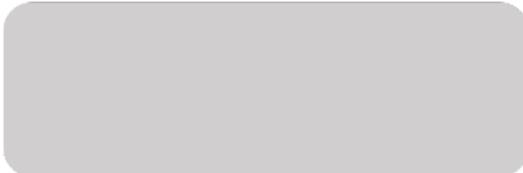
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*Introduction: the heterogeneous effects of MP*

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*Adding  $T$  to Uhlig's (1997) model*

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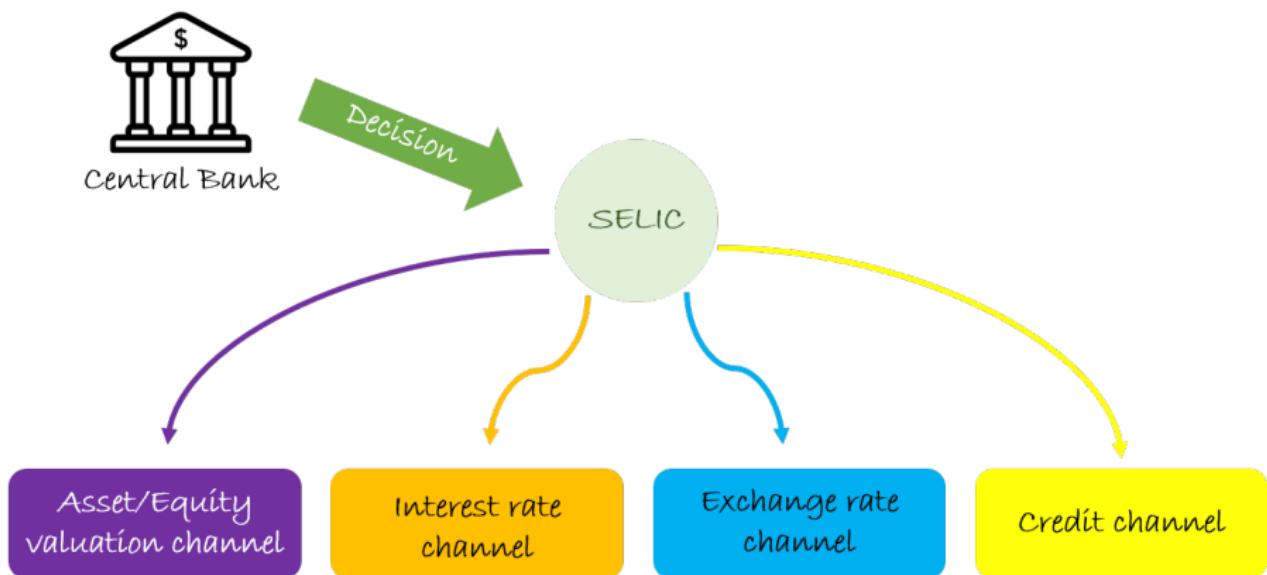
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# Monetary Policy transmission channels

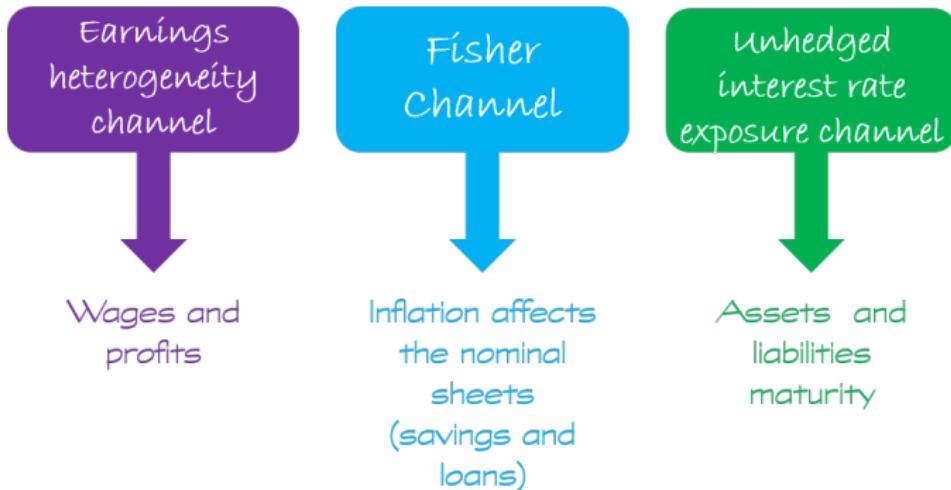
How the MP decisions reach the economic aggregates



Adapted from Mishkin (1996).

# Redistributive channels of monetary policy

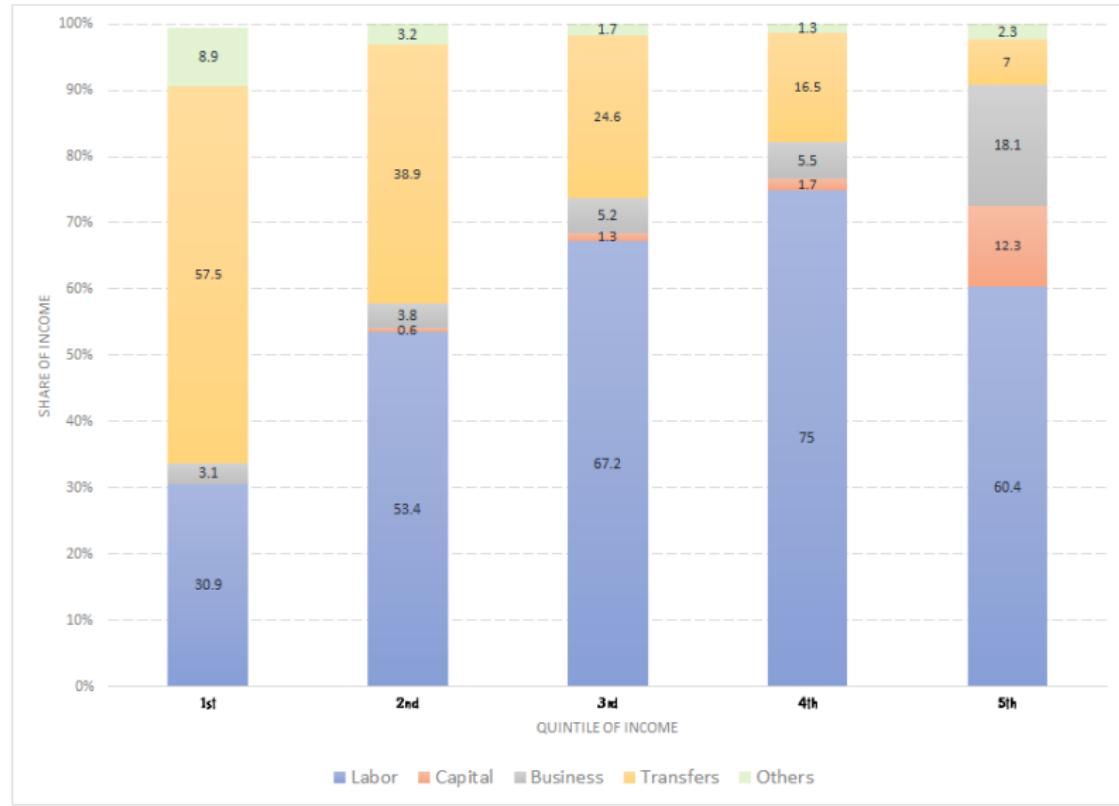
How the MP decisions reach the economic aggregates **agents** and affect their income and wealth



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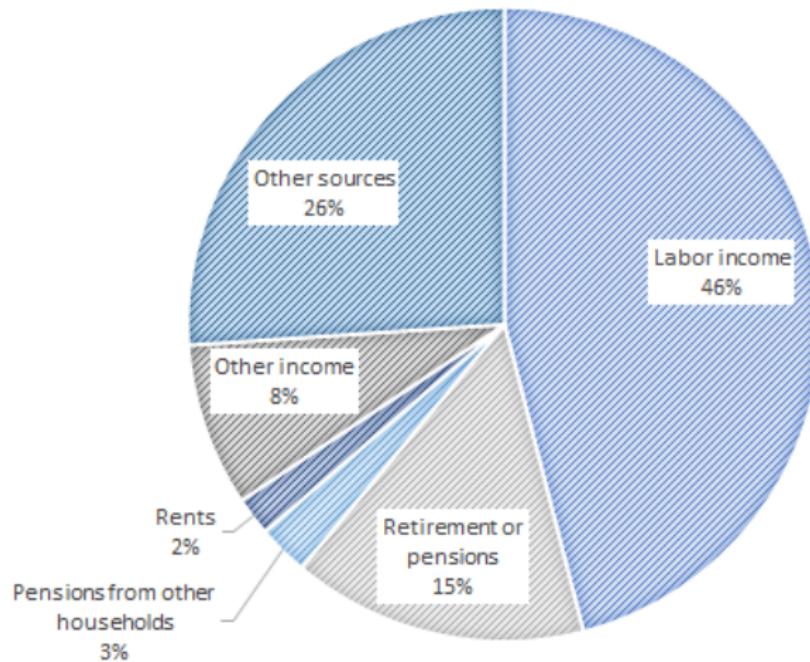
## Income heterogeneity channel



**Figure:** Income source as a share of household income. United States, 2013. 10 of many :)

# Redistributive channels of monetary policy

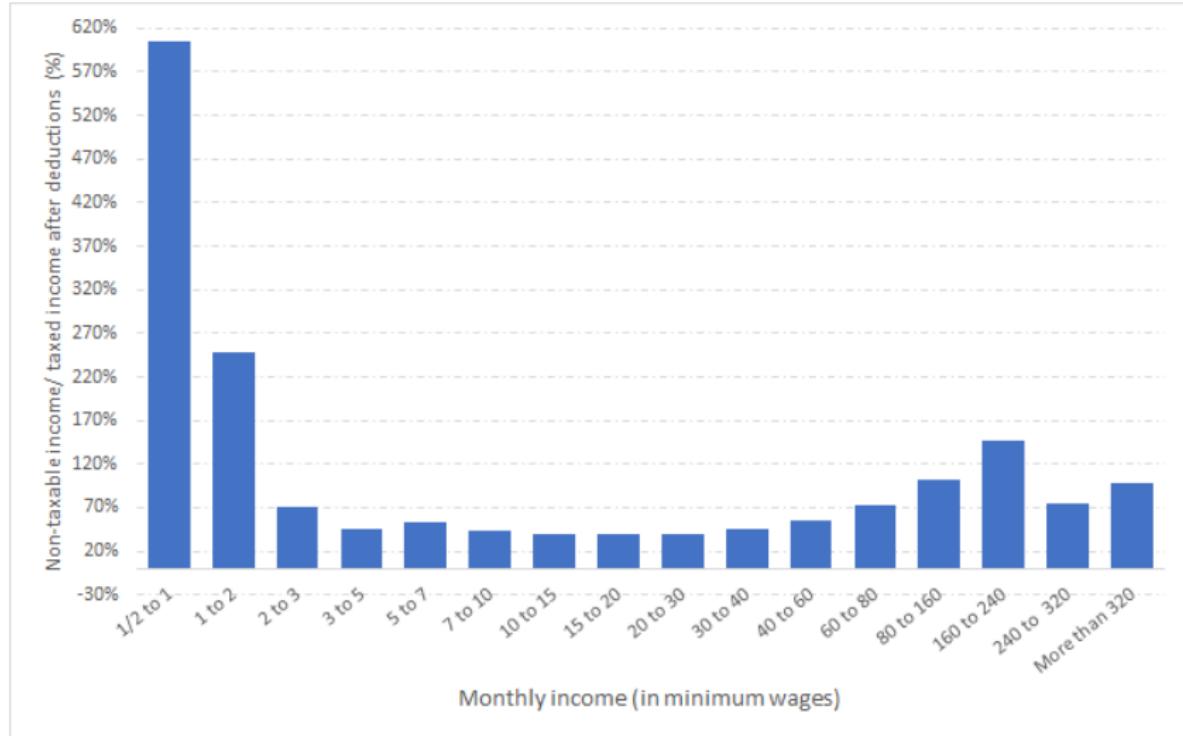
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**Figure:** Income composition. Brazil, 2017.

# Redistributive channels of monetary policy

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**Figure:** Non-taxable income as proportion of the taxed income accordingly to groups of total declared income, Brazil, 2016.

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Cartoon adapted from Sarah's Scribbles  
(<https://www.facebook.com/pg/DoodleTimeSarah>).

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# Redistributive channels of monetary policy

## Income heterogeneity channel

Less Income

More Income



Depends from  
gov. transfers



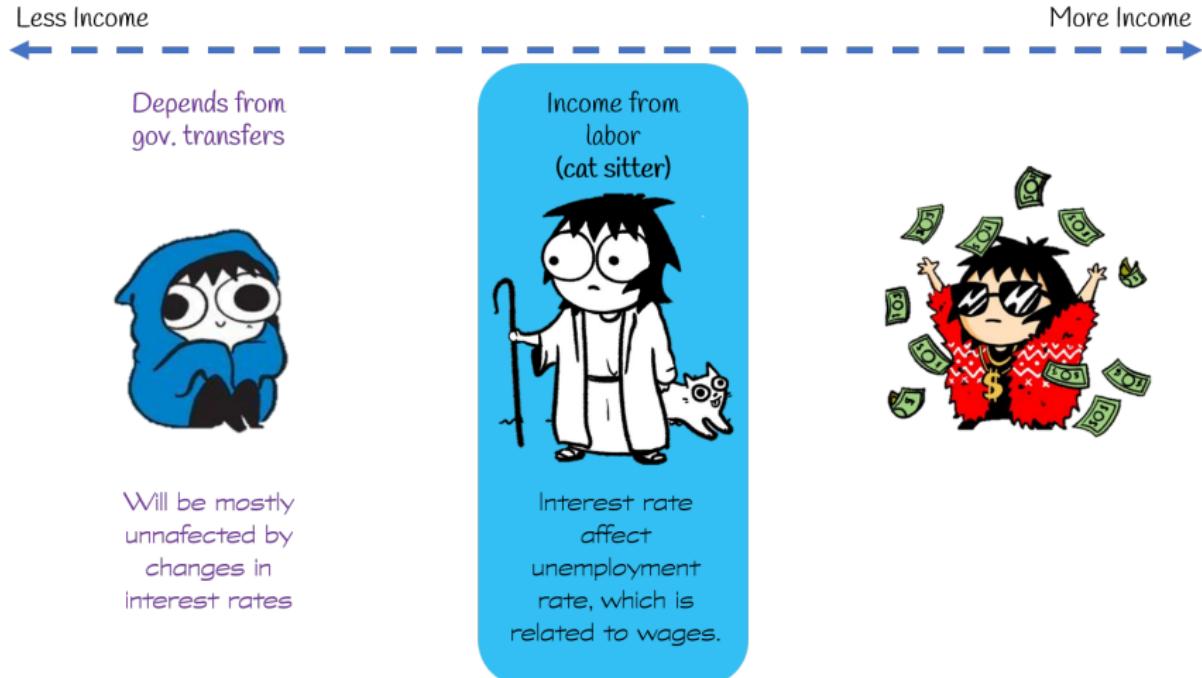
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Income from  
labor



Interest rate  
indirectly affects  
unemployment  
rate, which is  
related to wages.

More Income

Income from  
labor + capital

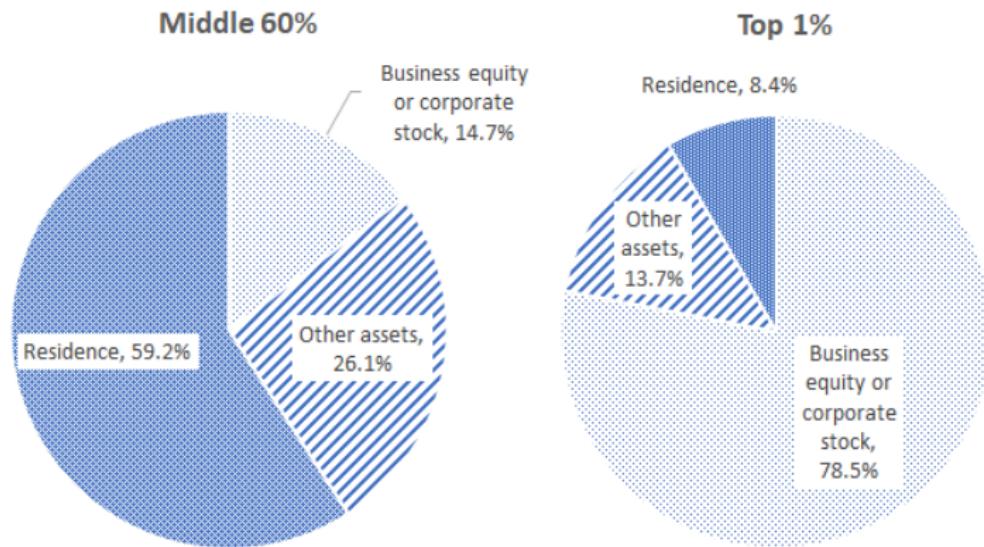


The portion of the  
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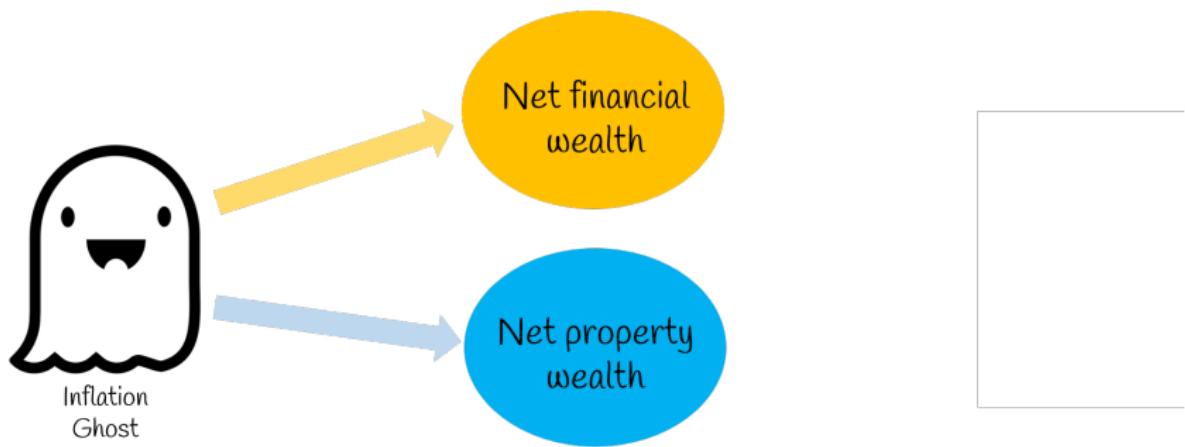
## Fisher (or inflation) channel



**Figure:** Wealth composition for different household groups in the USA, 2001.

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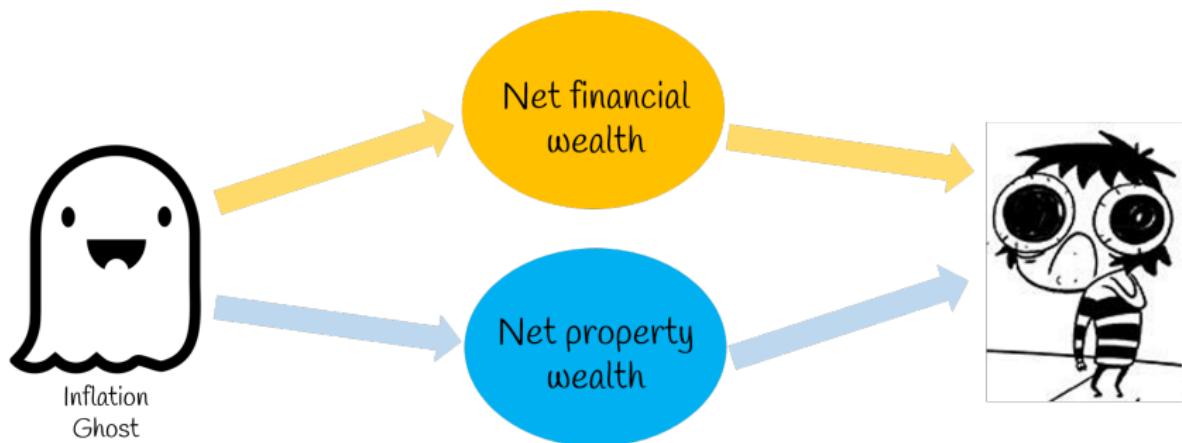
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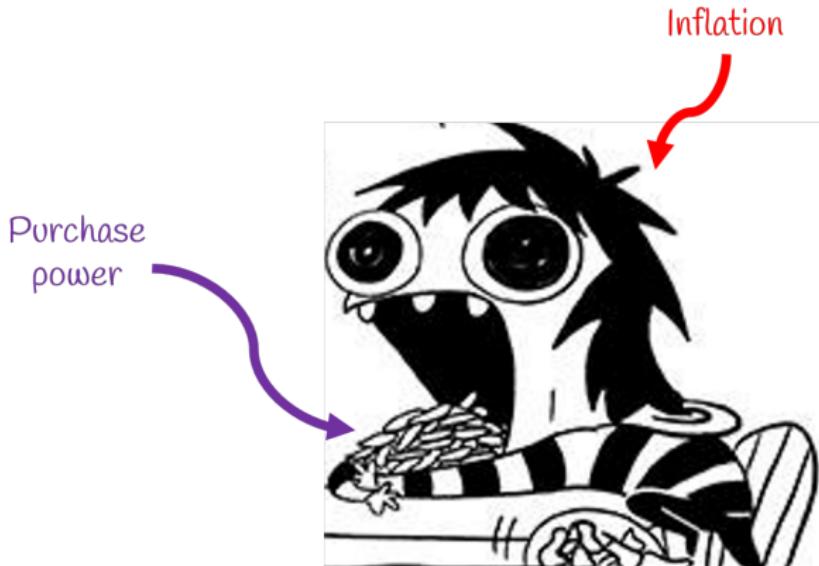
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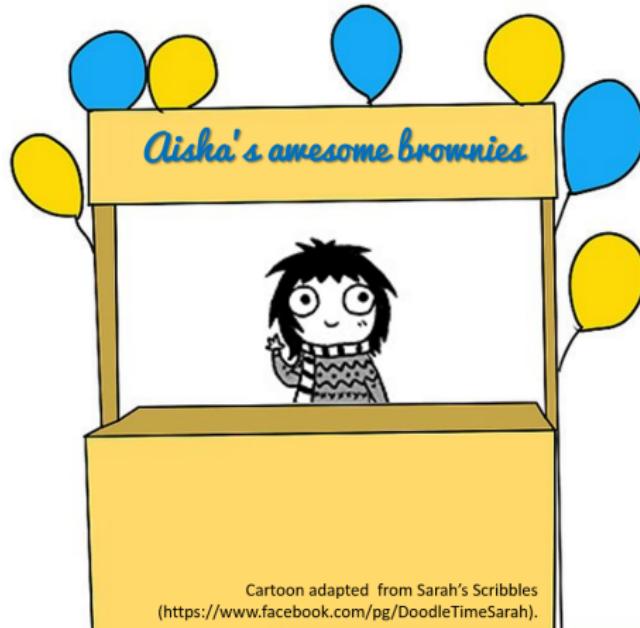
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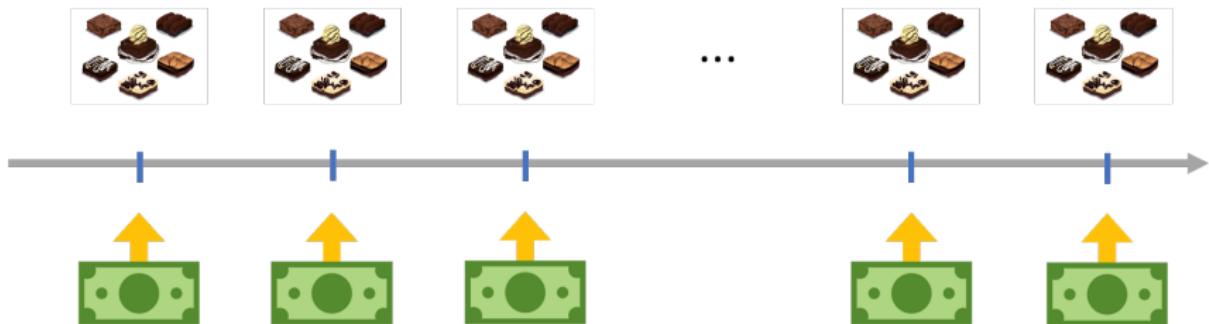
## Interest rate exposure channel



**Figure:** Aisha's plan B if the PhD applications go wrong.

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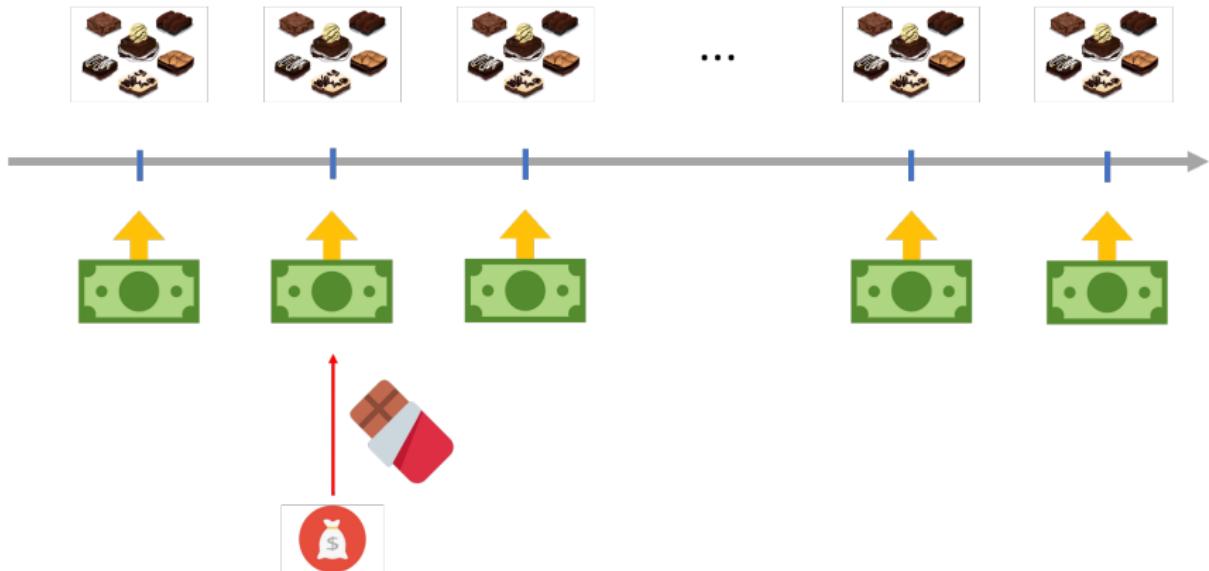
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**Figure:** Payments for goods made on the same day of the inputs purchase.

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## Interest rate exposure channel



**Figure:** A shock on the Belgian chocolate price will be covered by the daily payment.

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**Figure:** Payments for goods made by the end of the month - the contract includes raises in the inputs.

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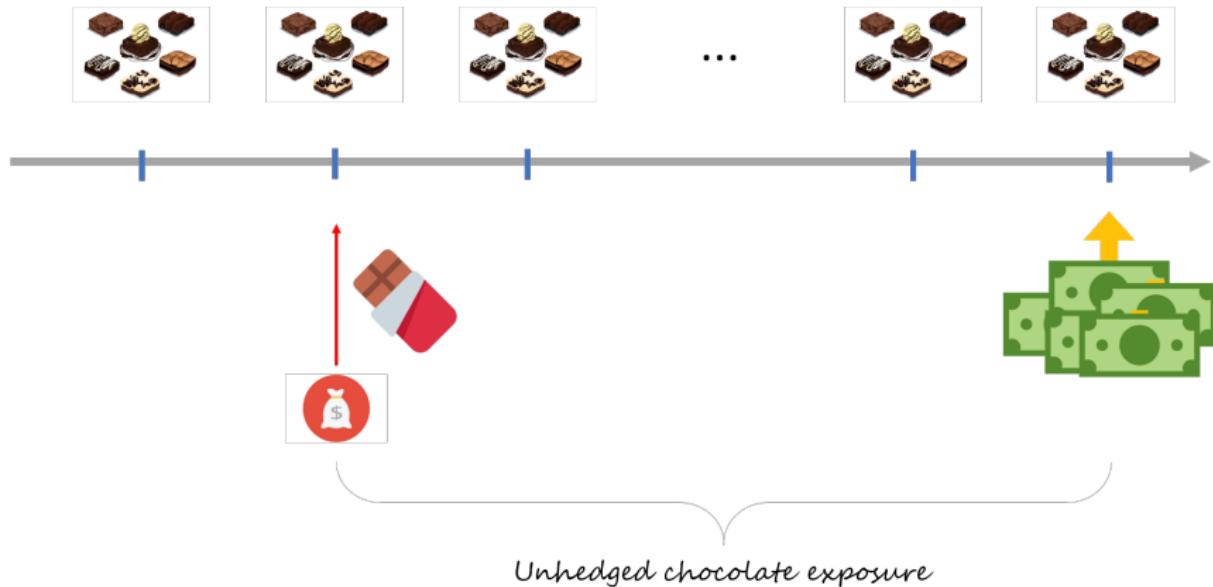
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**Figure:** A shock on the Belgian chocolate price will be compensated only by the end of the month, and that might be too late.

# Redistributive channels of monetary policy

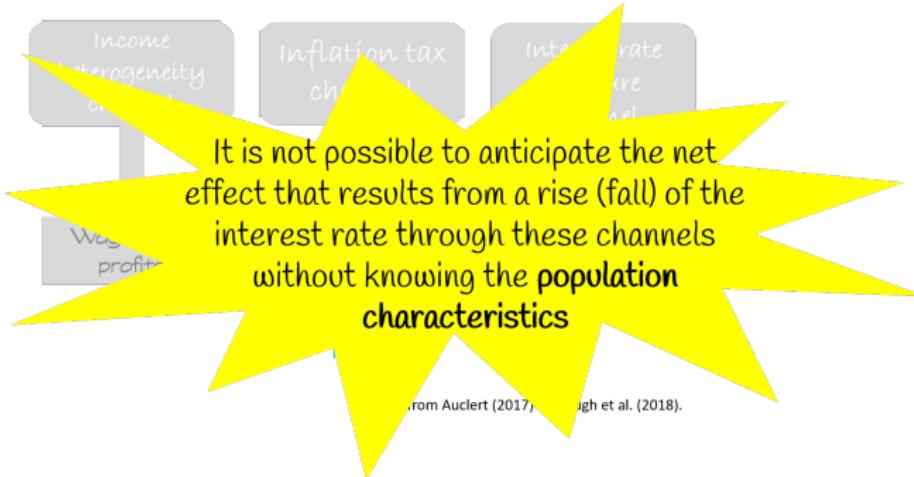
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**Figure:** The time between the input purchase and the payment for the brownies is the period of the *Unhedged Chocolate Exposure*.

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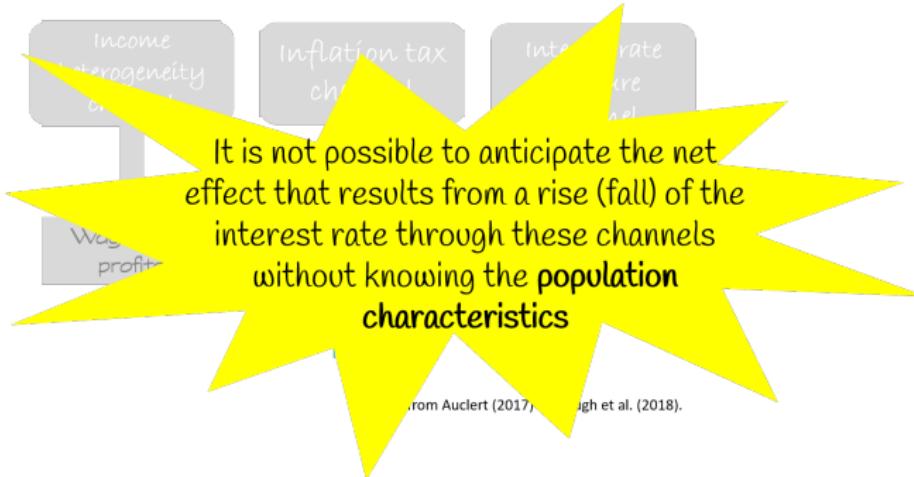
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How the MP decisions reach the economic aggregates **agents** and affect their income and wealth



- The net effects of the MP transmission through these channels are **uncertain** and depend on the characteristics of a particular economy.
- Theory by itself **cannot assess** the direction or global magnitude of the MP on income and wealth distribution when we consider all channels together - **empirical studies are needed** [Pugh et al., 2018].

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  - ▶ For studies using data from multiple countries, the results changed from country to country.
- ▶ **There are no studies for Brazil linking MP and inequality or distribution.**

“The better way to look at the distributional effect of monetary policy is to compare changes in the income flowing from **capital investments** with the income from **labor**. ”

[Bernanke, 2015]

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- ▶ A common characteristic between the three redistributive channels shown before is that the **income composition** matters: wages, financial assets, savings, loans, etc.
- ▶ In order to capture the relationship between the interest rate changes and some income distribution variable, we are going to need at least **quarterly data**.

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- ▶  $K/L$  is a measure that represents the ***functional distribution of income*** between two factors: labor and capital;
  - ▶ It is the quotient between the share of capital income by the share of labor income;
- ▶ If these two factors are not evenly distributed among the population then **changes in  $K/L$  represent redistribution effects**.

# Research proposal

## Our quest

To assess **if there is** an impact from **monetary policy shocks** on the **capital-labor ratio** in Brazil, considering the inflation targeting period (2000-2018).

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## Specific goals:

1. To verify if there is evidence of **changes in the coefficients and volatility** of the model across time.

## Side quest:

1. To **extend** [Uhlig, 1997] BVAR to a **TVP-VAR** model.

# Empirical model

## Adding T to Uhlig's model

We can add time variation to the  $\alpha_t$  coefficients:

$$y_t = Z_t \alpha_t + \epsilon_t, \quad (1)$$

with  $\epsilon_t = \mathcal{U}(\Omega_t^{-1})' \xi_t$  and  $\xi_t \sim \mathcal{N}(0, \mathbb{I}_m)$ .

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And now we need two law of motions to describe the states:

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- ▶ We cannot observe  $\alpha_t$  directly (**latent variable**);
- ▶ If  $\Omega_t^{-1}$  was deterministic, then we could use the Kalman filter;
  - ▶ Since it is not the case, we have an **high dimensional integral that cannot be solved in closed-formula**.

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## Problem

We are going to need a method to estimate the parameters!

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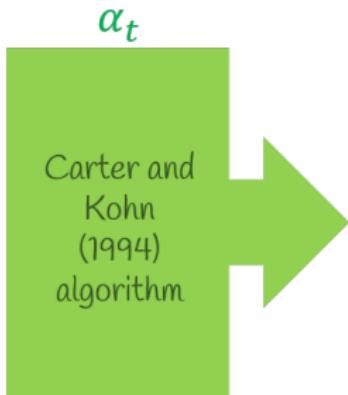
- ▶ A Bayesian approach allows to incorporate **economic constraints and beliefs** in form of **priors**;
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- ▶ We are able to make inference using an **entire posterior density**.

### Proposal

To use [Windle and Carvalho, 2014]'s propositions in a Gibbs sampler algorithm combined with [Carter and Kohn, 1994] and a conjugate prior.

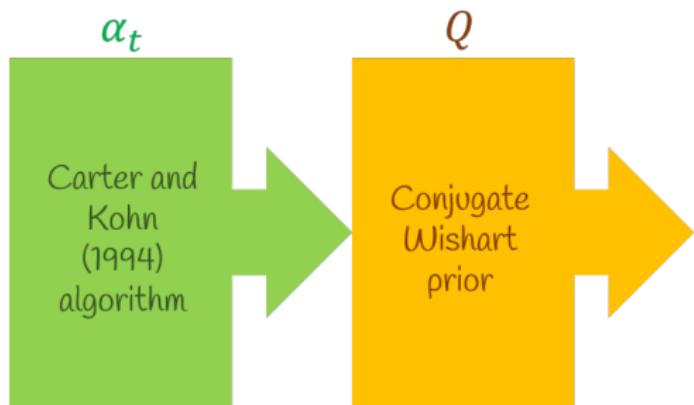
# Estimating Uhlig's extended model

Gibbs sampler scheme



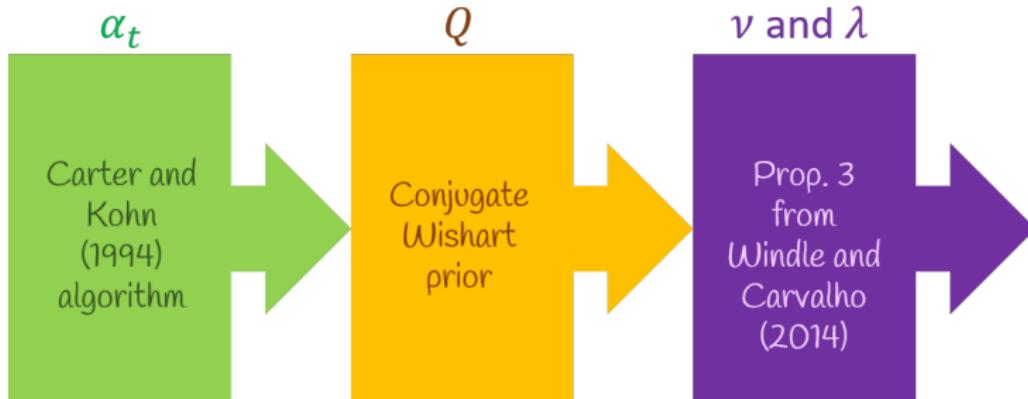
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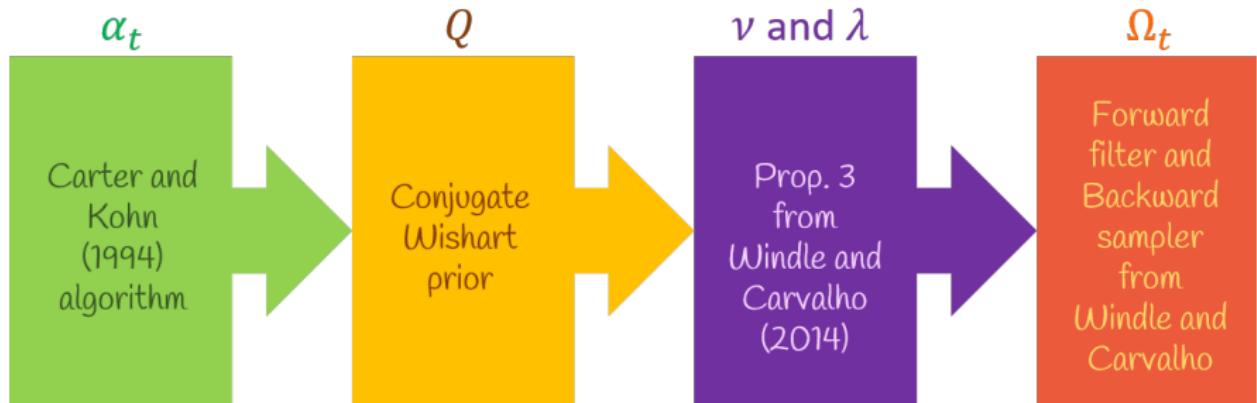
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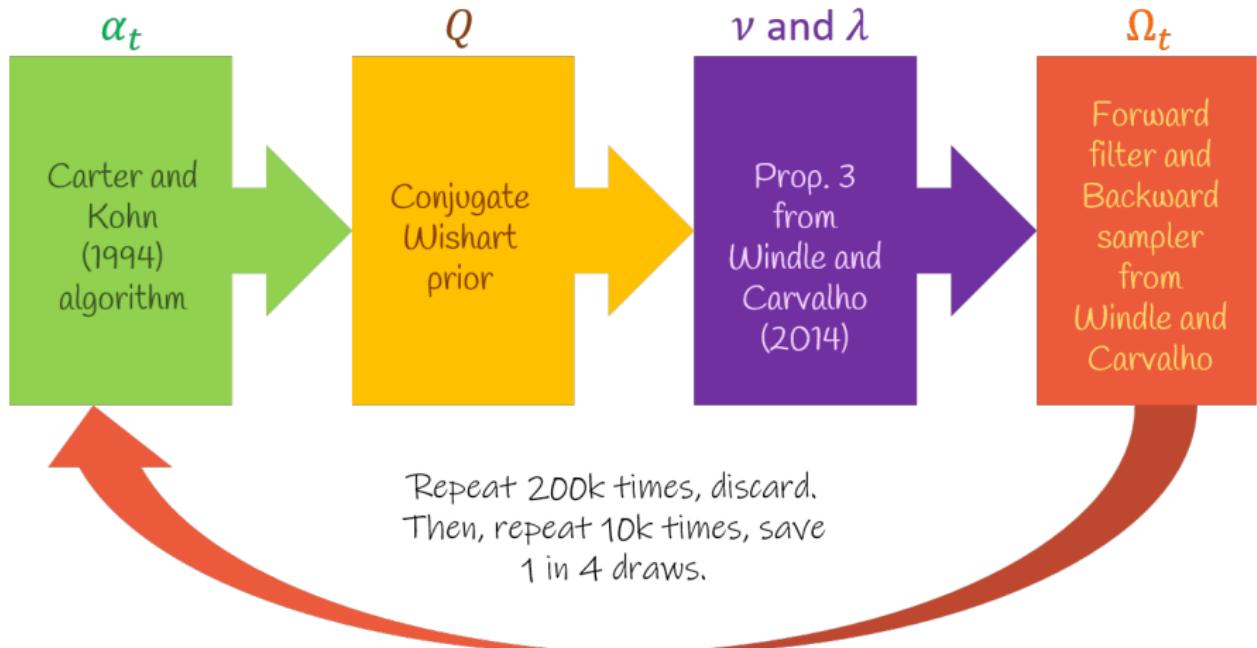
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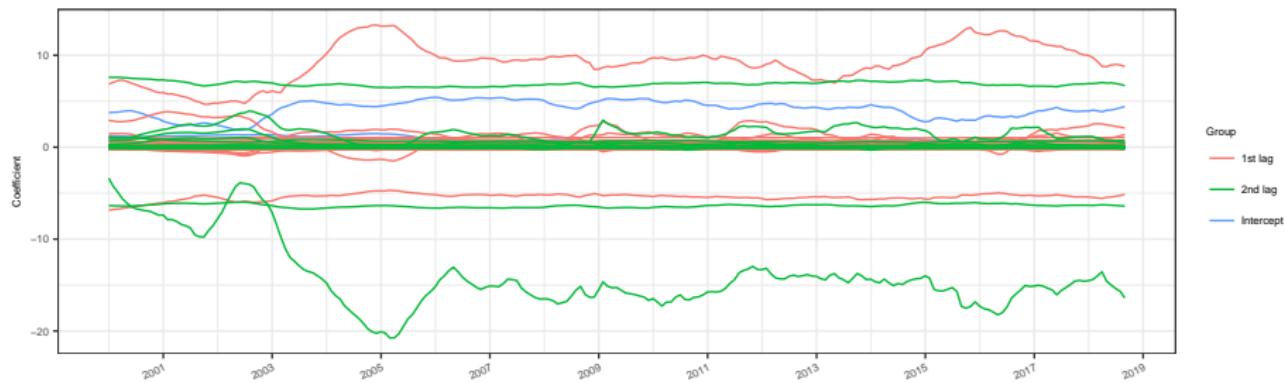
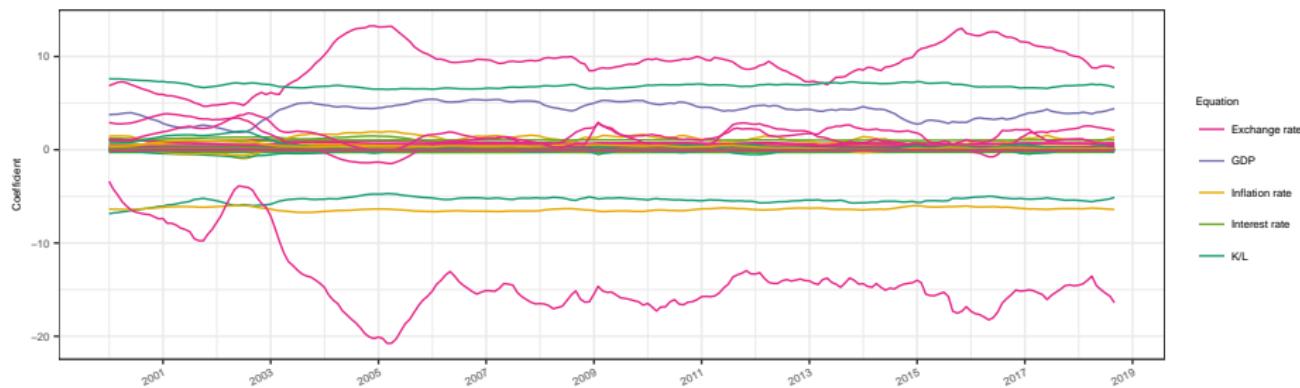
- ▶ **IRF computation:** For each period, a different IRF is calculated using the respective estimated coefficients and volatility.

# Results

Coefficients evolution across time

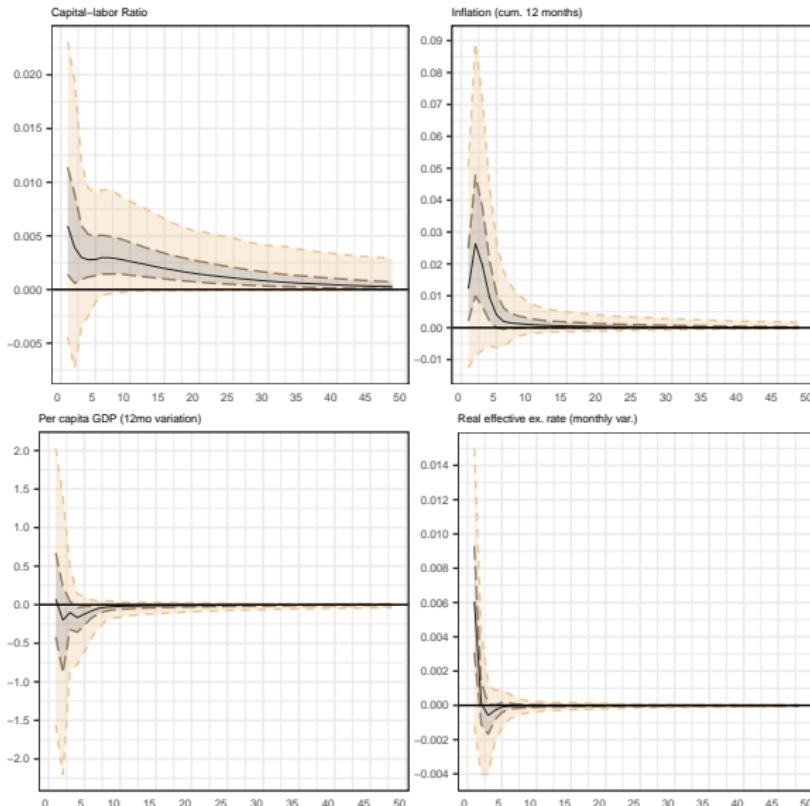
# Results

## Coefficients evolution across time



# Results

Effects from a unitary shock of the interest rate on the other variables - last period



# Results

Effects from a unitary s.d. shock of the interest rate on  $K/L$  and Inflation - selected periods based on changes in the CB or the Min. of Finance

# Results

Effects from a unitary s.d. shock of the interest rate on the capital-income ratio - all periods

# Wrapping up

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- ▶ The **monetary policy shocks** significantly affect the **capital-labor ratio** and its effects last for a year (until shortly after 2010);
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- ▶ This **relationship** was **not stable** during the inflation-target period - it became weaker and non-significant after 2010;
  - ▶ Although there is no evidence of large drifts in the coefficients, there is sufficient noise in the estimated variance to suggest the presence of stochastic volatility.
- ▶ Our findings are compatible with the hypothesis of the **income heterogeneity channel**, although it is not possible to discard completely the existence of a **interest exposure channel** effect.

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- ▶ Estimate a simpler model using data from the **national accounts** (IBGE, quarterly) - robustness check;
- ▶ **Shrinkage** methods such as the one described in [Bitto and Frühwirth-Schnatter, 2016] could be used in order to improve our estimates.

# References I

-  Bernanke, B. (2015).  
*The courage to act: A memoir of a crisis and its aftermath.*  
WW Norton New York.  
32, 33, 34, 35, 36
-  Bitto, A. and Frühwirth-Schnatter, S. (2016).  
Achieving shrinkage in a time-varying parameter model framework.  
*arXiv preprint arXiv:1611.01310.*  
80, 81, 82
-  Carter, C. K. and Kohn, R. (1994).  
On gibbs sampling for state space models.  
*Biometrika*, 81(3):541–553.  
55, 56, 57
-  Cogley, T. and Sargent, T. J. (2005).  
Drifts and volatilities: monetary policies and outcomes in the post wwii us.  
*Review of Economic dynamics*, 8(2):262–302.  
51, 52, 53, 54
-  Primiceri, G. E. (2005).  
Time varying structural vector autoregressions and monetary policy.  
*The Review of Economic Studies*, 72(3):821–852.  
51, 52, 53, 54

## References II

-  Pugh, A., Bunn, P., and Yeates, C. (2018).  
The distributional impact of monetary policy easing in the uk between 2008 and 2014.  
Technical report, Bank of England working papers series.  
30, 31
-  Uhlig, H. (1997).  
Bayesian vector autoregressions with stochastic volatility.  
*Econometrica: Journal of the Econometric Society*, pages 59–73.  
44, 45, 46
-  Windle, J. and Carvalho, C. (2014).  
A tractable state-space model for symmetric positive-definite matrices.  
*Bayesian Analysis*, 9(4):759–792.  
55, 56, 57

# Assessing the impact of conventional monetary policy on the capital-labor ratio in Brazil.

*Thank you!*

<http://aishameriane.github.io>



**Candidate:** Aishameriane Schmidt  
**Advisor:** Prof. Dr. Guilherme Valle Moura

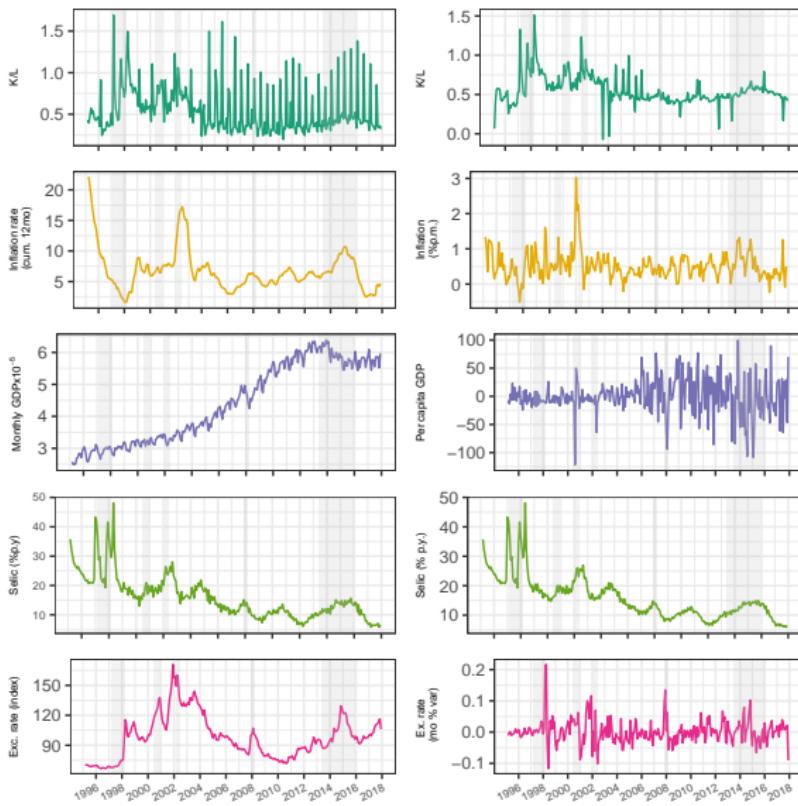
Programa de Pós-Graduação em Economia - PPGEco/UFSC.



**UFSC**  
51 of many :)

# Extras

## Series used in the VAR



# After defense

Join me to celebrate (or not)

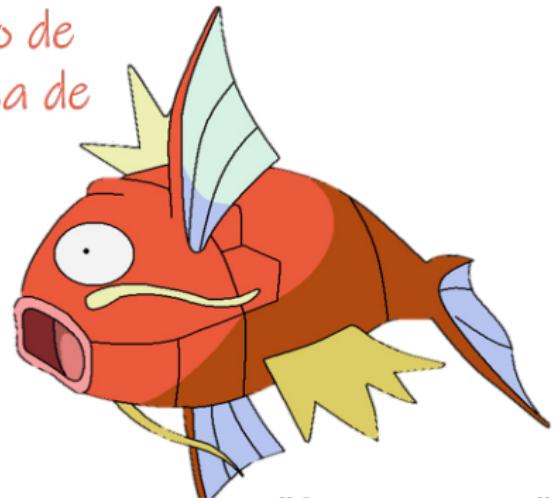
Comemoração ou afogamento de  
mágoas após a n-ésima defesa de  
mestrado da Aisha (n=1)

Local: O Viking hamburguer e chopp (Lauro Linhares, próximo à Madre Benvenuta, no Posto de Gasolina da Vovó)

Dia: 15/03/2019 (sexta-feira)

Horário: 20h

\* Para não estragar o evento, é proibido perguntar “*E agora, vai fazer o quê?*”, “*Como vão os applications?*”, “*Vai publicar em algum lugar?*”, “*Se inscreveu no doutorado?*” e similares :D



**Figure:** We are going to celebrate or join Aisha in misery tonight (8 pm) at “O Viking Hamburguer e Chopp”, at Lauro Linhares Street, 1619 (it is in a gas station). It is forbidden to ask her about PhD applications unless you want to talk about making a funded offer. :-)