

Monetary Policy under Inflation-Targeting in South Africa

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State of the Art

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- ▶ Central banks act to preserve price stability:
From representative to heterogeneous agent models (Gueven 2011 vs Bullard 2019);
- ▶ MP/Inequality links still under-researched in emerging economies:
For SA: Oosthuizen (2007), Aye and Harris (2019).

I Redistributive Channels

Theoretical Framework

Inflation tax channel	Increase in expected inflation lowers purchasing power	Lower-income households tend to hold more liquid assets and have higher <i>mpc</i> .	Expenditure inequality increases	Romer & Romer (1998); Galli and van der Hoeven (2001) Erosa and Ventura (2002) Coibion et al (2012) SA: Kahn (1984) Oosthuizen (2007);
Savings redistribution channel	Increases in unexpected inflation lower the real value of nominal assets and liabilities (flow effect)	Lower-income households hold relatively more debt, while the wealthier ones receive interest income.	Income/Wealth inequality decreases	Doepke & Schneider (2006) Villareal (2014) Bullard (2019) SA: Aye et al. (forthcoming)
Interest rate exposure channel	A fall in real interest rates increases asset prices (stock effect)	Financial assets are relatively more important for the very top of the distribution. Real estate is the main assets in lower brackets.	Wealth inequality increase	Auclert (2016) Domanski et al. (2016) O'Farrell et al. (2016) UMP: Bivens (2015), Casiraghi et al (2018)
Earnings heterogeneity channel	A fall in interest rates may result in increased wages and decreased unemployment	The unemployed gets a job, the employed gets a higher salary	Income inequality decreases	Romer & Romer (1999); Galbraith (1996) Carpenter & Rodgers (2004) Heathcote et al. (2010) Mumtaz & Theophilopoulos (2017)

I Redistributive Channels

Empirical Approaches in Extant Literature

1. **General Equilibrium Models with heterogeneous agents**

Doepke and Schneider (2006); Villareal (2014); Adam and Zhu (2016); Adam and Tzamourani (2016); Doepke et al (2015); Casiraghi et al (2018); Bullard (2019).

2. **Time series for one single country**

SVAR/VEC: Saiki and Frost (2014); Davtyan (2016); Coibion et al. (2017); Mumtaz and Theophilopoulou (2017); Hafemann et al (2018).

3. **Cross-country evidence**

Romer and Romer (1999); Bulir (2001); Li and Zou (2002); Albanesi (2007); Baumeister and Benati (2013); Guerello (2016); Altavilla et al (2016); Dell'Ariccia et al (2018).

The Earnings Heterogeneity Channel in SA

Hypothesis

- ▶ South Africa has a segmented labour market.

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The (urban) high-skill tier is characterized by excess demand

The (rural) low-skill tier displays large excess supply;

- ▶ Monetary expansions supposedly stimulate cyclical unemployment, thus advantaging a small group of educated South Africans at higher brackets.

In 1994-2004, 76 percent of 6.2 million new jobs were skilled or semiskilled (Stats SA 2014).

The Earnings Heterogeneity Channel in SA

Goals

Using detailed micro-level data, I derive a consistent time series for real wage inequality in South Africa since 1993;

I study the effect of monetary policy shock and their historical contribution to wage inequality in South Africa since 2000;

1. Is there a role for monetary policy in wage reallocation?
2. Is the monetary policy redistribution effect asymmetric?
3. Does monetary policy affect inequality differently across sectors?

II Data

Measuring Labour Earnings Inequality through PALMSv3.3

- ▶ The **Post-Apartheid Labour Market Series** is a stacked cross-section of 68 survey waves ($N \sim 6$ million) conducted by Stats SA between 1993 to 2019Q2, and later harmonised by DataFirst.

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- ▶ The **inequality time series** refers to pre-tax wage income at constant prices and individual level, for employees in the working age, collected between 2000Q1 and 2019Q2.

Gini after adjustment

II Data

Identification of Monetary Policy Shocks

To identify monetary policy innovations purged of anticipatory effects, I follow a simple version of Romer and Romer (2004):

$$\delta i_m = \alpha + \beta \hat{i} + \sum_{t=-1}^{+2} \gamma_t \Delta \tilde{y}_{mt} + \sum_{t=-1}^{+2} \lambda_t \tilde{\pi}_{mt} + \epsilon_m \quad (1)$$

m indicates MPC meetings from 2000Q3 to 2019Q2

i_m is the change in prime rate (average);

\hat{i} is the Reuters' forecast prime rate;

$\Delta \tilde{y}_{mt}$ is the forecast real growth rate;

$\tilde{\pi}_{mt}$ is the forecast inflation;

ϵ_m is the exogenous monetary policy innovation;

All data is sourced from SARB.

MP shock

III VECM

The effect of MP shocks on Labour Earnings Inequality

Given the system of I(1) endogenous variables is found to be cointegrated ($r = 1$), a VECM(1) is specified (2000Q3-2019Q2):

$$\begin{bmatrix} y_t \\ \pi_t \\ \epsilon_t \\ Ineq_t \end{bmatrix} = c + \begin{bmatrix} * & 0 & 0 & 0 \\ * & * & * & 0 \\ * & * & * & 0 \\ * & * & * & 0 \end{bmatrix} \begin{bmatrix} y_{t-1} \\ \pi_{t-1} \\ \epsilon_{t-1} \\ Ineq_{t-1} \end{bmatrix} + \sum_{i=1}^p C_{t-1} \begin{bmatrix} \Delta y_{t-1} \\ \Delta \pi_{t-1} \\ \Delta \epsilon_{t-1} \\ \Delta Ineq_{t-1} \end{bmatrix} + break_t + \begin{bmatrix} * & * & * & * \\ * & * & * & * \\ * & * & * & * \\ * & 0 & * & * \end{bmatrix} \begin{bmatrix} u_{y_t} \\ u_{\pi_t} \\ u_{\epsilon_t} \\ u_{Ineq_t} \end{bmatrix} \quad (2)$$

y_t is Real GDP growth

π_t is CPI inflation

ϵ_t is the MP shock

$Ineq_t$ is the Gini index on wage earnings

$break_t$ is the dummy variable that accounts for the 2012 break in the Gini index e_t is the structural shock

IV Results

Impulse Response Functions

Response of Gini Index

Response of GE index

Response of P9010

Response of P9050

Response of Labour Share of Income

Response of the White-Black wage gap

Conclusions

- ▶ Unexpected monetary policy contractions have **tiny but immediate and significant** effects on wage inequality in South Africa.

Due to the segmentation of the SA labour market, the prime rate deteriorates low wage-paid employment disproportionately.

The gap between the richest and the poorest 10 per cent of wage-paid workers widens and overall inequality worsens.

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- ▶ A contractionary monetary policy shock is also found to **widen the black–white wage gap significantly**.
- ▶ The biggest sectors (**trade, manufacturing, public sector**) do not significantly respond to monetary policy shocks in distributional terms.

Conclusions

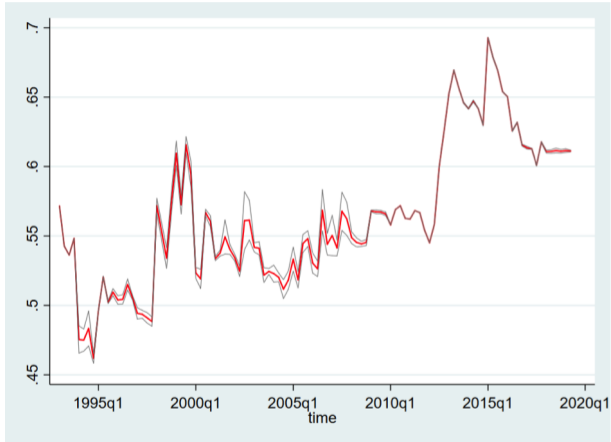
Overall, the redistributive effects of monetary policy in South Africa are visibly driven by the peculiar structure of the economy and, particularly, its deeply segmented labour market. Skilled workers receive relatively high compensations due to a large demand for their services, while low-skilled workers suffer extreme levels of unemployment.

As a result, while the strongest sectors and socio-economic groups remain protected from unexpected changes, the rest of the economy suffers transitory cuts to investment and employment. And wage inequality increases.

Thus, it can be said that improving SARB's transparency and accountability as to limit policy actions that are not expected by the markets shall be the right step towards inclusion.

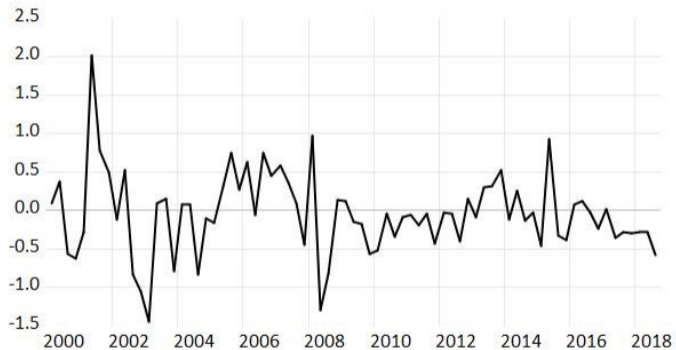
Figures

Gini index after PALMS adjustment



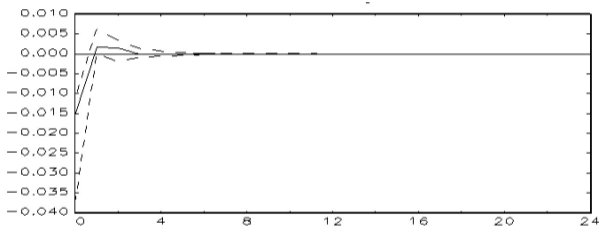
Figures

MP shock



Figures

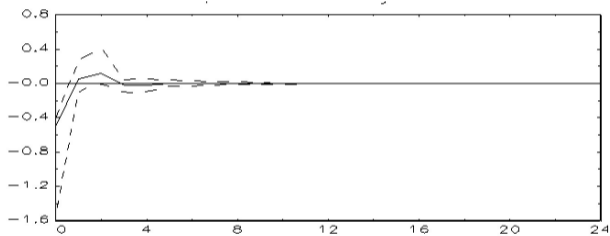
Response of Gini index to one sd MP shock



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Figures

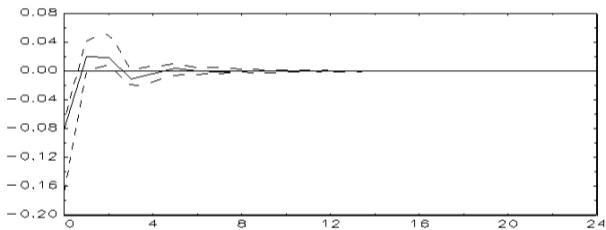
Response of GE index to one sd MP shock



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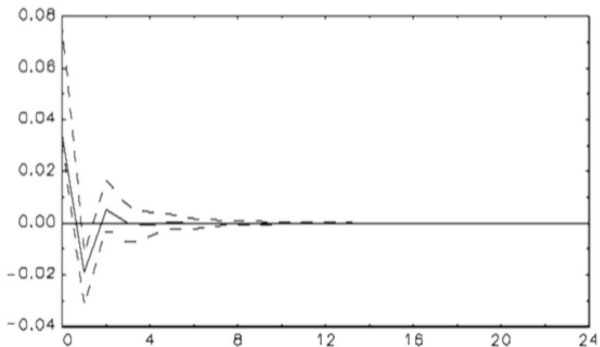
Response of P9010 to one sd MP shock



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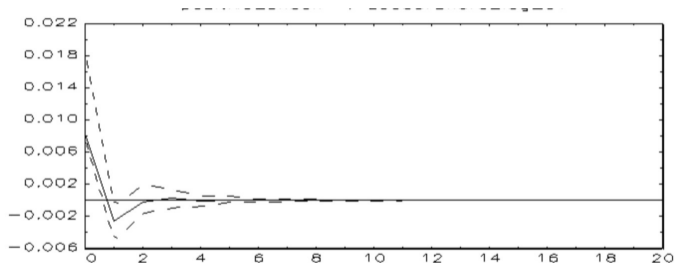
Response of P9050 to one sd MP shock



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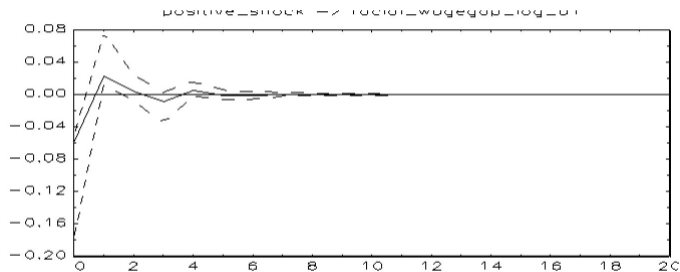
Response of Labour Share to one sd MP shock



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Figures

Response of White-Black Wage gap to one sd MP shock



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