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Political Intervention and Monetary Transmission: A Theoretical Note

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Abstract

Within a theoretical framework, the paper analyzes the impact of government intervention in the credit market on bank lending. The results indicate that in the short-run, a monetary expansion lowers lending that is not susceptible to political intervention by a magnitude that is higher than loans that are impacted by political influence. In the long run, a monetary expansion is observed to uniformly raise bank lending, consistent with the jawboning hypothesis.

Keywords

Politics, Bank Lending, Monetary Policy, Jawboning

1. Introduction

It is well recognized that governments exerts significant control over enterprises all over the globe. According to the International Finance Corporation, notwithstanding the increasing spate of privatization, state-owned enterprises (SOEs) account for 20 percent of investment, 5 percent of employment, and up to 40 percent of domestic output in countries around the world (IFC, 2018).

The social view (Atkinson & Stiglitz, 1980; Shleifer, 1998) contends that the major focus of SOEs—which are created when their social benefits exceeds the costs—is to facilitate societal goals, such as addressing market failures and pursuing broader employment objectives. On the other hand, the political view (Shleifer & Vishny, 1994) contends that these entities seek to serve the vested interests of politicians. Poor inefficiencies and low-powered incentives help to foment this process (Jensen & Meckling, 1976).

Nowhere is the dominance of the state so pervasive as in the banking sector, especially in emerging economies. The evidence proffered by Cull et al. (2017)

shows that the median share of state-owned banks in emerging markets was 18% in 2010 as compared to 23% during 1998-2001. In some of the leading emerging economies such as China, India Russia and Turkey, the share of state-owned banks is well more than half of banking assets and in several other advanced markets such as Germany, Iceland and Portugal, their share is well over one-third (European Bank for Reconstruction and Development, 2021). For all these reasons, it becomes imperative to understand the consequences of government control over the banking sector.

By now, there is substantive evidence on the interlinkage between political intervention and bank behavior (Sapienza, 2004; Dinc, 2005; Khwaja & Mian, 2005; Micco et al., 2007; Cole, 2009; Carvalho, 2014). The key findings of these studies are that political intervention exerts a perceptible and statistically significant impact on bank lending. This impact is manifest primarily in case of state-owned banks and more prominent around election years. These studies are primarily empirical in nature and analyze various facets of bank lending, either within countries or at the cross-country level. In contrast, we develop a theoretical model where we explicitly introduce a political variable into a model of bank behavior and examine its implication for monetary transmission.

The paper relates to two literatures. First, the paper relates to the literature that examines the political view of bank lending. In an early exercise, Dinc (2005) finds that electoral exigencies drive the lending behavior of state-owned banks, especially in developing economies. Within a similar cross-country setup, Micco et al. (2007) also documents a deterioration in the performance of state-owned banks during election years. Cole (2009) and Kumar (2020) focus on the Indian experience and find strong association between electoral cycles and lending cycles, especially by state-owned banks. This contrasts with the evidence for Turkey, where no such cycle in lending is evidenced for state-owned banks around election years (Baum et al., 2010). Englmeier & Stowasser (2017) provide similar evidence for German savings banks. This cyclicality in lending by state-owned banks has been documented in other contexts (Bertay et al., 2015; Brei & Schclarek, 2013; Koetter & Popov, 2021; Mirzaei et al., 2021). Other studies have sought to bridge the link between theory and empirics by positing a dynamic model of currency intervention with long-run exchange rate intervention and capital controls (Jin & Wang, 2017). Unlike these studies, we employ a specification to assess direct intervention by the government in the credit market.

Second, our analysis speaks to the literature focusing on the monetary transactions process and its intersection with politics. There is burgeoning literature on the monetary transmission process (Kashyap & Stein, 2000; Kishan & Opiela, 2000; Kleimeier & Sander, 2006; Altunbas et al., 2014; Gambacorta & Shin, 2018; Gomez et al., 2021). Most of the evidence focuses on the relevance of the bank lending channels and/or the interest rate channel. Recent evidence has sought to explore the relevance of politics for bank lending, also termed as the political channel (Ghosh, 2020). The empirical evidence suggests that political intervention influences bank lending and this impact is exacerbated in the presence of monetary contraction. The extant cross-country evidence suggests that state-controlled banks increase lending by a greater magnitude than private banks, consequent upon a monetary expansion (Morck et al., 2019). We complement this empirical evidence with theoretical research to assess how political intervention interacts with the monetary transmission process.

The rest of the paper continues as follows. Section 2 develops the theoretical model along with the proposition and results. Section 3 encapsulates the key findings and the final section contains the concluding remarks.

2. Analytical Framework

This section develops a simple model of bank behaviour that highlights the key determinants of monetary transmission. The key equations of the model are akin to Mishra et al. (2014) in which we include a capital adequacy constraint in line with Kopecky & Van Hoose (2004). The key focus is on the role of political intervention and its influence on the monetary transmission process. Accordingly, Section 2.1 outlines the basic setup, followed by the maximization exercise and thereafter, the short- and long-term equilibrium which contain several testable propositions.

2.1. Basic Setup

Consider a bank with loans (denoted by L) and government bonds (G) on the asset side, which is funded through deposits (D) and equity (K). Therefore, the basic balance sheet constraint is given by (1), according to as:

$$D + K = L + G \tag{1}$$

The bank is a monopolistic competitor in the market for loans and deposits. It has no market power in the market for government securities. This would imply that the bank will set the interest rates on loans and deposits to maximize profits subject to the balance sheet constraint and the capital requirements. The following assumptions set out the framework of the model.

Loans: We assume that the representative bank extends two categories of loans, L_{NP} (NP-type) and L_P (P-type). The former is loans extended to the private sector which carries an interest rate r_{NP} (market rate), whereas the latter is loans to the priority (designated) sector, on which the interest rate is r_P ($r_P < r_{NP}$). For analytical tractability, we employ simple functional forms that enable us to generate closed-form solutions. Accordingly, the loan demand function for the two categories can be expressed as follows:

$$L_{NP} = \exp\left(-\omega_1 r_{NP}\right) \tag{2A}$$

$$L_P = \exp\left(-\omega_2 \left(1-\alpha\right) r_P\right) \tag{2B}$$

where $\alpha \in [0,1)$. Higher values of α imply a greater degree of interest subvention. As a result, when $\alpha = 0$ (no interest subvention), priority sector lending varies inversely with the priority loan rate, whereas when $\alpha \to 1$, priority lending is a constant.

Deposits: As earlier, the deposit function is expressed as in Equation (3):

$$D = D_o \exp\left(\beta\left(r_D - \overline{r_D}\right)\right) \tag{3}$$

where $\overline{r_D}$ is the rate on government savings instruments: higher the rate on these instruments, lower the bank deposits.

Bonds: In addition, banks hold government bonds, the interest rate on which is r_G This rate is assumed to be the same as the policy rate ($r_G = r$). In doing so, we are able to abstract from the complications that banks might be exposed to, in terms of liquidity or term-structure risks.

Capital requirement: The banking sector is subject to a capital requirement that includes both risk-based as well as total asset requirements (See, for instance, Kopecky & Van Hoose, 2004). This constraint is expressed as follows:

$$K \geq \theta_{NP} L_{NP} + \theta_P L_P + \theta_G G \quad \left(\theta_P \gg \theta_{NP} \gg \theta_G\right) \tag{4}$$

The expression reflects the fact that 1) high-risk loans receive a higher risk weighting; and 2) government bonds (the alternative asset) has a much lower risk weight.

Objective Function: The objective of the bank is to maximize profits, as given by expression (5), i.e.,

$$\Pi = r_{NP} L_{NP} + r_P L_P + r_G G - r_D D\left(r_D\right) - \left[\gamma_0 L_{NP} + \gamma_1^2 \left(L - L_{NP}\right)\right] \tag{5}$$

where the third term on the RHS is the income on government bonds and $L = L_{NP} + L_P$. Due to imperfections in the credit market, the bank faces costs of extending credit. The cost increases linearly (with a slope of γ_0) for the volume of credit upto the threshold level of L_{NP}. Beyond this level, the bank faces quadratic costs captured by the institutional environment (γ_1), consistent with Mishra et al. (2014).

Employing the budget constraint (1) earlier and substituting this in (3), we obtain, upon re-arrangement:

$$\Pi = \left(r_{NP} - r\right) L_{NP} + \left(r_P - r\right) L_P + \left(r - r_D\right) D\left(r_D\right) + r_G K - \left(\gamma_0 L_{NP} + \gamma_1^2 L_P\right) \tag{5A}$$

2.2. Maximization Exercise

The optimization problem of the bank is given by (6):

$$\begin{aligned} &\max_{r_{NP}, r_P, r_D} \Pi \\ &\text{subject to } K \geq \frac{\theta_{NP} - \theta_G}{1 - \theta_G} L_{NP} + \frac{\theta_P - \theta_G}{1 - \theta_G} L_P + \frac{\theta_G}{1 - \theta_G} D \end{aligned} \tag{6}$$

The resultant first-order conditions (FOCs) of the problem are:

$$\text{NP-type}: -\omega_1\left(r_{NP} - r\right) + 1 + \omega_1 \gamma_0 + \lambda \omega_1 \frac{\theta_{NP} - \theta_G}{1 - \theta_G} = 0 \tag{7A}$$

$$\text{P-type}: -\omega_2(1-\alpha)(r_P - r) + 1 + \omega_2(1-\alpha)\gamma_1^2 + \lambda\omega_2(1-\alpha)\frac{\theta_P - \theta_G}{1-\theta_G} = 0 \quad (7B)$$

$$\text{Deposit}: \beta(r - r_D) + 1 - \lambda\beta\frac{\theta_G}{1-\theta_G} = 0 \quad (7C)$$

where λ is the Lagrangian multiplier associated with the capital adequacy constraint, Equation (4).

2.3. Short-Run Equilibrium

In the short-run, the bank does not have the flexibility to adjust its equity level; instead, it can change only the loan and deposit rates.

We come to the main goal of the paper: to analyze the impact of political intervention and its interlinkage with monetary transmission. The result is summarized in Proposition 1.

Proposition 1 [Impact of political intervention]: *In case a bank is not constrained by its equity level, the short-run impact of a political intervention is positive for P-type loans, whereas there is no impact on NP-type loans.*

Proof: (a) In case the bank is not constrained by the capital regulation, $\lambda = 0$. As a result, conditions (7A)-(7C) reads:

$$\text{NP-type}: r_{NP} = r + (1/\omega_1) + \gamma_0 \quad (8A)$$

$$\text{P-type}: r_P = r + \frac{1}{\omega_2(1-\alpha)} + \gamma_1^2 \quad (8B)$$

$$\text{Deposit}: r_D = r + (1/\beta) \quad (8C)$$

On the lending side, the marginal revenue equates the marginal cost. The latter, in turn, consists of two components: the risk-free rate plus the transactions costs (Equation (8A)), adjusted for the smoothing parameter (ω_1). In Equation (8B), the expression is similar, except that it also includes the parameter of political intervention in addition to the smoothing parameter. On the deposit side, the marginal cost of deposits (LHS) equals the marginal return (which equals the risk-free rate *plus* the smoothing parameter).

Substituting Equations (8A) and (8B) into (2A) and (2B) and upon differentiating, we get:

$$\text{NP-type}: \frac{\partial L_{NP}}{\partial \alpha} = 0 \quad (9A)$$

$$\text{P-type}: \frac{\partial L_P}{\partial \alpha} = \omega_2(1+r)L_P > 0 \quad (9B)$$

which proves the result.

Proposition 2 [Monetary transmission and bank lending]: *Assuming the quantum of loan extension to be same for NP-type and P-type loans and the same smoothing parameter for both loan categories, a monetary expansion exerts a more dampening impact on NP-type loans as compared to P-type loans, for all* $\alpha \in [0,1)$.

Proof: See **Appendix**.

Proposition 3 [Short-term impact of political intervention]: *In case a bank is constrained by its equity level, the short-run impact of a political intervention depends on the capital regime pursued. The magnitude of the impact of political intervention on P-type loans is lower under risk-based capital* (*RBC*) *standards as compared to that under non-RBC standards.*

Proof: See **Appendix**.

Proposition 4 [Impact of political intervention for constrained vs. unconstrained banks]: a) *In case a bank is constrained by its equity level, the short-run impact of a monetary transmission on bank loans depends on the capital regime pursued. There is no impact of monetary transmission on either NP-type or P-type loans under risk-based capital* (*RBC*), *while the impact on deposits is positive.*

b) *Under non-RBC, the impact of a monetary transmission is higher for P-type as compared to NP-type loans.*

Proof: See **Appendix**.

2.4. Long-Run Equilibrium

The long run is defined as a situation where the bank is able to adjust its equity level. In this way, the banks' level of equity converges to the desired level, so that E is endogenous. Formally, the long-run equilibrium level of E is determined as $E = \theta_{NP} * L_{NP} + \theta_P * L_P + \theta_G * G$ (Estrella, 2001).

The long run optimization problem of the bank is given as:

$$\begin{aligned} &\max_{r_{NP}, r_P, r_D} \ \Pi \\ &\text{s.t. } K = \theta_{NP} * L_{NP} + \theta_P * L_P + \theta_G * G \end{aligned} \tag{10}$$

Following from the maximization exercise, we obtain the following expressions:

$$\text{NP-type}: r_{NP}^{LR} = r\frac{1-\theta_{NP}}{1-\theta_G} + \gamma_0 \tag{11A}$$

$$\text{P-type}: r_P^{LR} = r\frac{1-\theta_P}{1-\theta_G} + \gamma_1^2 \tag{11B}$$

$$\text{Deposits}: r_D^{LR} = \frac{r}{1-\theta_G} \tag{11C}$$

In other words, the marginal revenue on loans (LHS) equals the marginal cost (RHS). The latter consists of two terms. The first is the risk-free return, adjusted for the relative risk-weights on the loan type and government bonds, while the second is the transaction costs.

Proposition 5 [Long-run impact of political intervention]: a) *In the long-run, there is no impact of political intervention on either lending or deposits rates. However, the impact on lending is higher for P-type loans as compared to NP-type loans.*

b) *However, the impact of monetary expansion on loans is uniformly positive, being higher under RBC standards.*

Proof: See **Appendix**.

The evidence in this case concurs with the jawboning hypothesis which suggests that state-owned banks increase lending in response to a monetary expansion (Morck et al., 2019).

3. Key Findings

The theoretical section provides several key findings. These findings differ in the short-run for constrained and unconstrained banks and in the long-run. The major highlights are summarized in what follows.

In the short-run, where we distinguish between banks which are unconstrained by their capital levels and ones which are not, we find that in case of the former, there is an impact on loans that are susceptible to political intervention. As compared to this, for banks that are constrained by the capital standards, there is no impact on loans that are susceptible to political intervention.

In the long-run, where banks have the flexibility to adjust their equity levels, we find that, the impact of political intervention is higher for loans that are susceptible to political intervention as compared to ones that are not.

4. Concluding Observations

The role of politics in affecting economic outcomes has been increasingly discussed in both academic and policy research. Most studies employ an empirical framework to tease out potential linkages, thereby ignoring the theoretical impact.

Using a simple analytical framework, we show how political intervention in the credit market affects bank lending. We integrate this framework with a monetary policy variable and analyze both the short- and long-term impact. We find that in the short-run, the bank's capital position plays an important role in driving this behaviour. In the long-run, when capital constraints are not binding, there appears to be limited impact of political intervention, although in terms of magnitude, the impact is higher for loans that are susceptible to political capture.

Therefore, the paper expands the empirical evidence regarding the impact of political intervention on bank lending from a theoretical standpoint. However, what policies can be employed to negate such an impact remains to be understood in further research.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

Altunbas, Y., Gambacorta, L., & Marques-Ibanez, D. (2014). Does Monetary Policy Affect Bank Risk? *International Journal of Central Banking, 14,* 95-135.

Atkinson, A., & Stiglitz, J. (1980). *Lectures in Public Economics*. McGraw-Hill.

Baum, C. F., Caglayan, M., & Oleksandr, T. (2010). Parliamentary Election Cycles and the Turkish Banking Sector. *Journal of Banking and Finance, 34,* 2709-2719. https://doi.org/10.1016/j.jbankfin.2010.05.013

Bertay, A. C., Demirgüç-Kunt, A., & Huizinga, H. (2015). Bank Ownership and Credit over the Business Cycle: Is Lending by State Banks Less Procyclical? *Journal of Banking and Finance, 50,* 326-339. https://doi.org/10.1016/j.jbankfin.2014.03.012

Brei, M., & Schclarek, A. (2013). Public Bank Lending in Times of Crisis. *Journal of Financial Stability, 9,* 820-830. https://doi.org/10.1016/j.jfs.2013.01.002

Carvalho, D. (2014). The Real Effects of Government-Owned Banks: Evidence from an Emerging Market. *Journal of Finance, 69,* 577-609. https://doi.org/10.1111/jofi.12130

Cole, S. (2009). Fixing Market Failure or Fixing Elections? Agricultural Credit in India. *American Economic Journal (Applied Economics), 1,* 219-250. https://doi.org/10.1257/app.1.1.219

Cull, R., Martinez Peria, M. S., Verrier, J., & Dell'Ariccia, G. (2017). *Bank Ownership: Trends and Implications*. IMF Working Paper No. 60, IMF. https://doi.org/10.5089/9781475588125.001

Dinc, I. S. (2005). Politicians and Banks: Political Influences on Government-Owned Banks in Emerging Markets. *Journal of Financial Economics, 77,* 453-479. https://doi.org/10.1016/j.jfineco.2004.06.011

Englmeier, F., & Stowasser, T. (2017). Electoral Cycles in Savings Bank Lending. *Journal of the European Economic Association, 15,* 296-354. https://doi.org/10.1093/jeea/jvw005

Estrella, A. (2001). The Cyclical Behavior of Optimal Bank Capital. *Journal of Banking and Finance, 28,* 1469-1498. https://doi.org/10.1016/S0378-4266(03)00130-4

European Bank for Reconstruction and Development (2021). *Transition Report 2020-21: The State Strikes Back*. EBRD.

Gambacorta, L., & Shin, H. S. (2018). Why Bank Capital Matters for Monetary Policy. *Journal of Financial Intermediation, 35,* 17-29. https://doi.org/10.1016/j.jfi.2016.09.005

Ghosh, S. (2020). Bank Lending and Monetary Transmission: Does Politics Matter? *Journal of Quantitative Economics, 18,* 359-381. https://doi.org/10.1007/s40953-019-00190-y

Gomez, M., Landier, A., Srear, D., & Thesmar, D. (2021). Banks' Exposure to Interest Rate Risk and the Transmission of Monetary Policy. *Journal of Monetary Economics, 117,* 543-570. https://doi.org/10.1016/j.jmoneco.2020.03.011

International Finance Corporation IFC (2018). *State-Owned Enterprises*. https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+cg/topics/state-owned+enterprises

Jensen, M., & Meckling, W. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics, 3,* 305-360. https://doi.org/10.1016/0304-405X(76)90026-X

Jin, H., & Wang, T. (2017). Dynamic Currency Intervention and International Monetary Neutrality. *Theoretical Economics Letters, 7,* 575-581. https://doi.org/10.4236/tel.2017.73042

Kashyap, A., & Stein, J. C. (2000). What Do a Million Observations on Banks Say about the Transmission of Monetary Policy. *American Economic Review, 90,* 407-428. https://doi.org/10.1257/aer.90.3.407

Khwaja, A., & Mian, A. (2005). Do Lenders Favor Politically Connected Firms? Rent Provision in an Emerging Financial Market. *Quarterly Journal of Economics, 120,* 1371-1441. https://doi.org/10.1162/003355305775097524

Kishan, R., & Opiela, T. (2000). Bank Size, Bank Capital and the Bank Lending Channel. *Journal of Money, Credit, and Banking, 32,* 121-141. https://doi.org/10.2307/2601095

Kleimeier, S., & Sander, H. (2006). Expected versus Unexpected Monetary Policy Impulses and Interest Rate Pass-Through in the Euro-Zone Retail Banking Markets. *Journal of Banking and Finance, 30,* 1839-1870. https://doi.org/10.1016/j.jbankfin.2005.07.006

Koetter, M., & Popov, A. (2021). Political Cycles in Bank Lending to the Government. *Review of Financial Studies, 34,* 3138-3180. https://doi.org/10.1093/rfs/hhaa118

Kopecky, K., & Van Hoose, D. (2004). Bank Capital Requirements and the Monetary Transmission Mechanism. *Journal of Macroeconomics, 26,* 443-464. https://doi.org/10.1016/j.jmacro.2003.03.002

Kumar, N. (2020). Political Interference and Crowding out in Bank Lending. *Journal of Financial Intermediation, 43,* Article ID: 100815. https://doi.org/10.1016/j.jfi.2019.02.001

Micco, A., Panizza, U., & Yanez, M. (2007). Bank Ownership and Performance: Does Politics Matter? *Journal of Banking and Finance, 31,* 219-241. https://doi.org/10.1016/j.jbankfin.2006.02.007

Mirzaei, A., Pasiouras, F., & Samet, A. (2021). State Ownership, Macroprudential Policies and Bank Lending. *Journal of International Money and Finance, 117,* Article ID: 102456. https://doi.org/10.1016/j.jimonfin.2021.102456

Mishra, P., Montiel, P., Pedroni, P., & Spilimbergo, A. (2014). Monetary Policy and Bank Lending Rates in Low-Income Countries: Heterogeneous Panel Estimates. *Journal of Development Economics, 111,* 117-131. https://doi.org/10.1016/j.jdeveco.2014.08.005

Morck, R., Yavuz, M. D., & Yeung, B. (2019). State-Run Banks, Money Growth and the Real Economy. *Management Science, 65,* 5449-5956. https://doi.org/10.1287/mnsc.2018.3111

Sapienza, P. (2004). The Effects of Government Ownership on Bank Lending. *Journal of Financial Economics, 72,* 357-384. https://doi.org/10.1016/j.jfineco.2002.10.002

Shleifer, A. (1998). State versus Private Ownership. *Journal of Economic Perspectives, 12,* 133-150. https://doi.org/10.1257/jep.12.4.133

Shleifer, A., & Vishny, R. W. (1994). Politicians and Firms. *The Quarterly Journal of Economics, 109,* 995-1025. https://doi.org/10.2307/2118354

Appendix

Proof of Proposition 2. Substituting the value of r as obtained in Equations (8A) and (8B) into the loan Equations (2A) and (2B) and upon differentiating, we obtain:

$$\text{NP-type}: \frac{\partial L_{NP}}{\partial r} = -\omega_1 L_{NP} < 0 \tag{A1}$$

$$\text{P-type}: \frac{\partial L_P}{\partial r} = -\omega_2 (1-\alpha) L_P \tag{A2}$$

Therefore, if $L_{NP} = L_P$ and $\omega_1 = \omega_2$, then $\partial L_{NP}/\partial r = -1 \le \partial L_P/\partial r = -(1-\alpha)$ $\forall \alpha \in [0,1)$ which proves the result.

Proof of Proposition 3. (Case a) Under RBC, $\theta_P > \theta_{NP} > 0$; $\theta_G = 0$. As a result, the capital adequacy constraint (Equation (4)) determines the amount of NP-type and P-type loans, according as:

$$\tilde{L}_{NP} = \bar{K}/\theta_{NP} \quad \text{and} \quad \tilde{L}_P = \bar{K}/\theta_P \tag{A3}$$

As a result, for these two types of loans, the impact of a political intervention can be summarized as:

$$\text{NP-type}: \frac{\partial \tilde{L}_{NP}}{\partial \alpha} = 0 \tag{A4}$$

$$\text{P-type}: \frac{\partial \tilde{L}_P}{\partial \alpha} = 0 \tag{A5}$$

From the loans Equations (2A) and (2B), we obtain:

$$\tilde{r}_{NP} = -\frac{1}{\omega_1} \log\left(\frac{\bar{K}}{\theta_{NP}}\right) \tag{A6}$$

$$\tilde{r}_P = -\frac{1}{\omega_2 (1-\alpha)} \log\left(\frac{\bar{K}}{\theta_P}\right) \tag{A7}$$

so that the response of lending rates under these two cases are:

$$\text{NP-type}: \frac{\partial \tilde{r}_{NP}}{\partial \alpha} = 0 \tag{A8}$$

$$\text{P-type}: \frac{\partial \tilde{r}_P}{\partial \alpha} = \frac{1}{\omega_2 (1-\alpha)^2} \log\left(\frac{\bar{K}}{\theta_P}\right) > 0 \tag{A9}$$

so that the interest rate on P-type loans increases, although the quantum is P-type loan is unaffected, consequent upon a political subvention.

(Case b): Under non-RBC, the capital constraint determines the amount of deposits, according as:

$$\hat{D} = \frac{\bar{K}(1-\theta)}{\theta} \tag{A10}$$

and hence, $\partial \hat{D}/\partial \alpha = 0$.

On the lending side, the values of r_{NP} and r_P are determined by (9A) and (9B) above, so that from Equations (9A) and (9B), we get:

In this case,

$$L_{NP} = \exp\left(-\omega_1 r - 1 - \omega_1\right) \quad \text{(A11)}$$

$$L_P = \exp\left(-\omega_2 \left(1-\alpha\right) r - 1 - \omega_2 \left(1-\alpha\right)\right) \quad \text{(A12)}$$

so that:

$$\text{NP-type}: \frac{\partial \hat{L}_{NP}}{\partial \alpha} = 0 \quad \text{(A13)}$$

$$\text{P-type}: \frac{\partial \hat{L}_P}{\partial \alpha} = \omega_2 \left(1+r\right) \hat{L}_P > 0 \quad \text{(A14)}$$

Comparing (11B) and (A9) proves the result.

Proof of Proposition 4: a) From (12), both $\tilde{L}_{NP}$ and $\tilde{L}_P$ are independent of the policy rates. On the deposit side, D is determined from Equation (9C), so that $\tilde{D} = D_o \exp\left(\beta\left(r + 1/\beta - \overline{r_D}\right)\right)$ and $\partial \tilde{D}/\partial r = \beta \tilde{D} > 0$. This proves part (a).

b) From (16), it is independent of the policy rate, therefore $\partial \hat{D}/\partial r = 0$.

From (17A) and (17B), we get:

$$\text{NP-type}: \frac{\partial \tilde{L}_{NP}}{\partial r} = -\omega_1 L_{NP} < 0$$

$$\text{P-type}: \frac{\partial \tilde{L}_P}{\partial r} = -\omega_2 \left(1-\alpha\right) L_P < 0$$

Therefore, if $L_{NP} = L_P$ and $\omega_1 = \omega_2$, then $\partial \tilde{L}_{NP}/\partial r = -1 \le \partial \tilde{L}_P/\partial r = -\left(1-\alpha\right)$ $\forall \alpha \in \left[0,1\right)$.

Proof of Proposition 5: a): It is clear that $\partial r_{NP}^{LR}/\partial \alpha = 0 = \partial r_P^{LR}/\partial \alpha$

Substituting the values of r_{NP}^{LR} and r_P^{LR} in the loan equations (2A) and (2B), and upon differentiating, we obtain:

$$\frac{\partial L_{NP}^{LR}}{\partial \alpha} = 0 \quad \text{and,} \quad \frac{\partial L_P^{LR}}{\partial \alpha} = \omega_2 r \frac{1-\theta_P}{1-\theta_G} > 0$$

b) From (19A) and (19B),

$$\frac{\partial r_{NP}^{LR}}{\partial r} = \frac{1-\theta_{NP}}{1-\theta_G}$$

$$\frac{\partial r_P^{LR}}{\partial r} = \frac{1-\theta_P}{1-\theta_G}$$

$$\frac{\partial r_D^{LR}}{\partial r} = \frac{1}{1-\theta_G}$$

Employing the relevant loan and deposit functions, we obtain, upon differentiation:

$$\frac{\partial L_{NP}^{LR}}{\partial r} = -\omega_1 \frac{1-\theta_{NP}}{1-\theta_G} L_{NP}^{LR} < 0$$

$$\frac{\partial L_P^{LR}}{\partial r} = -\omega_2 \left(1-\alpha\right) \frac{1-\theta_P}{1-\theta_G} L_P^{LR} < 0$$

$$\frac{\partial D^{LR}}{\partial r} = \frac{\beta}{1-\theta_G} D > 0$$

when $\theta_{NP} = \theta_P = \theta_G = 0$

$$\frac{\partial r_{NP}^{LR}}{\partial r} = 1 = \frac{\partial r_P^{LR}}{\partial r} = \frac{\partial r_D^{LR}}{\partial r} \quad \text{and,}$$

$$\frac{\partial L_{NP}^{LR}}{\partial r} = -\omega_1 L_{NP}^{LR} < 0$$

$$\frac{\partial L_P^{LR}}{\partial r} = -\omega_2 (1-\alpha) L_P^{LR} < 0$$

$$\frac{\partial D^{LR}}{\partial r} = \beta D^{LR} > 0$$

when $\theta_P > \theta_{NP} > 0$; $\theta_G = 0$

$$\frac{\partial r_{NP}^{LR}}{\partial r} = (1-\theta_{NP}) > (1-\theta_P) = \frac{\partial r_P^{LR}}{\partial r}$$

$$\frac{\partial r_D^{LR}}{\partial r} = 1 > 0$$

$$\frac{\partial L_{NP}^{LR}}{\partial r} = -\omega_1 (1-\theta_{NP}) L_{NP}^{LR} < 0$$

$$\frac{\partial L_P^{LR}}{\partial r} = -\omega_2 (1-\alpha)(1-\theta_P) L_P^{LR} < 0$$

$$\frac{\partial D^{LR}}{\partial r} = \beta D > 0$$

when $\theta_P = \theta_{NP} = \theta = \theta_G$

$$\frac{\partial r_{NP}^{LR}}{\partial r} = 1 = \frac{\partial r_P^{LR}}{\partial r}$$

$$\frac{\partial r_D^{LR}}{\partial r} = \frac{1}{1-\theta} > 1 = \frac{\partial r_{NP}^{LR}}{\partial r} = \frac{\partial r_P^{LR}}{\partial r}$$

and

$$\frac{\partial L_{NP}^{LR}}{\partial r} = -\omega_1 L_{NP}^{LR} < 0$$

$$\frac{\partial L_P^{LR}}{\partial r} = -\omega_2 (1-\alpha) L_P^{LR} < 0$$

$$\frac{\partial D^{LR}}{\partial r} = \frac{\beta}{1-\theta} D > 0$$