

A Stock-Flow Consistent Political Business Cycle: Kalecki's 1943 Model Revisited.

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Resumen

El presente trabajo analiza un modelo de ciclo económico político coherente y consistente donde la interacción entre la deuda financiera, la distribución del ingreso y la política fiscal está mediada políticamente por la influencia relativa de los trabajadores y de las empresas sobre la política gubernamental y los bienes proporcionados públicamente. En países donde los impuestos son una alternativa políticamente costosa para generar ingresos fiscales, la deuda financia la actividad de expansión fiscal para aumentar inicialmente los salarios y aumentar la producción. Sin embargo, los mecanismos institucionales mantienen a esos conductores a raya e impulsan un ciclo de parar y avanzar, como sugirió Kalecki en su documento de referencia de 1943. Descubrimos que el empuje de los intereses laborales contra las partes interesadas del negocio lleva a dinámicas no lineales sobre la deuda y los déficits y crea incertidumbre sobre el camino del crecimiento a largo plazo.

Palabras clave: Economía, ciclos económicos, deuda financiera, política fiscal, dinámica económica no-lineal crecimiento económico.

Abstract

This paper features a stock-flow consistent political business cycle model where the interplay between financial debt, income distribution and fiscal policy is politically mediated by the relative influence of workers and businesses over government policy and publicly provided goods. In countries where taxes are a politically costly alternative to generate fiscal revenue, debt finances fiscal expansionary activity to initially raise wages and increase output. However, institutional mechanisms keep such drivers in check, and prompt a stop-and-go cycle as Kalecki suggested in his landmark 1943 paper. We find that the push of labor interests against business stakeholders leads to nonlinear dynamics over debt and deficits and creates uncertainty over long-term growth path.

Keywords: Economy, economic cycles, financial debt, fiscal policy, non-linear economy dynamics, economic growth

1 Introduction and motivation.

In his seminal 1943 contribution, Kalecki discussed how the functional distribution of income in society (between wages and profits) drove fiscal stabilization policy sourced in financial markets and the political conflict over such resources. Against that backdrop, this paper explores how the need for stabilization depends on the relative clout of workers and firms, given the facilitation of financial markets, which acts as a hinge between both groups.

In a downturn, both firms and workers push for stabilization through government spending to increase demand, but businesses do so up to a point. As the bargaining power of workers increases (and the economy draws closer to full capacity), firms lobby for fiscal retrenchment. As raising taxes is a politically costly source of public revenue, stabilization policy is derived from debt. However, whereas Kalecki and recent alternative extensions focused in the struggle between businesses and workers, we stress how this struggle plays under the guidance of institutional mechanisms hardwired to government action.

Kalecki's 1943 seminal paper [Kalecki(1943)] explained in great detail how the clash between labor and capital expressed *politically* across the welter of government action that kept (and strayed from) full employment. By stressing the political mechanism he developed in this particular paper, we believe our contribution departs considerably from what would later become the standard Kaleckian canon. Unlike later Kaleckian models where the profit share varies in tandem with the business cycle given the stability of markups and the degree of monopoly prices in costs and labor, in that earlier paper he proposed an institutional mechanism of conflict where such dynamics focused on the role of government expenditures. Indeed, we try to revisit his theory and propose a new perspective which integrates a view on how markups determine relative bargaining power between workers and businesses, without leaving aside the institutional workings of government, which constrains popular demands for stabilization.

In Kalecki's political business cycle, government influence is non-linear as public expenditures benefit *both* workers and businesses, as profits and wages increase given favorable prospects for accumulation and growth. The contradiction arises when these policies are pursued beyond a given threshold of political tolerance, given government institutions.

With this in mind, this paper proposes a stylized stock-flow consistent model to explain how political decisions interact with debt and employment. In our model, firms harbor vested interests to reduce the government's role in the economy. But during politically convenient episodes, business and labor align interests to jump-start economic activity, until government intervention increases worker clout and prompts the defection of firms.

After this introduction, Section 2 surveys traditional and alternative *Kaleckian*-inspired conceptions of Political Business Cycles (or PBCs for short). Section 3 introduces our stylized facts. Section 4 details the models, while Section 5 attempts a general analytical discussion. Section 6 concludes.

2 The political structure of business cycles.

According to [Alesina(1988)], traditional PBC theories can be organized around a four-fold schema that considers “whether voters evaluate candidates retro- or prospectively, whether economic actors have adaptive or rational expectations and whether policy makers have opportunistic (office-seeking) or partisan motivations” [Franzese(2002)]. However, we should add a fifth rubric to explain how such political cycles center in dynamic distributive tensions.

Traditional PBCs explain conflicts of interest out of partisan differences or mere opportunism. However, recent events have proven, often to the derision of much received wisdom, that voters act out of awareness of their relative standing in the functional distribution of income in society. Unlike Nordhaus’ canonical model [Nordhaus(1975)] where a simple Phillips’ curve policy relation fiddles the dimensions of inflation and unemployment, in Kalecki the policy dimensions rest on political / economic structures around such social distribution of income. Nordhaus’ PBCs inspired the first wave of mainstream models (indeed Nordhaus does recognize Kalecki as an inspiration in an overlooked footnote), yet subsequent work failed to spark commentary across distributive and productive dimensions [Olters(2004)]. Moreover, while all these models are widely cited, researchers in the KaleckiGoodwin tradition have stressed their macroeconomic implications without much discussion on their political insights. We try to bridge this gap as a foreword to our stylized facts.

In this understanding of Kalecki, political leaders strive to win elections and keep the allegiances of majority interests playing the conflict between employment creation, deficits, wages and profits, (which take them to power and ask in return higher wages and employment) and elite business and financial interests (that keep them in power and profit from capital accumulation).

In countries that feature deep social iniquities, taxes become an increasingly inconvenient alternative for generating fiscal revenue. Therefore, governments prefer these policies to be sourced by debt. Sources of government expenditure do matter, especially when political costs to domestic stakeholders and investors factor in spending strategies. Kalecki recognized as much when he wrote:

In the slump, either under the pressure of the masses, or even without it, public investment financed by borrowing will be undertaken to prevent large scale unemployment. But if attempts are made to apply this method in order to maintain the high level of employment reached in the subsequent boom a strong opposition of “business leaders” is likely to be encountered... lasting full employment is not all to their liking. The workers would “get out of hand” and the “captains of industry” would be anxious to “teach them a lesson”. Moreover the price increase in the up-swing is to the disadvantage of small and big rentiers and makes them boom tired [Kalecki(1943)].

While conventional wisdom emphasizes the role of such spending (via the size of the multiplier, resources provided for government action to temper fluctuations in employment (either through debt spending or tax increases) are sought and supported by different constituencies. Taxes are a politically and economically costly source of public finance, as increased fiscal revenues dampen aggregate

demand and derivatively, election prospects for incumbents. For this reason, governments tap financial markets to pursue expansionary economic policy.

However, such persistent government intervention in the economy erodes a state of confidence at the core of financial market conditions. As Kalecki recognized:

Under a *laissez-faire* system the level of employment depends to a great extent on the so-called state of confidence. If this deteriorates, private investment declines, which results in a fall of output and employment... This gives to the capitalists a powerful indirect control over government policy: everything which may shake the state of confidence must be carefully avoided because it would cause an economic crisis [Kalecki(1943)].

This state of confidence expressed itself in many ways: it drives financial markets or nudges business plans, investment in capital goods or business consumption. However, the binding constraint for government action is not necessarily the appetite of financial markets, but institutional checks established to prevent popular control of economic decisions. Indeed, dislike for government spending grows contentious if the objects of spending are increasingly considered to rival private activities (like public investment) or subvert the bargaining clout of firms - for example, transfers and subsidies. But even more importantly, increased worker clout (expressed by higher wages) may cause a qualitative shift in business climate - as Kalecki explained:

Indeed, under a regime of permanent full employment, the 'sack' would cease to play its role as a 'disciplinary measure'. The social position of the boss would be undermined, and the self-assurance and class-consciousness of the working class would grow... 'Discipline in the factories' and 'political stability' are more appreciated than profits by business leaders. Their class instinct tells them that lasting full employment is unsound from their point of view, and that unemployment is an integral part of the 'normal' capitalist system Kalecki1943.

Uneven pressures between workers and firms around this threshold of tolerance produced a fragile, politically-driven dynamic induced by the "stop-and-go" character of social expenditure. As the role of government in the determination of economic activity increased, it eventually rouses the opposition of business leaders, as the new state of affairs strengthens the political undertow in favor of workers.

Moreover, most importantly, financial markets play a role via the state of economic expectations. As the economy draws closer to full capacity, government action becomes the rudder of economic activity, and crowds out the private sector's direct role in this regard. As the private sector's role decreases, financial markets will deem riskier the government debt used for stabilization, align themselves with businesses given the increased clout of workers and ask for higher yields. Higher borrowing costs signal policymakers to scale back spending, policy which deflates wages and renews business competitiveness.

3 Stylized facts: The political content of fiscal policy.

As introduced by Kalecki, these considerations apply to democratic market economies with responsive governance structures with access to financial markets. Government borrows to shirk the recourse of higher taxes to pay for politically convenient expansionary activity. For internationally-linked economies, adjustment occurs mainly through the depreciation of the exchange rate, although domestically such adjustment may also take place through an increase in government bond yields. Under our model, adjustment takes place mainly through the latter, as domestic financial markets will become jittery given lax thresholds of political influence to popular opinion, as expressed in the desire to expand deficits and increase the clout of domestic worker constituencies.

With respect to the former, [Perez-Caldentey(2009), Perez-Caldentey(2007)] described in a series of papers the mechanism by which the above narrative held for CARICOM countries. Using an analogous stock-flow model, he argued that monetary circumstances provide hard constraints for growth in these countries:

The international financial architecture provides the framework for the workings of ‘real forces’. Indeed, were there no external constraints, countries could pursue full employment policies through fiscal policy, or proposals such as an international clearing union or a regional monetary institution or regional fund Perez-Caldentey2009.

Indeed, while the papers do not delve on on the political dynamics affecting such fiscal issues, he argues that fiscal reform faces perennial difficulties as external shocks affect international demand for exports and governments in these countries are pressured (and expected) to pick up demand. This frustrates such calls for reforms as initiatives are captured and weakened by special interest groups in key strategic sectors.

Given these conditions, external, government and often private sector deficits increased the Caribbean stock of debt, and such debt burdens loop into difficult refinancing choices. However, he wisely warned that “government expenditures do not necessarily result in low growth or high debt levels. The outcome depends on *the interaction between government, external, and the private sector*, an interaction that is the basis for stock-flow modelling [the emphasis is ours].” [Perez-Caldentey(2009)].

A more general take on the interaction between these three sectors was proposed by [Epstein(2001)] in his discussion about pro-labor and pro-rentier stances when it came to central bank policy. In that paper, Epstein discussed how financialization magnified the rentier motivations behind the relative interests of industry and finance with respect to labor. He argued that such policies depended on four factors: the productive structure of the economy, the institutional structure of the central bank (i.e. its integration or independence from government), the linkages between finance and industry and the international position of the country.

For [Kalecki(1943)], political tensions expressed endogenously in government policy. For this reason, we capture both the exogenous and endogenous political pressures as noted with the wage, labor and financial yield target reaction functions and exogenous government spending preferences. Taken together, these lead to an examination of the institutional structure behind such spending and the

influence of financial markets, especially as institutional government mechanisms constrain over the long-run the clout of worker voters. Barring favorable borrowing terms (especially due to geopolitical considerations, like those behind the exceptional privilege of the United States dollar (and the *original sin* of the rest of the countries) [Eichengreen et al.(2002)Eichengreen, Hausmann, and Panizza]), no government can borrow indefinitely to finance its budget deficit without a paying political price. Indeed, reflecting on the motivations behind his landmark 1979 paper, Anthony Thirlwall recognized that “there is a limit to the deficit/GDP ratio, and international debt/GDP ratio, beyond which financial markets get nervous” [Thirlwall(2011)].

The use of debt finances stop-and-go stabilization policy. This allows political groups to balance broad electoral support and narrower business and financial interests to keep incumbency. This is readily seen in Figure 1 below, which plots the standard deviation of the primary balance and the average change in political polarization as a proxy for class divisions for OECD countries. Increased political polarization correlates with more volatile government budgets. With low taxes and high deficits, institutional compacts come under cyclical strain as majoritarian and elite interests alternate in power.

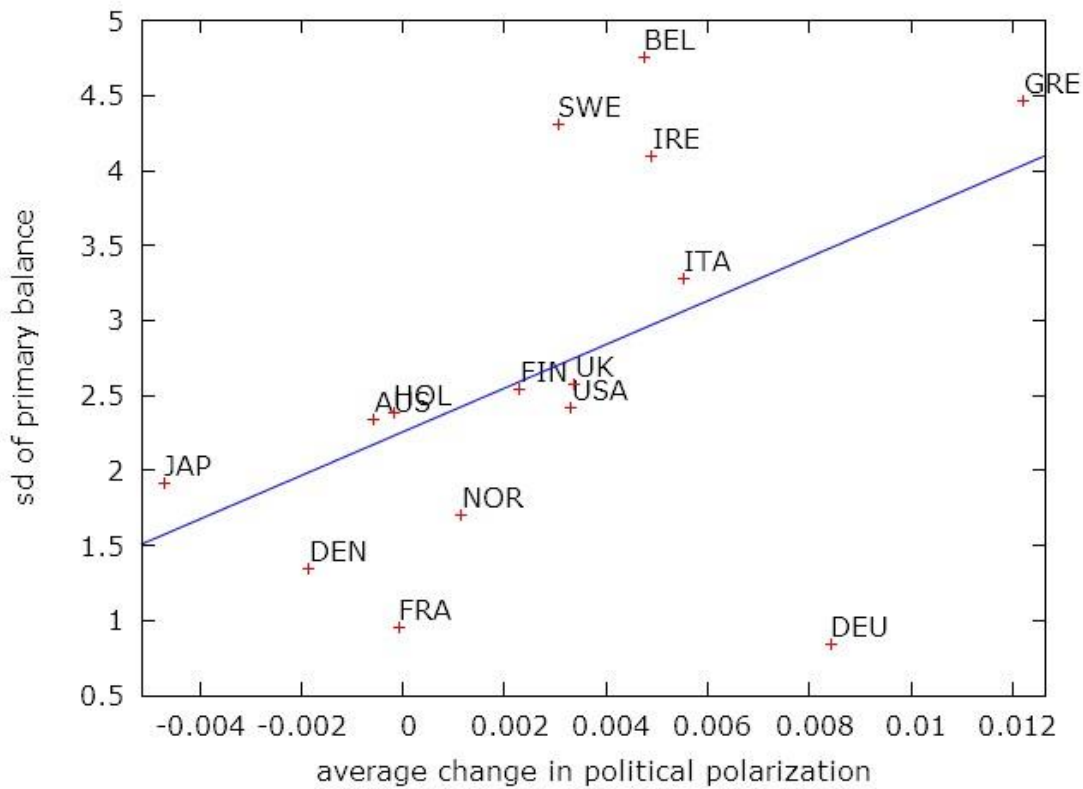


Figure 1:

Scatterplot of the standard deviation of the primary budget balance (i.e. the difference between current government spending and revenues from taxes) and the average change in political polarization (defined as the probability that two deputies picked at random from among the opposition parties will be of different parties) for 1980-2012 for selected OECD countries (Austria, Belgium, Denmark,

Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, Norway, Sweden, United Kingdom and the United States). Source: World Economic Outlook, IMF October 2012 <http://www.imf.org/external/pubs/ft/weo/2012/02/weodata/index.aspx> and World Bank 2012 Database of Political Institutions <http://go.worldbank.org/2EAGGLRZ40>.

4 The model

Businesses, market structure and investment: Accrued profits to business with respect to output is the profit share π , where $\pi = (1 - \psi)$, where ψ is the wage share. Businesses and have pricing power over market production through a markup τ over average variable costs, comprised of labor costs. Relative bargaining power over workers determines the markup:

$$\pi = (1 - \psi) = \frac{1}{(1 - \tau)} \quad (1)$$

Investment is a function of investment demand as determined by the growth rate of capital stock $\frac{I}{K} = g_i$ and the capital growth rate, as allowed by saving supply, $\frac{S}{K} = g_s$. Growth in capital expenditure demand is a function of the profit rate $r = \frac{(1-\psi)Y}{K}$ (where K is the level of capital stock, fixed at \bar{K} over the short-run), the output-capital ratio $u = \frac{Y}{K}$ and autonomous investment demand I_0 (or *animal spirits*):

$$g_i = I_0 + [g_1(1 - \psi) + g_2]u \quad (2)$$

Where $g_1, g_2 > 0$. In turn, growth in savings is determined by the after-tax savings of workers s_ψ and businesses s_π out of output:

$$g_s = [s_\pi(1 - \psi) + s_\psi\psi](1 - t)u \quad (3)$$

Where $s_\psi, s_\pi > 0$ and t is the tax rate. Business owner consumption is a portion b out of after-tax, unsaved non-invested profits and transfers, $C_\pi = b(1 - \psi)(1 - s_\pi)(1 - t)Y + p_\pi$ (where p_π is a public good transfer to business owners).

Workers: The wage share ψ is the total money wage bill w with respect to output Y which is the real wage per worker ω divided by labor productivity $\epsilon = \frac{Y}{L}$ (i.e. where L is labor and Y is output).

$$\psi = \left(\frac{wL}{PY} \right) = \frac{\omega}{\epsilon} \quad (4)$$

Where P are prices. Workers consume their after-tax, unsaved income plus transfers (of public goods, see below), so $C_\psi = (1 - s_\psi)(1 - t)\psi Y + p_\psi$, where C_ψ is worker consumption, s_ψ is worker saving and p_ψ is a public good transfer to workers.

The government policy function: Government spends G_0 and targets a welfare function to maximize a rivalrous, non-excludable public good p (where $p = p_\psi + p_\pi$) subject to democratic control via a policy function $H(\cdot)$, hence $G = G_0 + H(p)$. The provision of this public good increase wage and profit income earmarked for consumption, so $\frac{\partial Y}{\partial p} = Y^p > 0$ and $C_\psi^p, C_\pi^p > 0$ (where upper script denotes partial derivatives with respect to p).

This welfare function in spending maximizes majority rule in total consumption of private and public goods of business owners and workers subject to available tax resources over the polity's policy horizon T . The welfare function Λ is:

$$T \quad \Lambda = \int_0^T (C_\psi + C_\pi) \quad (5)$$

Subject to the government constraint $G = T + D(1 - i) - G_0 - H(p) + R$ where D is total government (debt) borrowing over T , iD is interest payable on government debt and T are collected taxes. Additionally, the constraint includes the democratic rents in securing such majority rule by politicians, as denoted by R (where $R = R(p)$, and $R_p > 0$). On that note, the government policy function becomes:

$$Max \Lambda \text{ s.t } T + D - G_0 - H(p) - iD - R \quad (6)$$

Using Lagrange multipliers λ in the function L:

$$L = \int_0^T (C_\psi + C_\pi) + \lambda \int_0^T (T + D - G_0 - H(p) - iD - R) = 0$$

$$\frac{\partial \mathcal{L}}{\partial \psi} = (1 - s_\psi - b)Y + \lambda(R_\psi - H_\psi) = 0$$

$$\frac{\partial \mathcal{L}}{\partial p} = C_\psi^p + C_\pi^p + \lambda H'(p) = 0 \quad (7)$$

Solving for the steady state costs of politicians to secure a majority under such a policy problem leads to:

$$R_\psi^* = \left(\frac{(1 - t)[1 - s_\psi - b(1 - s_\pi)]Y}{C_\psi^p + C_\pi^p} \right) H'(p) + H_\psi \quad (8)$$

Under this policy problem, the costs for majority rule require higher relative consumption by workers of the marginal public good as a share of all consumable available public goods, in addition to the marginal production of such goods for this social group.

Political influences in the government budget and deficits: Given this policy function, democratic governments would face politically unbalanced budgets over the planning horizon as ruling interests cater to labor groups to keep in power. Rents required to secure a majority consistently imply a political provision of spending beyond what is allowed by the budget constraint. For this reason, some institutional mechanism implicit in government expenditures must restrain political expenditures over the short run periods as to make R_ψ^* as close to zero. Doing so requires lowering the bargaining power of labor at the level of G where p and ψ are maximized (we call this G^* , where $G^* = G_0 + R_\psi^*$). This we define as the government political reaction function.

To keep the government budget constraint, government would need to endogenously restrict the provision of the public good at G^* to make $R_\psi^* - \gamma(\psi) = 0$. The budget deficit D is a function of autonomous government expenditures G_0 and the provision of the public good g , collected taxes T , interest payable on government debt $i_G D$ and a political reaction function γ that itself is determined by the sensitivity of spending to the the wage share ψ :

$$\Delta D = G_0 - T + i_G D + [p - \gamma(\psi)] \quad (9)$$

The political reaction function γ measures the elasticity of government expenditures with respect to the wage share. Arguably, it is the political sensitivity of government decreasing expenditures when the bargaining power of workers increases. Total tax collections are taxes paid by workers and businesses of their respective claims to output (we assume a flat tax $t = \bar{t}$ over wages and profits), hence $T = (1 - \bar{t})(1 - \psi)Y + (1 - \bar{t})\psi Y = \bar{t}Y$.

Financial market influence in fiscal policy: Government reacts to financial markets given how the latter discount new offerings of sovereign debt, using interest i as the running yield (and refinancing cost) of such (zero-coupon) government securities. Indeed, such yields describe how new and existing debt burdens are discounted, priced according to the debt-to-output ratio.

$$i_G = \phi_1 \left(\frac{D}{Y} \right) \quad (10)$$

Where $\phi_1 > 0$. With this in mind, we can marginally modify γ to internalize how governments react to international bondholders given a debt-to-capacity target (as given by $\frac{D}{\bar{K}}$). Indeed, the government's reaction to debt markets depends on how politically feasible are interest and principal payments to be paid on outstanding liabilities over the long term. Taken together, then Eq. (9) becomes:

$$\Delta D = G_0 - \bar{t}Y + p - \gamma_1 \psi - \gamma_2 \left(\frac{D}{\bar{K}} \right) + \phi_1 \left(\frac{D}{Y} \right) D \quad (11)$$

Where government spending is $G = G_0 + p - \gamma_1 \psi - \gamma_2 \left(\frac{D}{\bar{K}} \right)$ and γ_1, γ_2 are the political sensitivity to worker bargaining power and debt levels respectively.

The financial sector: The financial sector issues deposit accounts to accommodate households and business owner saving, offers loans to finance capital expenditures for businesses and buys government securities. It pays a i_S rate on worker S_ψ and business owner S_π savings and receives i_L and i_D from loans L and government securities D respectively. On that note, the deposit-loan interest risk spread $i_L - i_S$ is defined by the running yield on government securities i_G :

$$i_L - i_S = i_G \quad (12)$$

Macroeconomic balance: To close the model and achieve macroeconomic balance, we simply state $g_i + g_d - g_s = \pi_B$ where π_B is the profit rate of the financial sector $\frac{B}{K}$ as determined by Equations 2, 3 and 9 above and the transaction matrix below, and $g_d = \frac{\dot{D}}{K}$.

	Workers	Business Owners	Business Current	Capital	Government	Financial Sector Current	Capital
Worker consumption	$-C_\psi - p_\psi$		$+C_\psi + p_\psi$				
Business owner consumption		$-C_\pi - p_\pi$	$+C_\pi + p_\pi$				
Investment			$+I$	$-I$			
Government expenditures			$+G$		$-G$		
GDP (memo)			$[Y]$				
Wages	$+\psi Y$		$-\psi Y$				
Profits		$-(1 - \psi)Y$		$+(1 - \psi)Y$			
Public good transfer	$+p_\psi$	$+p_\pi$			$-p$		
Taxes	$-t\psi Y$	$-t(1 - \psi)Y$			$+tY$		
Bank profits						$-B$	$+B$
Interest on Deposits	$+i_S s_\psi Y$	$+i_S s_\pi Y$				$-i_S Y(s_\psi + s_\pi)$	
Interest on Loans				$-i_L L$		$+i_L L$	
Interest on Government Securities					$-i_G D$	$+i_G D$	
Changes on Deposits	$-\Delta S_\psi$	$-\Delta S_\pi$					$+\Delta S$
Changes on Loans				$+\Delta L$			$-\Delta L$
Changes on Government Securities					$+\Delta D$		$-\Delta D$

$$C_\psi = -\psi(1 - s_\psi)(1 - t)Y, \quad C_\pi = b(1 - \psi)(1 - s_\pi)(1 - t)Y, \quad \Pi = -(1 - b)(1 - \psi)(1 - s_\pi)(1 - t)Y.$$

5 Steady state solutions, short-run effects and growth.

5.1 Steady states and closures:

For our model closure, τ sets the relative bargaining power of businesses with respect to capital, and in turn sets the profit and the wage share in the economy. A high τ translates to high markups and consequently, high profits accrued to businesses. After setting ψ^* and π^* , we can solve for equilibrium output Y^* :

$$Y^* = \frac{p_\pi^* + p_\psi^* + I_0 + G_0 + H_\psi}{b(1 - \psi^*)(1 - s_\pi)(1 - t) + (1 - s_\psi)(1 - t)\psi + g_1(1 - \psi^*) + g_2 + (1 - t)[1 - s_\psi - b(1 - s_\pi)]\Omega} \quad (13)$$

Where $\Omega = \frac{H'(p)}{C_\psi^p + C_\pi^p}$. Despite the non-linear nature of deficits and debt, we solve for D^* :

$$D^* = \frac{\frac{\gamma_2}{K} \pm \sqrt{\frac{\gamma_2}{K} - 4\frac{\phi}{Y^*}\Phi}}{2\frac{\phi}{Y^*}} \quad (14)$$

Where $\Phi = G_0 - tY^* + p - \gamma_1\psi^*$. This opens up two solutions: As long $\gamma_1\psi^* + tY^* > G_0 + p$, the root will remain real, and the level of debt will either be for a net debtor or net creditor (or between higher and lower debt levels). The unstable solution will be for the former, as higher debt levels strengthen worker bargaining power regardless of the institutional checks to their clout.

With respect to rates, government running yields equal $i_g^* = \phi_1 \frac{D^*}{Y^*}$ while saving rates $i_s = \frac{C_\psi + \psi^* Y^* (t-1)}{s_\psi Y^*}$. These rates determine loan rates at $i_L^* = i_G^* + i_s^*$. Finally, loan amounts are $L^* = \frac{(1 - \psi Y^* - I_0 + g_1(1 - \psi^*) + g_2)}{i_L}$ and bank profits $B^* = i_L^* L^* + i_G^* D^* - i_s^* Y^* (s_\psi + s_\pi)$.

5.2 Analysis:

Deficits, debt and worker bargaining power over the short-run: We start our analysis with how debt reacts to increases in wage shares, and hence, in the relative bargaining power of workers. Indeed, the dynamics of debt are non-linear and unstable, as exhibited by the first and second derivatives of Equation 14 above:

$$\frac{\partial D_{t+1}}{\partial D_t} = 1 - \frac{\gamma_2}{K} + 2\phi_1 \frac{D_t}{Y} \quad (15)$$

$$\frac{\partial D_{t+1}^2}{\partial D_t^2} = 2\frac{\phi_1}{Y} \quad (16)$$

Figure 2 below shows a representation of deficits in the ΔD function. Given its quadratic solution with positive slope and a convex shape, it has two equilibrium points, one which is unstable as presented above.

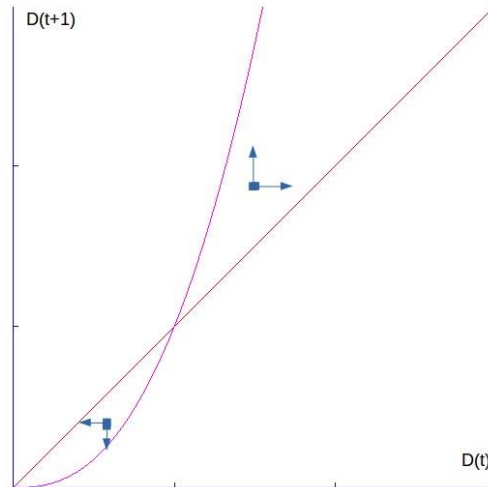


Figure 2:

To assess the effect of the wage share in the dynamics of debt and deficits, we need to determine some aspects of the multiplier. Indeed, the multiplier describes a wage-led economy (as strong wages push demand higher, despite the relative strength of savings from profits with respect to wages, $s_\pi > s_\psi$). Hence, $\frac{\partial Y}{\partial \psi} > 0$. Given this condition, we can perform some perturbation analysis via a Taylor expansion around D^* , through a shock in ψ :

$$\tilde{D} = D^* + \epsilon(\psi) = D^* + \frac{1 + \frac{\partial Y}{\partial \psi} \frac{1}{Y^2}}{8\sqrt{\left(\frac{\phi_1}{Y}\right)^5 \left(\frac{\partial Y}{\partial \psi} t + \gamma_1\right)}} \quad (17)$$

We ignore higher order effects. In Equation 17, over the short run, the political elasticity to the bargaining power of wages in the creation of deficits and the tax rate will dampen the scope of the wage shock, as the political system will respond endogenously to contain the effects of the multiplier.

Growth, deficits and long-run dynamics: The macroeconomic balance in the stock flow matrix supposes that excess investment demand and government deficits are key in capital creation. Both determine the creation of financial assets and profits for the financial sector given the relative bargaining power between workers, government and business interests. If we assume steady-state growth in tandem with financial profits, $B = gK$:

$$g_i + g_d - g_s = \pi_B = g \quad (18)$$

Where g is the growth rate of all capital assets. Under these conditions, we can qualitatively analyze in Figure 3 how growth paths are dynamically influenced by changes in worker bargaining power across debt dynamics (assuming $g_1 < \gamma_1$):

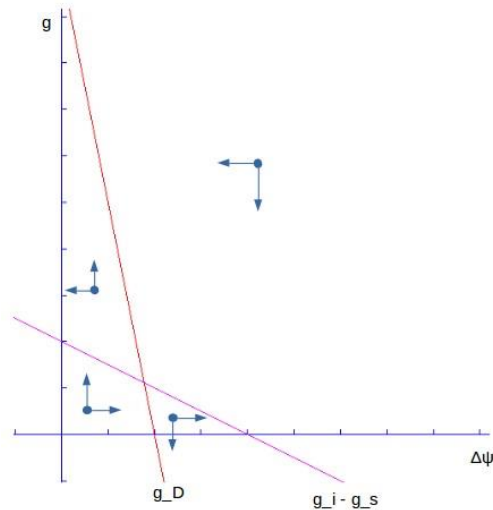


Figure 3:

Shocks to worker bargaining power can prompt unstable growth dynamics over debt and investment. Increased conflict can change growth trajectories, as the higher bargaining power of labor pushes deficits higher, and also nudges government to retaliate and reduce economic activity via fiscal retrenchment, and lower the clout of workers via institutional checks.

6 Conclusion.

This document linked how debt, distribution and politically-driven stabilization act over the short to medium-run through a stock-flow consistent political business cycle. In a seminal paper, Kalecki sought to disentangle the political drivers of the struggle between capital and labor interests in democratic polities. Using a stylized model extension which factors financial debt markets, we suggest a model where debt-driven stabilization cycles play a critical role in the determination of politically driven deficits, especially when taxes are politically costly and government finance is politically sensitive. We believe this formal synthesis tracks Kalecki's original PBC model.

Even when business owners and firms would prefer to reduce the government's role in the economy, politically convenient episodes align their with labor to press ahead and jump-start economic activity via government action, until that intervention increases the clout of workers and prompts defection. In countries where taxes are a politically costly and inconvenient alternative to generate fiscal revenue, debt finances fiscal expansion, especially when debt securities are highly coveted by international financial markets. And more importantly, how such debt is secured, sourced and spent is at the core of a fundamental political calculus between labor, government, financial markets and businesses.

Depending on prevailing economic conditions and the behavior of private interests, how politicians react to this structural political calculus leads to different policy choices and dynamics. Nonetheless, under unfavorable economic prospects or ingrate political choices, structural shifts and social polarization lead to increased conflict. For this reason, turning a blind eye to the political effects of economic decisions may prove to be a self-defeating policy proposition.

7 References

- [Alesina(1988)] Alberto Alesina. *Macroeconomics and Politics*, chapter NBER Macroeconomics Annual 1988, pages p. 13 – 62. MIT Press, 1988.
- [Eichengreen et al.(2002)Eichengreen, Hausmann, and Panizza] Barry Eichengreen, Ricardo Hausmann, and Ugo Panizza. Original sin: The pain, the mystery and the road to redemption. In *Currency and Maturity Matchmaking: Redeeming Debt from Original Sin*, Inter-American Development Bank, 2002.
- [Epstein(2001)] Gerald Epstein. Financialization, rentier interests, and central bank policy. *Department of Economics and Political Research Institute (PERI) Working Paper*, 2001.
- [Franzese(2002)] Robert J. Franzese. Electoral and partisan cycles in economic policies and outcomes. *Annual Review of Political Science*, 5:369–421, 2002.
- [Kalecki(1943)] Michal Kalecki. Political aspects of full employment. *The Political Quarterly*, 14:322–330, 1943.
- [Nordhaus(1975)] William Nordhaus. The political business cycle. *The Review of Economic Studies*, 42:169–190, 1975.
- [Olters(2004)] Jan-Peter Olters. The political business cycle at sixty: Towards a neokaleckian understanding of political economy? *Cahiers d'economie politique / Papers in Political Economy*, 46:91–130, 2004.
- [Perez-Caldentey(2007)] Esteban Perez-Caldentey. Debt in caricom: Origins and consequences for growth and economic development. *Business, Finance and Economics in Emerging Economies Vol. 2 No. 1*, 2007.
- [Perez-Caldentey(2009)] Esteban Perez-Caldentey. Balance of payments constrained growth within a consistent stock-flow framework: An application to the economies of caricom. In *Caribbean Development Report*. Economic Commission for Latin America and the Caribbean, 2009.
- [Thirlwall(2011)] Anthony Thirlwall. Balance of payments constrained growth models: History and overview. *University of Kent School of Economics Discussion Papers*, 2011.