2021

Inflation in Developing Economies

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April 5, 2021

Abstract

Phillips curves and natural rates of unemployment provide a poor foundation for analyzing inflation in developing economies. Structuralist alternatives have focused on distributional conflict and cross-sectoral interactions, but if the distributional claims are exogenous, the theory has formal similarities with mainstream analysis, generating a 'natural rate of underemployment'. This paper outlines a modified structuralist model in which historically determined distributional claims eliminate this natural rate of underemployment. Economic development and structural transformation are not blocked by immutable distributional claims, but shocks to relative incomes can produce explosive inflation.

Key words: Phillips curve, underemployment, distributional conflict, structuralist model

JEL numbers: E31, O23

1 Introduction

The original Phillips curve described an empirical regularity in UK data for a hundred-year period, and the same pattern – a negative relation between unemployment and the rate of inflation – was found in post-war data for many countries. Low unemployment, it seemed, causes wage pressures and rising nominal wages.

The existence of a long-run tradeoff between unemployment and inflation was questioned theoretically by Phelps (1967) and Friedman (1968), while observations in the late 1960s and 1970s presented an empirical challenge in the form of upward shifts in the relation between unemployment and inflation. The expectations-augmented Phillips was born and with it the notion of a 'natural rate of unemployment'. The quest for explicit microeconomic foundations gave rise to a new variation, the New Keynesian Phillips Curve, built on menu

*This paper has been prepared for a memorial volume edited by Amitava Dutt, Nora Lustig, Juan Carlos Moreno-Brid and Jose Ocampo and honoring Jaime Ros. I thank Adam Aboobaker, Marwil Davila, Guilherme Klein Martins and Esra Nur Ugurlu for helpful comments on a earlier version of the paper.

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costs and a stochastic timing of price adjustments. Unfortunately, as noted by Mankiw (2001, p. C52),

> Although the new Keynesian Phillips curve has many virtues, it also has one striking vice: It is completely at odds with the facts. In particular, it cannot come even close to explaining the dynamic effects of monetary policy on inflation and unemployment.

More traditional or eclectic Phillips curves fare better than strict New Keynesian formulations, and Blanchard (2016) goes so far as to suggest that the Phillips curve is "alive and well" (p. 31). That seems exaggerated, however. Using US data, Blanchard estimates a two-equation system in which the parameters as well as the natural rate of unemployment are allowed to follow constrained random walks. The estimated parameters exhibit dramatic changes, but despite these parameter changes "the fit of the relation remains fairly poor" (p. 33).

Whatever one may think about the Phillips curve for rich economies, notions of natural rates of unemployment notion begs additional questions in relation to developing economies. Japan after the second world war, Korea a few years later and China since the 1980s did not fluctuate around steady growth paths with unemployment at some natural rate. With hidden unemployment and plenty of scope for technological catchup, economic development was not constrained by the growth of the labor force and the pace of technological change in these economies. Instead, policy intervention helped shift the economy to a steeper growth path with a rapid decline in underemployment.

Any presumptions of a stable relation between rates of unemployment and (levels or changes of) inflation would seem suspect for developing economies. The official unemployment rate for India has hovered below 5 percent and Mexico routinely has unemployment rates that are among the lowest in the OECD. These official numbers say very little about the extent of underemployment; the growth of the modern sector in India and Mexico is not hampered by a shortage of workers. There may be temporary shortages of particular skills, but the evidence suggests that large numbers of underemployed workers in the informal sectors have skills that are comparable to those of formal-sector workers and that formal-sector jobs pay better and are seen as highly attractive (La Porta and Shleifer 2014).[1] All economies have sectoral differences, but the sectoral differences have a different order of magnitude in developing economies; development itself is a process of structural transformation in which low-income workers in informal sectors gradually move into better jobs in the formal sectors. Thus, although it may often be reasonable to treat high income countries as 'mature' and ignore sectoral differences, most low and middle income countries are 'dual economies' with profound sectoral differences that should not be ignored.

[1] Partly because of data limitations, the empirical literature on Phillips curves in developing countries is relatively sparse. The evidence, however, does not support the New Keynesian Phillips Curve (e.g. Maka and Barbosa (2010) for the case of Brazil) while Bleaney and Francisco (2017) find that for low- and middle-income countries the coefficient on the output gap is statistically insignifcant in most of their regressions.

These empirical observations create a puzzle: despite large amounts of involuntary underemployment many developing economies have experienced high rates of inflation. This is the case not least in Latin America where structuralist explanations have focused on the interaction between bottlenecks that create price increases in particular sectors and propagation mechanisms that spread the price increases and lead to general inflation (Noyola 1956, Sunkel 1958, Seers 1962); Ros (2013, chapter 12) presents a useful formalization.

With an inelastic supply of agricultural goods – a bottleneck – an expansion of the modern sector and the associated increase in the demand for agricultural output leads to increases in the price of food and squeezes the consumption real wage. Workers try to defend their consumption real wage and react – a propagation mechanism – by demanding increases in the money wages. As money wages rise, monopolistic firms raise the prices of modern sector goods to maintain a constant markup, and the increase in prices and wages in the modern sector now feeds back into higher nominal demand for agricultural output. Agricultural prices rise further, leading to a new round of wage and price increases. The combination of bottlenecks (an inelastic supply of agricultural output) and propagation mechanisms (distributional conflict) has set the stage for explosive inflation.

Inelastic supplies of wage goods, especially agricultural output, were identified as an important source of inflation, but other bottlenecks could in principle play the same role. A high income elasticity of imports, for instance, could necessitate a depreciation of the currency to avoid balance of payments problems if domestic demand increases; a depreciated currency reduces domestic real wages; distributional conflict generates inflationary pressures and the need for further depreciation to restore international competitiveness (see Ros 2013, section 12.3). Foreign trade, capital mobility and the balance of payments are of great importance in most developing countries. In this paper, however, I shall use a simpler, closed-economy setting to examine basic inflationary mechanisms.

The structuralist story – rightly, in my view – emphasizes distributional conflict and interactions between sectors. But most basic agricultural goods are tradable, and in many countries it seems implausible to designate inelastic agricultural supply as an important bottleneck. Particularly for middle income countries like Mexico and Brazil, second, underemployment is increasingly to be found in informal urban sectors, rather than in agriculture. The specification of the distributional aspirations that lie behind the propagation mechanisms, third, may not be fully convincing, and this specification is central to the results.

The stylized two-sector, closed-economy model in section 2 reflects two of these concerns. The delineation of sectors is different and the specification of demand has been modified compared to the structuralist model in Ros (2013, section 12.2). The third concern will be addressed in section 3 which endogenizes wage aspirations and distributional claims. Section 4 summarizes the main conclusions.

2 A modified structuralist model

2.1 Assumptions

A modern, formal sector produces an output M using a Leontief technology,

$$M = \min\{qL_M, \sigma K\} = qL_M \tag{1}$$

L_M and K denote modern-sector employment and capital. There is excess capital capacity, and labor productivity q grows at a constant rate. A constant markup $(1+m)$ implies that the profit share, π, is constant, and if w_M and p_M are the wages and prices in the sector, we have

$$p_M = (1+m)\frac{w_M}{q} \tag{2}$$

$$w_M L_M = (1-\pi)p_M M \tag{3}$$

The second sector, which has labor as its only input, is not a subsistence sector. It produces a variety of goods and services, and workers in the informal sector have to sell these goods and services, e.g. as day laborers, street vendors, domestic workers or employees in small corner shops and construction activities. Workers who fail to get a job in the modern sector move into the informal sector:

$$L_A = N - L_M \tag{4}$$

where N is the total labor force. The informal sector may contain small-scale businesses that make a profit but, for simplicity, it is assumed that all incomes in the informal sector go to workers. Thus, if p_A and w_A are the price of $A-$goods and the average income in the sector (the wage rate, for short), we have

$$p_A A = w_A L_A \tag{5}$$

Workers in both sectors spend their income on consumption while all profits are saved. Thus, aggregate nominal consumption (C) is given by

$$C = p_M C_M + p_A C_A = w_A L_A + w_M L_M \tag{6}$$

where C_A and C_M denote real consumption of goods from the two sectors. Nominal consumption is split between formal and informal goods, the proportion α of consumption expenditure going to the formal sector. Thus,

$$p_M C_M = \alpha C \tag{7}$$

$$p_A C_A = (1-\alpha)C \tag{8}$$

The informal sector produces a pure consumption good, and the equilibrium condition requires that

$$A = C_A \tag{9}$$

where A is the real output of the representative good produced by the informal sector. Formal-sector goods can be used for investment or consumption, and the equilibrium condition is given by

$$M = I(M, K, r) + C_M \tag{10}$$

Investment demand depends on the real rate of interest (r), the level of output and the predetermined capital stock; this specification includes investment functions that relate the accumulation rate to the utilization rate of capital as a special case.

Turning to wage formation in the formal sector, it is assumed that workers' wage aspirations, w_M^T, are proportional to the average income in the informal sector,

$$w_M^T = \mu w_A; \qquad \mu > 1 \tag{11}$$

where $\mu > 1$ represents the target wage premium in the formal sector. This specification of wage targets may invite objections. Formal-sector workers cannot directly observe incomes in the informal sector. They get imperfect signals, however, from direct conversations with family, friends and neighbors as well as from observable consumption behavior – the purchase of a new TV or dress by an acquaintance, for instance, or the ordering of more extravagant snacks in the neighborhood bar. Second, the incomes of, for instance, street peddlers may not influence the wage aspirations of high-skill, relatively well-paid workers in the formal sector directly; if they influence the aspirations and wages of low-skill retail workers in the formal sector, however, there will be a cascade of derived effects for other formal-sector workers. The specification in equation (11) represents a two-sector approximation to these ripple effects of changes in the conditions of workers in the informal sector.[2] For simplicity, third, the wage aspirations in equation (11) have been related exclusively to informal sector incomes. The specification could be extended to include a dependence on profitability in the formal sector. With a constant markup, however, this extension would not change much.[3]

Nominal wage inflation responds to deviations of actual wages from the target and may incorporate, analogously to an accelerationist Phillips curve, the expected increase in average nominal incomes in the informal sector:

$$\hat{w}_M = \lambda(\frac{w_M^T}{w_M} - 1) + x \tag{12}$$

[2] Relative wage norms and relative social positions are often connected with race, gender or other social divisions. These important issues are beyond the scope of this paper.

[3] As a simple formalization, equation (11) could be replaced by

$$w_M^T = \mu w_A + g(\pi) w_M; \qquad \acute{g} > 0,\ g(0) < 0 < g(1) \tag{*}$$

Unlike informal-sector incomes which are endogenously determined, the profit share can be treated as exogenous. If it is constant, the more general specification in (*) does not alter the qualitative properties in this and the next section. The exposition, however, is simplified by excluding a direct influence of the profit share on the wage target.

where x denotes the expected growth rate of average incomes in the informal sector and λ is the speed of adjustment in response to gaps between target and actual wages in the formal sector. Expectations are assumed to follow a simple adaptive process,

$$\dot{x} = \nu(\hat{w}_A - x) \tag{13}$$

To get from wage inflation in the formal sector to the general rate of price inflation, suppose that general price inflation is related to the rate of price inflation in the modern sector. For simplicity, let

$$\hat{p} = \phi(\hat{p}_M); \quad \phi' > 0 \tag{14}$$

where p the general price level. By assumption the markup in the formal sector is constant, and if labor productivity in the formal sector grows at the rate $\hat{q}$, equation (2) implies that

$$\hat{p} = \phi(\hat{w}_M - \hat{q}) \tag{15}$$

2.2 Implications

Informal-sector demand and relative wages Total informal sector income can be found by combining the consumption equations with the equilibrium condition for the informal sector (equations (5)-(9)):

$$w_A L_A = p_A A = \frac{1-\alpha}{\alpha} w_M L_M \tag{16}$$

Thus, the 'wage ratio' w_A/w_M is given by

$$\frac{w_A}{w_M} = \frac{L_M}{N - L_M} \frac{1-\alpha}{\alpha} = \Omega \frac{1-\alpha}{\alpha} \tag{17}$$

where $\Omega = L_M/(N - L_M)$ is the ratio of formal-sector employment to the labor force in the informal sector.

Sectoral employment shares An inflation-targeting central bank sets an inflation target $\hat{p}^T$, which translates into a target for wage inflation in the formal sector (equation (15)). A constant value of $\hat{w}_M$ in turn pins down the sectoral composition of workers – the value of Ω – that is consistent with income expectations being met. To see this, note that if expectations are met, then $x = \hat{w}_A$ and both x and $\hat{w}_A$ will be constant (equation (13)). Using equation (12) it now follows that

$$\hat{w}_M - \hat{w}_A = \lambda(\frac{\mu w_A}{w_M} - 1) \tag{18}$$

The left hand side of this equation is constant, but the right hand side can only be constant if $\hat{w}_M = \hat{w}_A$. This condition in turn implies (using equations (17) and (18)) that

$$\left(\frac{w_A}{w_M}\right)^* = \frac{1}{\mu} \tag{19}$$

$$\Omega^* = \frac{\alpha}{1-\alpha} \frac{1}{\mu} \tag{20}$$

Persistent deviations of the share of formal sector employment from Ω^* would generate growth rates of average informal sector incomes that deviate from the expected rate. If, say, $\Omega = \bar{\Omega} > \Omega^*$, we have

$$\left(\frac{w_A}{w_M}\right) = \bar{\Omega}\frac{1-\alpha}{\alpha} > \Omega^*\frac{1-\alpha}{\alpha} = \frac{1}{\mu}$$

and (using equations (13), (17) and (11)-(12))

$$\begin{aligned} \dot{x} &= \nu(\hat{w}_A - x) = \nu(\hat{\Omega} + \hat{w}_M - x) = \nu(\hat{w}_M - x) \\ &= \nu\lambda(\frac{\mu w_A}{w_M} - 1) > 0 \end{aligned} \tag{21}$$

Using equation (12) it follows that wage inflation in the formal sector would increase steadily and without limit.

Equations (19)-(20) express necessary conditions for successful inflation targeting. The required value of M (M^{IT}) can be found by combining equations (1) and (20) to get

$$M = M^{IT} = \frac{1}{q}\frac{1}{1+\mu\frac{1-\alpha}{\alpha}}N \tag{22}$$

The implications of this requirement for the interest rate can be seen by noting – using equations (7), (9) and (3) – that

$$C_M = \frac{w_M}{p_M}L_M = (1-\pi)M$$

With M determined by equation (22), the equilibrium condition for the formal sector – equation (10) – now implies that

$$I(M^{IT}, K, r) = \pi M^{IT} = \pi\frac{1}{q}\frac{1}{1+\mu\frac{1-\alpha}{\alpha}}N \tag{23}$$

N, K and q are predetermined and to maintain a constant target rate of inflation, central banks must adjust the (real) interest rate r to satisfy equation (23).

Underemployment It still remains to determine the degree of underemployment. Aggregate income in the informal sector is demand determined, but equation (16) says nothing about whether this income is achieved through low prices, high real output and low degrees of underemployment or through high prices, low output and high degrees of underemployment. No assumptions about the technology in the informal sector were needed, moreover, to derive equations (20) and (22).

As a simple benchmark, assume that there is constant returns to labor in the informal sector but that workers may be underemployed; a street vendor may spend most of her time waiting for customers and day laborers may fail to find work on most days. Formally, normalizing labor productivity to one when there is no underemployment, let

$$A = eL_A \tag{24}$$

where e is the 'effective employment rate' and $(1-e)$ measures the degree of underemployment in the informal sector.

For some workers in the informal sector, including day laborers and domestic workers, the quality of the work and the efficiency with which the worker carries out the task may depend on the wage (on the price that is being paid for the service if the worker is self-employed). In these cases an efficiency wage argument may determine the real wage (price), suggesting that the (representative) price of informal sector goods and services will be proportional to the (representative) price of formal goods:[4]

$$p_A = \beta p_M \tag{25}$$

The efficiency-wage argument has less appeal with respect to other workers in the informal sector; street vendors, for instance. For present purposes, however, we may take equation (25) as a benchmark assumption to close the model and determine the degree of underemployment; the assumption implies that $b_0 = 0$ and $b_1 = 1$ in equation (14).

Using equations (5), (24) and (25), we have

$$w_A = e p_A = e\beta p_M$$

Equations (1) and (3) can be used to substitute for p_M,

$$w_A = e\frac{\beta}{1-\pi} w_M$$

Solving for e (and using equation (19), we now get:

$$\begin{aligned} e &= \frac{1-\pi}{\beta}\frac{w_A}{w_M} \\ &= \frac{1-\pi}{\beta\mu} \end{aligned} \tag{26}$$

2.3 Discussion

Conflicting income claims – wage setting in the modern sector interacting with demand-determined incomes in the informal sector – pin down the share of modern-sector employment, as shown by equation (20). A large wage premium in the formal sector (a high relative-wage demand μ) implies a small modern sector and a large informal sector. Structural transformation is blocked – or more accurately, the expansion of the modern sector will create explosive inflation in the absence of institutional changes or policy interventions that weaken workers' bargaining strength. In this respect the model depicts a dual economy that

[4] The specification of consumption demand is consistent with a Cobb-Douglas utility function. Thus, the real income from one unit of employment is $\omega = p_A/(p_A^{1-a} p_M^{\alpha})$ if labor productivity is normalized to one. It follows that

$$p_A = \omega^{1/\alpha} p_M$$

The proportionality between p_A and p_M now follows if ω is constant (determined by the efficiency wage argument).

is quite similar to the economies described by standard models of natural unemployment. Mainstream economists, the OECD and other organizations have long prescribed 'labor market reform' as the solution to high unemployment. This model suggests a similar policy prescription for developing economies: labor market reforms that reduce the power and wage aspirations of formal-sector workers may be needed to allow a non-inflationary expansion of the modern sector.

Distributional conflict also determines the degree of underemployment, which reinforces the similarity with the natural rate hypothesis. The employment rate in the informal sector is decreasing in the share claimed by profits (π), formal sector workers' relative income target (μ) and the efficiency real wage in the informal sector (β) (see equation (26)). The overall rate of underemployment, u, is

$$u = (1-e)L_A/N = \frac{\beta\mu + \pi - 1}{\beta} \frac{1-\alpha}{\alpha + \mu(1-\alpha)} \tag{27}$$

This overall rate of underemployment is increasing in π, β and μ. Depending on parameters, underemployment may be large, but there is a striking formal similarity with mainstream macroeconomics: the model effectively produces a 'natural rate of underemployment'. As in the mainstream model, the natural rate is determined by wage and price setting. Upward shifts in income claims exacerbate the distributional conflict, and distributional conflicts are resolved by increases in unemployment that squeeze workers' power and aspirations. Not surprisingly, the overall rate of underemployment also depends of the composition of demand. The informal sector shrinks and underemployment falls if demand shifts towards formal-sector goods; formally, u is decreasing in α.

Comparing the model to the structuralist model in Ros (2013, section 12.2), inflation derives from mutually inconsistent distributional claims in both models. The primary source of inflationary pressures is different, however. The structuralist model described by Ros locates the inflationary pressures in an agricultural sector that produces an essential wage good and in which workers must be paid some minimum product real wage. Agricultural employment is set by profit maximizing landowners, and diminishing returns to labor and a fixed product real wage determine the supply of agricultural goods. This supply-side determination of the agricultural surplus available for consumption by urban workers in combination with a fixed proportionality between the wages for employed workers in the two sectors now limits employment in the modern sector. Attempts to increase the modern sector beyond this limit generates inflation as increased demand for agricultural goods comes up against an inelastic supply and agricultural prices rise. Agriculture is the critical bottleneck, and there is a clear policy implication: a boost to agricultural productivity allows the expansion of both sectors.

In the modified version, by contrast, income claims – wage demands and profit markups – in the modern sector are the primary source of inflation. Wage demands are linked to the average income in the informal sector, rather than to the effective wage rate w_A/e for workers that experience no underemployment.

The justification for this specification is straightforward. The average income represents the fallback position for formal-sector workers who lose their job. It is also the relevant measure for theories that link wage targets to fairness norms for relative income – what matters in the comparison of incomes presumably is the actual income of street vendors and day laborers, not the income they could have had if only demand for their services had been higher.

The modified model implies that the average income in the informal sector can be determined without any reference to pricing and that no assumptions are needed concerning returns to scale; constant returns to labor was used as a plausible benchmark, but the determination in equation (20) of the employment share of the formal sector does not depend on this assumption. This independence emerges because of a different specification of the composition of consumption. In the Ros version workers spend all their income on basic consumption goods produced by agriculture. The informal sector in the modified version, by contrast, does not produce basic consumption goods. Low-income workers in countries like Mexico and Brazil buy TVs, cell phones, food and clothes that are not produced by the informal sector, while high-income households employ domestic workers and gardeners and buy street food on the way to the office. There are clearly differences between rich and poor in the composition of consumption, but the split between modern and informal sector goods may not be very different. The benchmark version of the model therefore assumes that a constant share of consumption expenditure goes to the informal sector.[5] This assumption simplifies the analysis but could be relaxed (see Martins and Skott 2021).

The differences between the two models have important implications. While productivity increases in the agricultural sector allow the expansion of the modern sector in the standard version, the share of modern-sector employment consistent with low inflation is independent of informal-sector productivity in the modified version. Low productivity in the informal sector, moreover, is largely a demand problem. Street vendors would sell more and have higher productivity and income if only there were more buyers, while day laborers would be happy if they could find work every day. The problem is not an inelastic supply of informal goods or excessive wage demands from informal sector workers. The expansion of the modern sector is curbed by the interaction between wage demands in the formal sector and demand-determined average incomes in the informal sector.

3 Endogenous aspirations and norms

3.1 Behavioral evidence and assumptions

The previous section reached conclusions that may seem both uncomfortable and counterintuitive. Is it really the case that wage demands in the modern

[5] This specification of the composition of demand implies that the MM and LL curves become vertical in Ros (2013, Figure 12.3, p. 268).

sector block economic development in the absence of labor market reforms or other interventions that weaken the workers in this sector?

Measurements of the informal sector are fraught with conceptual and practical difficulties. Informality in a legal sense is not what matters. Non-registered firms that fail to pay taxes could in principle be highly efficient and employ workers that were well paid and that had no desire to move to the formal sector. Conversely, the formal registration of street peddlers would not make them part of the modern sector. But measurement issues notwithstanding, the informal sector appears to be huge in most developing economies, and workers in the formal sector typically enjoy a very large wage premium over the average income in the informal sector.[6] The implied 'cost of job loss' for formal-sector workers would seem to be so large that standard explanations of the premium become unconvincing, whether these explanations are based on the strength of unions or Shapiro-Stiglitz type efficiency wage models in which firms set wages and intertemporally optimizing workers choose effort to maximize a traditional utility function defined over consumption and effort. An alternative story is needed.

Akerlof (1982) and Akerlof and Yellen (1990) highlighted the importance of reciprocity and norms of fairness for wage setting. Workers who feel they have been treated badly will tend to reciprocate; morale and labor productivity will suffer and firms therefore have an incentive to pay 'fair wages'. This fairness-based account of wage setting is singled out by Bewley (1999) as the only one out of a large set of candidates that is consistent with the empirical evidence on wage stickiness in recessions. The story, it should be noted, can apply to labor markets without collective bargaining and labor unions (as in Akerlof and Yellen 1990) as well as to unionized labor markets; 'unfair wages' induce aggressive wage demands and steel the rank and file to fight for these demands in a unionized economy. The precise forms may be different in unionized and non-unionized settings, but the basic mechanism is the same: the perception of fairness is important in wage setting.

Wage aspirations and norms of fairness are predetermined in the short run but clearly differ across space and change over time. The real wage aspirations of auto workers in Germany, the Czech Republic and India are quite different while wages that were considered fair by VW workers in 1960 would be deemed unacceptable in 2020. In short, wage aspirations are path dependent. Or as Marx put it, the value of labor power has a "historical and moral element".[7]

[6] La Porta and Shleifer (2014, p. 110) summarize their findings in five facts:

> we establish five critical facts about the informal economy. First, it is huge, especially in developing countries. Second, it has extremely low productivity compared to the formal economy ... . Third, ... the productivity of informal firms is too low for them to thrive in the formal sector. ... Fourth, ... [i]nformal firms rarely transition to formality, and continue their existence, often for years or even decades, without much growth or improvement. Fifth, as countries grow and develop, the informal economy eventually shrinks, and the formal economy comes to dominate economic life.

[7] The full quote is:

The historical and moral element also applies to relative wages. As noted by Hicks (1975), it can be difficult to achieve a general consensus on what is fair and what is not. No system of wages, Hicks argues,

> when it is called into question, will ever be found to be fair. ... [To avoid the system being called into question] the system of wages should be well established, so that it has the sanction of custom. It then becomes what is expected; and (admittedly on a low level of fairness) what is expected is fair (p. 65).

The prevailing relative-wage norms, according to this argument, reflect actual patterns in the past. Current levels of inequality in the US with CEOs in large corporations pulling down pay that is 2-300 times higher than the average worker would have seemed completely beyond the pale in 1970 when the average ratio was about 20. The current ratio may still be offensive, but the gradual increase over the last 50 years has had a numbing effect, and demands for a return to the 1970-levels of wage inequality would be seen by many as extremely radical. Most CEOs certainly would consider reductions of that magnitude grossly unfair; they have had no problem convincing themselves that their high pay is the just reward for superior skills.[8]

The gradual adjustment of notions of fairness finds support in social psychology and behavioral economics:

> Psychological studies of adaptation suggest that any stable state of affairs tends to become accepted eventually, at least in the sense that alternatives to it no longer readily come to mind. ... Thus, the gap between the behaviour that people consider fair and the behavior that they expect in the market-place tends to be rather small. (Kahneman et al. 1986, pp. 730-1)

As a simple formal representation of this behavioral evidence, suppose that the fair wage ratio changes over time in response to differences between actual and fair relative wages; that is, μ changes in response to differences between w_M/w_A and μ :[9]

$$\dot{\mu} = \theta(\frac{w_M}{w_A} - \mu) \tag{28}$$

> In contradistinction therefore to the case of other commodities, there enters into the determination of the value of labour-power a historical and moral element. Nevertheless, in a given country, at a given period, the average quantity of the means of subsistence necessary for the labourer is practically known. (Marx 1867 [1906], p. 190)

Marx's analysis focused on the real wage and the conflict between capitalists and workers. As noted above, equation (11) could be extended to include an effect of profit shares on target real wages.

[8] Skott and Guy (2013) discuss the rise in CEO pay.

[9] Similar specifications have been used by Skott (2005) and Martins and Skott (2021). The symmetric specification in equation (28) has the virtue of simplicity but misses an important aspect of norm adjustment: fairness norms are likely to adjust quickly in an upward direction (we quickly feel that pay increases are 'fair') but more slowly in a downward direction (it is hard to accept that we deserve less than what we used to get). This asymmetry in the

where θ is the adjustment speed for the target relative wage.

The specification in equation (28) is quite mechanical and leaves out many factors that may influence workers' aspirations and their willingness and ability to fight for wage increases. Institutional factors and labor market legislation can be critical, and workers' militancy, more generally, cannot be separated from broader political and social movements; aggressive wage demands and high and rising strike activity in the US, western Europe and many other countries in the late 1960s did not develop independently of a general radicalization involving civil rights movements, anti-Vietnam war movements, student protests and rising opposition against dictatorships and oppression in many countries. With these caveats, however, equation (28) captures one, potentially important mechanism in the formation of wage aspirations.

In mature economies, the path dependency of wage aspirations and fairness norms creates employment hysteresis and undermines the notion of a natural rate of unemployment (Skott 2005). The consequences are even more radical in dual economies: distributional conflict need not prevent increases in economic growth and the expansion of the modern sector if wage aspirations are endogenous.

To see this, consider a trajectory in which the wage ratio w_M/w_A is kept slightly below the fair ratio. Both the fair and the actual wage premium in the formal sector gradually decline along this trajectory, thereby raising the employment share of the formal sector in equation (20). It may be objected that any discrepancy between fair and actual wages makes average incomes in the informal sector rise faster than expected wage inflation. Income expectations will be adjusted, and equations (12) and (13) imply that persistent deviations from fairness, even if small, will start a process of explosive inflation as predicted by natural-rate theory. This, indeed, was the result derived in equation (21).

The empirical support for the behavioral assumptions behind equations (12)-(13) is weak, however. The fairness and acceptability of a wage offer can be assessed in nominal or real terms. Shafir et al. (1997) suggest that both frames of reference will be applied and that the weight attached to the nominal frame is context dependent. Applying these general principles to the present context, inflation loses its saliency if the rate of inflation is low; the costs of ignoring inflation become minimal and there is no reason to keep close track of the movements in inflation. Consistent with this perspective, surveys show that most respondents in low-inflation countries pay little attention to inflation and have a poor knowledge of current inflation rates.[10]

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adjustment of norms in combination with downward stickiness in nominal wages can make for inflationary pressures, even if average relative wages are trendless; volatility tends to raise the inflation rate.

[10] Using New Zealand survey data on inflation expectations, Coibon et al. (2018) find that many

> firms view inflation as relatively unimportant to their business decisions and choose not to track its recent values, leading to large misperceptions about recent inflation dynamics and forecasts that are far out of line with historical values, even though they display significant knowledge about industry-specific price changes. (p. 2711)

Rowthorn (1977) anticipated these findings, suggesting that wage setters will ignore expected inflation as long as it stays below a threshold level. Rowthorn's analysis focused on real wages and the extent to which expected price inflation affects the growth rate of nominal wages. His argument can be adapted to the present setting and generalized slightly by the following respecification of equation (12):

$$\hat{w}_M = \lambda(\frac{w_M^T}{w_M} - 1) + f(x) \tag{29}$$

As in section 2, formal sector workers have a target for relative wages but – following Shafir et al. and Rowthorn – low levels of expected growth tend to be ignored. This behavioral effect is captured by the $f-$function which is taken to be smooth (differentiable, except for a kink at $x = k$ and possibly at $x = 0$) and to satisfy the conditions

$$\begin{aligned} f(x) &= 0 \text{ for } x \leq 0 && (30)\\ f(x) &= x \text{ for } x \geq k && (31)\\ f\,' &\geq 0 && (32)\\ f\,''(x) &> 0 \text{ for } 0 < x < k && (33) \end{aligned}$$

The continuous, sigmoid shaped $f-$function generalizes Rowthorn's threshold specification. Distinguishing between 'expected' and 'anticipated' inflation, Rowthorn assumed that anticipated inflation (which influences wage setting in his one-sector model and corresponds to $f(x)$ in this setting) is zero if expected inflation is below a threshold value but jumps to the expected value if expected inflation is above the threshold; that is, a Rowthorn specification has $f(x) = 0$ below the threshold and $f(x) = x$ above the threshold (see Figure 1).

Consequently, there are significant differences between firms' average beliefs and those of professional forecasters.

In another study, Jonsson and Osterholm (2012) examine inflation expectations in Sweden. The Swedish central bank uses survey measures of inflation expectations as one input to its policy decisions. The surveys show that expectations are neither unbiased (the forecasts have systematic errors) nor efficient (readily available macroeconomic data could improve the forecasts).

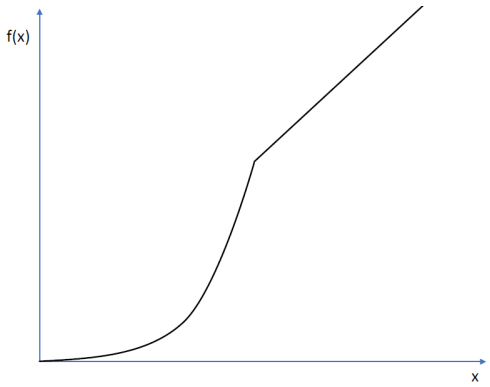

Figure 1a: Smooth $f-$function

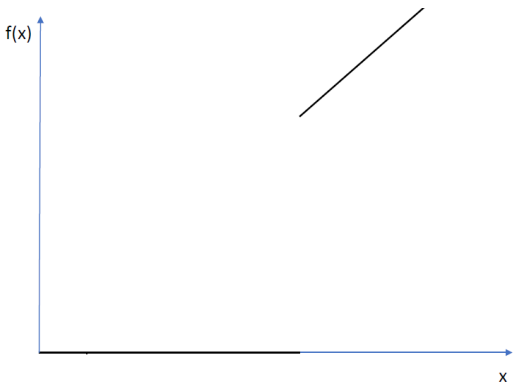

Figure 1b: Rowthorn specification

3.2 Implications

Consider first the implications of successful inflation targeting; that is, assume that policy is adjusted to keep inflation at a target level, $\hat{p} = \hat{p}^T$. It can be shown that for intermediate values of the target the employment share of the formal sector (Ω) will be increasing steadily and the wage premium in the modern sector will be decreasing. Formally, we have (see Appendix A)

$$\begin{aligned} \hat{\Omega} &= 0 \text{ for } \hat{w}_M^T = 0 \text{ or } \hat{w}_M^T > k \\ \hat{\Omega} &> 0 \text{ for } 0 < \hat{w}_M^T < k \end{aligned}$$

The speed of transformation ($\hat{\Omega}$), moreover, has a unique local (and global) maximum for some value γ in the interval $(0, k)$; the speed is increasing in the inflation target for $0 < \hat{w}_M^T < \gamma$ and decreasing for $\gamma < \hat{w}_M^T < k$. Modest rates of (constant) inflation facilitate economic development; very high (constant) rates hurt growth and development. The falling wage premium and rising share of the formal sector must come to halt when the wage premium hits zero (or some lower bound) and the labor supply to formal sector ceases to be elastic. In developing economies with large amounts of underemployment, however, the process can proceed for a long time before hitting the lower bound, and to simplify the exposition the bound was not included explicitly in equation (28).

As another experiment, suppose that relative incomes are subjected to a large shock. In this simple model, the relative wage is determined by equation (17), and the shock can only come from an increase in the share of consumption going to the informal sector. In a more general setting, the shock could arise from shifts in fiscal policy or from a commodity boom in a resource-rich economy (see Martins and Skott 2021). Whatever the source of the shock, inflation will increase if the trajectory of Ω is kept unchanged despite the shock to relative incomes.

As shown in Appendix B, if $\hat{\Omega} = \delta > 0$ is constant, we have a 2D system of differential equations in x and $(\mu w_A/w_M)$:

$$\dot{x} = \nu[\delta + \lambda(\frac{\mu w_A}{w_M} - 1) + f(x) - x] \tag{34}$$

$$\widehat{\frac{\mu w_A}{w_M}} = \theta(\frac{w_M}{\mu w_A} - 1) + \delta \tag{35}$$

The system may have two, one or no stationary points. Figure 2 depicts a phase diagram for the 2D system (34)-(35) for the case with two stationary solutions; one of them (E_1) is locally stable, the other (E_2) is a saddle point.

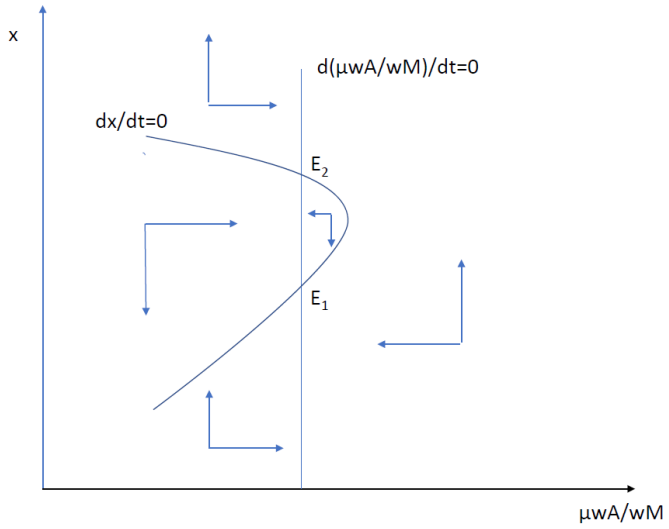

Figure 2: Phase diagram for 2D system in $\left(\frac{\mu w_A}{w_M}, x\right)$

Suppose that initially the economy is at the locally stable stationary point E_1 with $x = x^*, (\frac{\mu w_A}{w_M}) = (\frac{\mu w_A}{w_M})^*, \hat{\Omega} = \delta > 0$ and that, starting from this position, at time t_0 there is a positive shock to the relative wage of workers in the informal sector. The fair wage ratio μ is predetermined and the shock to the relative wage translates into a positive shock to the level of the 'aspiration gap' $\mu w_A/w_M$. If, as seems likely, the adjustment of aspirations is slow (a low value of θ), a large shock to relative wages may take the economy on a path of explosive inflation with $x \to \infty$ as in Figure 3: the shock at time t_0 has displaced the economy from E_1 to P, and with a slow adjustment speed θ, the system now follows a steep, divergent trajectory. As x diverges we have $f(x) \to \infty, \hat{w}_M \to \infty$ and $\hat{p} \to \infty$.

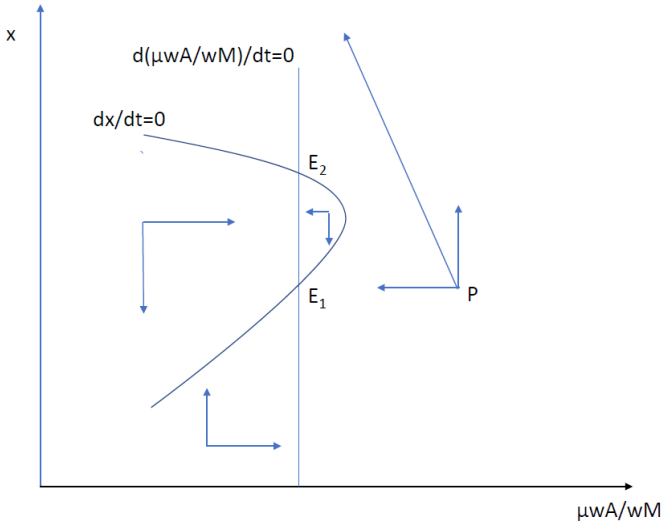

Figure 3: Divergent inflation following shock to relative wages

The dynamics of x and $(\mu w_A/w_M)$ also imply that once expected inflation has risen above the threshold k, an absolute decline in Ω is needed to reduce inflation expectations. Above the threshold we have (equation (34))

$$\dot{x} = \nu(\hat{w}_A - x) = \nu[\hat{\Omega} + \lambda(\frac{\mu w_A}{w_M} - 1)]$$

Setting $\hat{\Omega} = 0$ implies that $\frac{\mu w_A}{w_M}$ will converge to 1 from above (equation (35) and $\dot{x}$ will converge to 0 from above. Thus, to combat inflation and achieve a decline in x, a reduction in the employment share of the modern sector is needed. A shock to relative wages and the ensuing inflation has led to deindustrialization.

4 Conclusion

Economists are often careless about specifying the domains of applicability of their theories, but the indiscriminate application of DSGE and other mainstream macroeconomic models to developing economies still seems surprising. The development problem is all about structural transformation and the gradual elimination of underemployment in low-productivity sectors of the economy. By focusing on fluctuations around a steady growth path with unemployment at the 'natural rate', the models preclude the analysis of these central issues facing developing countries.

Official unemployment rates are largely uninformative, but Phillips curves and notions of a 'natural rate of unemployment' – which can also be questioned for mature economies – fail the basic smell test when it comes to developing

economies. This leaves open the sources of inflation, and structuralist theories that emphasize distributional conflict and cross-sectoral interactions have tried to fill the gap. This paper has followed the same basic approach but with a couple of twists.

It is useful, as a first approximation, to divide the economy into two sectors, a 'modern' sector with high productivity and a second sector with low productivity and underemployment. One twist concerns the delineation of the sectors. The second sector has typically been seen as agriculture. For many countries, however, it may be more useful to define the second sector as an informal, urban sector. This reformulation makes it unlikely that the expansion of the modern sector will be held back by inelastic supplies of essential goods produced by the second sector. Consequently, boosts to productivity in the second sector will not accelerate the transformation process; it may not even raise average informal-sector incomes but simply increase underemployment.

The more important twist concerns the way distributional conflict is modeled. As in other structuralist models, inflation emerges as a result of distributional claims that are mutually inconsistent. But the claims and the underlying income norms and aspirations are path dependent – predetermined in the short run but evolving endogenously in the medium and long run. This conventional or historical element in wage aspirations negates the idea of natural rates of underemployment. Economic development and the gradual reduction of the wage premium in the formal sector need not be blocked by immutable distributional conflict.

Relative wage norms and aspirations are important, but behavioral evidence indicates that aspirations are path dependent and that low growth rates of average nominal incomes in the informal sector are unlikely to be transmitted fully to wage inflation in the formal sector. These behavioral findings imply that the gradual elimination of underemployment in the informal sector as the modern sector expands need not produce ever-increasing inflation. The development process may be facilitated by modest amounts of inflation, and strict inflation targeting can present a barrier to economic development, but the inflation process need not become explosive. Matters are very different following a large shock to relative incomes. The adjustment of aspirations is likely to be slow, and in the absence of a retrenchment of the modern sector, the inflationary consequences of large shocks to relative income could be severe.

For simplicity the analysis in this paper has focused on a closed economy with two sectors. The basic idea carries over to more general settings. Martins and Skott (2021) present an extended four-sector model of an open economy. External shocks that affect aggregate demand (and thereby the demand-determined income of workers in the informal sector) become a source of inflation and, applying the model to the commodity boom of the early 2000s, the analysis shows how orthodox macroeconomic policies of inflation targeting and balanced government budgets produce exchange rate appreciation and deindustrialization in a resource-rich economy.[11] Martins and Skott (2021) focus primarily on mon-

[11] Monetary policy can influence aggregate demand and inflation is several ways. There is

etary policy; see Skott (2021a) for an analysis of fiscal policy and 'functional finance' in developing economies.

The main conclusions of this paper echo Ros's (1989) position. Discussing the role of distributional conflict in inflation, Ros distinguishes between inertial inflation and pure conflict inflation. Inertial inflation arises because

> economic agents require time to adjust their aspirations to changed circumstances and ... it is through adaptation that the target real wage adjusts to present wages (p. 6)

Inertial aspirations are clearly analogous to the adjustment process in section 3, and Ros goes on to argue that a general conflict theory of inflation

> would recognize the importance of adaptation processes in the determination of economic agents' targets, especially in the presence of minor or moderate shocks; but it would also be willing to accept that, in the face of large shocks leading to sharp reductions in real wages and to substantial aspiration gaps, adaptation may be incomplete or too slow to avoid making inflation an inherently unstable process. (p.11)

Ros's framework in the 1989-paper did not include multiple sectors, and he focused on the real wage rate rather than relative wages. But if 'real wages' were replaced by 'relative wages', his statement could stand as a summary of the conclusions in this paper.

Appendix A: Inflation targets and the pace of structural transformation

Successful inflation targeting requires that $\hat{p} = \hat{p}^T$ where $\hat{p}^T$ is the target. Using equation (14) this condition translates into targets for $\hat{p}_M$ and $\hat{w}_M$:

$$\hat{w}_M^T = \phi^{-1}(\hat{p}^T) + \hat{q}$$

where q is the rate of growth of labor productivity in the formal sector. Thus, using equations (29) and (17), we must have

$$\hat{w}_M^T = \hat{w}_M = \lambda(\frac{\mu w_A}{w_M} - 1) + f(x) = \lambda(\mu\Omega\frac{1-\alpha}{\alpha} - 1) + f(x)$$

Solving for the employment composition Ω,

$$\Omega = \frac{\alpha}{1-\alpha}\frac{1}{\mu}(\frac{\hat{w}_M^T - f(x)}{\lambda} + 1) \tag{36}$$

general consensus that many of the channels are weak in developing and emerging market economies but that the exchange rate channel is important; see Ros (2015) for a discussion of the Mexican case.

From equation (36) it follows that

$$\hat{\Omega} = -\hat{\mu} - \frac{\lambda f\,'(x)\dot{x}}{\hat{w}_M^T - f(x) + \lambda} = -\hat{\mu} - \frac{f\,'(x)\dot{x}}{\lambda\mu\Omega\frac{1-\alpha}{\alpha}} \tag{37}$$

Combining equations (13),(17) and (37), the dynamic equation for x can now be written

$$\begin{aligned} \dot{x} &= \nu(\hat{w}_A - x) = \nu(\hat{\Omega} + \hat{w}_M - x) \\ &= \nu(-\hat{\mu} - \frac{f\,'(x)\dot{x}}{\lambda\mu\Omega\frac{1-\alpha}{\alpha}} + \hat{w}_M^T - x) \end{aligned}$$

or

$$(1 + \frac{f\,'(x)}{\lambda\mu\Omega\frac{1-\alpha}{\alpha}})\dot{x} = \nu(-\hat{\mu} + \hat{w}_M^T - x)$$

Using the equations for $\hat{w}_M$ and $\dot{\mu}$, this equation can be rewritten as

$$\begin{aligned} (1 + \frac{f\,'(x)}{\lambda\mu\Omega\frac{1-\alpha}{\alpha}})\dot{x} &= \nu(-\hat{\mu} + \hat{w}_M^T - x) \\ &= \nu[-\theta(\frac{w_M}{\mu w_A} - 1) + \hat{w}_M^T - x] \\ &= \nu[\frac{\theta}{\lambda}\frac{w_M}{\mu w_A}(\hat{w}_M^T - f(x)) + \hat{w}_M^T - x] \\ &= \nu[\theta\frac{\hat{w}_M^T - f(x)}{\hat{w}_M^T - f(x) + \lambda} + \hat{w}_M^T - x] \end{aligned} \tag{38}$$

The coefficient on $\dot{x}$ on the left-hand side of equation (38) is greater than 1 and the right-hand side is increasing in $\hat{w}_M^T$ and decreasing in x. It follows that x will converge to a stationary solution x^* with

$$x^* = x(\hat{w}_M^T); \qquad x' > 0$$

Moreover, we have (from equation (29))

$$\frac{\mu w_A}{w_M} = \frac{\hat{w}_M^T - f(x)}{\lambda} + 1$$

and $\mu w_A / w_M$ will converge to

$$(\frac{\mu w_A}{w_M})^* = \frac{\hat{w}_M^T - f(x^*)}{\lambda} + 1$$

The shape of the $f-$function (see equations (30)-(33)) implies that if $\hat{w}_M^T = 0$ or $\hat{w}_M^T \geq k$, the stationarity condition for x requires that

$$\begin{aligned} x^* &= f(x^*) = \hat{w}_M^T \\ (\frac{\mu w_A}{w_M})^* &= 1 \end{aligned} \tag{39}$$

But for intermediate values of the target – if $0 < \hat{w}_M^T < k$ – we have

$$\begin{aligned} x^* &> \hat{w}_M^T > f(x^*) \\ \hat{w}_M^T - f(x^*) &> 0 \end{aligned}$$

The long-run rate of growth of Ω can now be found. Using (17), (39) and (28) we have,

$$\hat{\Omega} = \frac{\widehat{w_A}}{w_M} = -\hat{\mu} = -\theta(\frac{w_M}{\mu w_A} - 1) = \theta[1 - \frac{1}{(\frac{\mu w_A}{w_M})^*}] = \theta[1 - \frac{\lambda}{\hat{w}_M^T - f(x^*) + \lambda}] \quad (40)$$

It follows from equation (40) that the speed of transformation (the growth in the share of formal-sector employment) is an increasing function of $(\hat{w}_M^T - f(x^*))$ Thus,

$$\begin{aligned} \hat{\Omega} &= 0 \text{ for } \hat{w}_M^T = 0 \text{ or } \hat{w}_M^T > k \\ \hat{\Omega} &> 0 \text{ for } 0 < \hat{w}_M^T < k \end{aligned}$$

The sigmoid shape of the $f-$function also implies that $\hat{w}_M^T - f(x^*)$ will have a unique local (and global) maximum for some value γ in this interval. Thus, the speed of transformation is increasing in the inflation target for $0 < \hat{w}_M^T < \gamma$ and decreasing for $\gamma < \hat{w}_M^T < k$.

Appendix B: Dynamic system for the aspiration gap and expected growth of informal-sector income

If policy makers maintain a constant pace of development – keep $\hat{\Omega} = \delta \geq 0$ – the dynamics of $(\mu w_A / w_M)$ and x can be written (using (17), (29) and (28))

$$\dot{x} = \nu(\hat{w}_A - x) = \nu(\hat{\Omega} + \hat{w}_M - x) = \nu[\delta + \lambda(\frac{\mu w_A}{w_M} - 1) + f(x) - x] \quad (41)$$

$$\frac{\widehat{\mu w_A}}{w_M} = \hat{\mu} + \hat{w}_A - \hat{w}_M = \hat{\mu} + \hat{\Omega} = \theta(\frac{w_M}{\mu w_A} - 1) + \delta \quad (42)$$

This 2D system of differential equations two, one or no stationary solutions. To see this note that equation (42) is a self-contained differential equation with a unique, stable stationary point at $\frac{\mu w_A}{w_M} = \left(\frac{\mu w_A}{w_M}\right)^* = \frac{\theta}{\theta - \delta}$ (assuming that $\delta < \theta$; if $\delta > \theta$, the equation implies that $\frac{\mu w_A}{w_M} \to \infty$ for any positive initial value of $\frac{\mu w_A}{w_M}$). Substituting $\frac{\mu w_A}{w_M} = (\frac{\mu w_A}{w_M})^*$ into the stationarity condition for x, we get

$$x - f(x) = \delta + \lambda(\left(\frac{\mu w_A}{w_M}\right)^* - 1) \quad (43)$$

The expression on the right hand side of equation (43) is unambiguously positive, and the conditions (30)-(33) imply that the function $x - f(x)$ on the left-hand

side of the equation attains a positive maximum at some $x = \tilde{x}$ with $0 < \tilde{x} < k$ and that $x - f(x) = 0$ for $x \leq 0$ or $x \geq k$. Thus, the equation has two solutions if $\tilde{x} - f(\tilde{x}) > \delta + \lambda(\left(\frac{\mu w_A}{w_M}\right)^* - 1)$, one solution if $\tilde{x} - f(\tilde{x}) = \delta + \lambda(\left(\frac{\mu w_A}{w_M}\right)^* - 1)$ and no solutions if $\tilde{x} - f(\tilde{x}) < \delta + \lambda(\left(\frac{\mu w_A}{w_M}\right)^* - 1)$. Figure 2 depicts the phase diagram for the 2D system (41)-(42) for the case with two stationary solutions; one of them (E_1) is locally stable, the other (E_2) is a saddle point.

Suppose that initially the economy is at the locally stable stationary point E_1 with $x = x^*, (\frac{\mu w_A}{w_M}) = (\frac{\mu w_A}{w_M})^*, \hat{\Omega} = \delta > 0$ and that, starting from this position, at time t_0 there is a positive shock to the relative wage of workers in the informal sector. The wage ratio w_A/w_M jumps to a higher value and then, following the shock, evolves in accordance with equation (17); that is, after the shock

$$\hat{w}_A - \hat{w}_M = \hat{\Omega} = \delta$$

The fair wage ratio μ is predetermined and the shock to the relative wage translates into a positive shock to the level of aspiration gap $\mu w_A/w_M$. The endogeneity of the μ implies that the gap will come back to its initial steady-growth value but the convergence may be slow. The shock has no direct effects on the level of x but affects the rate change in x. The inflationary implications of the shock are best seen by looking at the phase diagram in figure 3. The stationary solution at E_1 is locally stable but a large shock to relative wages in combination with slow adjustments of aspirations may take the economy on path of explosive inflation with $x \to \infty$. As x diverges we also have $f(x) \to \infty, \hat{w}_M \to \infty$ and $\hat{p} \to \infty$.

References

[1] Akerlof, George A. (1982) "Labor Contracts as Partial Gift Exchange". *Quarterly Journal of Economics* 97:543-569.

[2] Akerlof, G.A., Yellen, J.L. (1990)"The fair wage-effort hypothesis and unemployment". *Quarterly Journal of Economics* 105, 254-283.

[3] Bewley, T.F. (1999) *Why wages don't fall during a recession.* Cambridge MA: Harvard University Press.

[4] Blanchard, O.J. (2016) "The Phillips Curve: Back to the '60s?" *American Economic Review*, 106(5), pp. 31-34.

[5] Bleaney, M. and Francisco, M. (2018) "Is the Phillips curve different in poor countries?". Bulletin of Economic Research, 70(1), pp. E17-E28.

[6] Coibion, O., Gorodnichenko, Y. and Kumar, S. (2018) "How Do Firms Form Their Expectations? New Survey Evidence". *American Economic Review*, 108(9), pp. 2671–2713

[7] Friedman, M. (1968) "The Role of Monetary Policy". *American Economic Review,* 58(1) (March), pp. 1-17

[8] Hicks, J. (1975) *The crisis in Keynesian economics*. Blackwell, Oxford.

[9] Jonsson, T. and Österholm, P. (2012) "The properties of survey-based inflation expectations in Sweden" *Empirical Economics* 42, pp.79–94.

[10] Kahneman, D. Knetsch, J.L., Thaler, R. (1986) "Fairness as a constraint on profit seeking: entitlements in the market". *American Economic Review* 76, 728-741.

[11] La Porta, R. and Shleifer, A. (2014) "Informality and development". *Journal of Economic Perspectives*, 28(3), pp. 109-126.

[12] Maka, A. and Barbosa, F. (2013) "Phillips curves: An encompassing test". XLI Encontro Nacional de Economia (ANPEC).

[13] Mankiw, G. (2001) "The Inexorable and Mysterious Tradeoff Between Inflation and Unemployment". *Economic Journal*, 111, Issue 471, pp. 45-61.

[14] Martins, G.K. and Skott. P. (2021) "Macroeconomic policy, inflation and deindustrialization in a dual economy". *Industrial and Corporate Change*, forthcoming.

[15] Marx, K. (1867 [1906]). *Capital. A Critique of Political Economy, vol. 1.* The Modern Library, New York.

[16] Noyola, J.F. (1956) "Inflation in Chile: an unorthodox approach". *International Economic Papers* 10, pp. 603-648.

[17] Phelps. E.S. (1967) "Phillips Curves, Expectations of Inflation and Optimal Unemployment over Time". *Economica*, 34(135), pp. 254-281

[18] Ros, J. (1989) "On inertia, social conflict, and the structuralist analysis of inflation". Kellogg Institute Working Paper #128

[19] Ros, J. (2013) *Rethinking economic development, growth and institutions*. Oxford University Press.

[20] Ros, J. (2015) "Central bank policies in Mexico: targets, instruments, and performance". *Comparative Economic Studies*, 57, pp. 483-510.

[21] Rowthorn, R. (1977). "Conflict, Inflation and Money". *Cambridge Journal of Economics*, 1, pp. 215-39.

[22] Seers, D. (1962) "A Theory of Inflation and Growth in Under-Developed Economies Based on the Experience of Latin America". *Oxford Economic Papers*, 14 (June), pp. 174–95.

[23] Shafir, E., Diamond, P., Tversky, A. (1997) "Money illusion". *Quarterly Journal of Economics* 112, 341-374.

[24] Skott, P. (2005) "Fairness as a source of hysteresis in employment and relative wages". *Journal of Economic Behavior and Organization,* 57, pp. 305–331.

[25] Skott, P. (2021a) "Fiscal policy and structural transformation in developing economies". *Structural Change and Economic Dynamics*, 56, pp. 129-140.

[26] Skott, P. and Guy, F. (2013) Power, Luck and Ideology in a Model of Executive Pay". UMass Working Paper 2013-01

[27] Sunkel, O. (1958) "La inflacion Chilena: un enfoque heterodoxo. *El Trimestre Economico*, 25, pp. 107-131