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Hierarchical consumption preferences, redistribution, and structural transformation

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In low- and middle-income economies, consumption preferences are hierarchical and the production structure is dualistic. Wage demand correspondingly articulates with the domestic industrial sector in a limited fashion. Where capital accumulation is directed at this modern/industrial sector, downward redistributions are less expansionary than commonly outlined, even if capacity utilization is an adjusting variable influencing investment decisions. Insofar as economic development is underpinned by structural transformation, policies aligned with downward redistributions have important sectoral ramifications neglected in one-sector frameworks. This paper explores these and related propositions formally, drawing from the analysis of a two-sector growth and distribution model.

JEL classification: O41, O14, O11, E25

1. Introduction

This paper consists of two main components. Firstly, it explores the robustness of neo-Kaleckian (NK) theory to inter-class heterogeneity in consumption preferences. Secondly, the paper offers a positive long-run analysis building on Robinsonian perspectives on growth and distribution interactions. At the general level, the paper aims to explore the compatibility of income equalizing distributional policy with structural transformation in contexts where the pattern of consumption is characterized by significant polarization across income groups and the structure of production precludes demand shocks from generating multiplier/accelerator feedback effects.[1]

This issue may characterize many developing countries for a number of reasons related to large natural resource endowments, high levels of income and wealth inequality, and histories of settler colonialism. As Deaton (1999: 34) has pointed out, minerals ownership tends to be highly

[1] An early paper in the literature (Dutt, 1991) explored whether standard NK results would be robust to the dual-economy context. However, Dutt acknowledges that the key results may be dependent on the absence of Engel effects, which were explicitly excluded from the analysis.

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concentrated and gains in exports of minerals tend to accompany unusually skewed distributive outcomes, resulting in "enclave" production without the necessary forward and backward linkages relevant to inclusive development. This observation is consistent with a positive reduced form relationship between growth episodes and inequality,[2] if via mechanisms distinct from those explored in the model below. More importantly, from a policy perspective and as relates to the analysis that follows, measures to reduce income inequality might not stimulate growth through the usual multiplier/accelerator mechanisms emphasized in the literature.[3]

At face value, the political appeal for wage-led growth is strong—many countries have been plagued by growing inequality and stagnant growth rates in recent decades, and it would indeed be convenient if social targets for reducing inequalities happened also to be strong instruments for realizing higher rates of long-run growth. However, whether changes in income distribution can be analyzed as proponents of wage-led growth have done has been contested on general grounds (Skott, 2017). Amidst recent debates on this subject, there has been relatively little critical evaluation of the relevance of wage-led growth to the developing country context and issues of structural transformation. Razmi (2015, 2016) and Ros (2016) are notable exceptions; this paper differs from these papers in several ways but most centrally by emphasizing inter-class heterogeneity in consumption patterns. More generally, this paper differs from canonical NK models which, in their one-sector nature, disregard interrelations between economic sectors of differing relevance to development strategy, and hence have limited relevance to dual economies from a "structuralist" perspective.[4]

The central argument of this paper is that contemporary NK arguments have less explanatory power in contexts where domestic modern sector production is oriented away from domestic wage demand.[5] This claim is related to the observation that low-income economies tend to have large traditional sectors and diversify productive activity until relatively high levels of per capita income (Imbs and Wacziarg, 2003). Growth theorists, going back at least to Pasinetti (1981), have been cognizant of the interaction between economic growth and the pattern of consumption.

The main contribution of this paper is the repurposing of the model in Razmi *et al.* (2012) to bring de Janvry and Sadoulet's (1983) argument to contemporary growth theory debates. In an internal critique, utilizing key assumptions within the NK tradition, the paper shows that NK theory may not be robust to countries with extreme polarization in the distribution of income or where the consumption preferences of a broad subsection of wage earners fails to cross over with the focal point of industrial strategy. This conclusion is relevant to macro-policy debates in countries like Brazil, China, or South Africa—countries where the strong normative-intrinsic case for reducing high levels of income inequality has at times been mistaken for a positive-instrumental argument about growth and structural change.[6] Related concerns—even for the long-run distribution of income itself—can be found in Taylor and

[2] Recent studies on the distribution of consumption expenditure in sub-Saharan Africa for the 2002–2012 period covering the 2000s commodity boom seem to lend credence to this hypothesis by showing that the distribution of consumption has become more unequal and polarized (Clementi *et al.*, 2020: 13).

[3] Income inequality is a social harm of great concern worthy of policy response for intrinsic reasons. Addressing the implications of income redistribution for growth need not imply a normative position on the degree of tolerance for income inequality.

[4] Taylor (1983: 3) notes that "[a]n economy has structure if its institutions and the behavior of its members make some patterns of resource allocation and evolution substantially more likely than others. Economic analysis is structuralist when it takes these factors as the foundation stones for its theories."

[5] This is an argument in keeping with accounts of the role of export promotion (and explicit rejection of a strategy focused on the domestic market) in successful late-industrialization strategies, like Westphal (1990).

[6] Padayachee and Zarenda (1996) outline the NK arguments that have been central to post-apartheid South African policy debates, and Lavinas (2017) comments on the "social developmentalism" strategy put forward by the Worker's Party in Brazil. Chapter 4 of Klein and Pettis (2020) provides a critical account of the Chinese growth model since the 1990s, with an NK flavor. China's chief growth strategists have since advocated for a model emphasizing "dual circulation", whereby both exports and rising domestic consumption are promoted. Pettis (2021) addresses some of the immediately appearing contradictions of dual circulation but does not revise advocacy for a consumption-centered growth strategy. Lin (2021) likewise identifies the relevance of increasing returns to scale in manufacturing in a critical account of the new Chinese development paradigm. In the sectors where China is targeting industrial catch up, like micro-chips, will wage demand from the bottom end of the distribution be key? I am skeptical, but it is worth acknowledging that the move toward emphasis on internal circulation may be at least partly motivated by the chauvinistic international rivalries that look to stall Chinese development—Chinese development planners will be well aware of the latecomer advantages to sustaining high rates of capital accumulation with export-oriented industrialization, given the experience of preceding decades.

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Bacha (1976) and Cimoli *et al.* (2017).[7] Remaining sections set out NK arguments and Kalecki's writing on development issues, before discussing properties of a two-sector growth and distribution model.

2. "Kaleckian" models, Kalecki, and disarticulation

As per Lavoie (2014), four features are held as core to NK models: an investment function depending at least in part on the rate of utilization; mark-up pricing; a higher saving rate out of profits than wages; the absence of capital and labor constraints (Lavoie, 2014: 360). These features render NK models both restrictive in their generality/applicability and narrow in their interpretation of Kalecki's writing.[8] The primary conclusion from NK models for long-run growth concerns effects derived essentially from short-run stimulus to aggregate demand via shocks to income distribution.[9]

Contrasting NK insights with Kalecki's views on development makes for interesting reading, although Kalecki's writing on development concerns the question of whether aggregate demand is the constraint on growth in dual economies rather than the growth implications of redistributions. Kalecki carefully qualifies the generality of his analyses, distinguishing clearly between the principal cause of unemployment across dual and mature economies by contrasting the problems of deficient effective demand from structural supply-side issues related to capital shortage (Kalecki, 1968).[10]

The essential macroeconomic issue in developing economies was, according to Kalecki, thus expressed as how to achieve expanded productive capacity through raising the rate of investment. This is recognized in the literature although infrequently by NKs. Sachs (2004) emphasizes Kalecki's view that "the rate of growth of labour productivity… is the foundation for both economic and social progress and improvement in living standards, provided the gains in productivity are equitably distributed within the society" (Sachs, 2004: 176). Indeed, Kalecki (1955: 9) argues that industrial productivity growth is key to the growth of real wages, insofar as it promotes a fall in the price of industrial goods greater than food prices rise. In taking this view, Kalecki assumes a relatively even split of worker consumption demand between basics and industrial goods, i.e., he ignores the Engel effects explored later.

At the general level of aggregate demand policy,[11] Kalecki (1955) provides a strong qualification on the applicability of general aggregate demand stimulus (be it in the form of boosting wages or expansionary fiscal policies) in dual economies. This qualification is derived out of concern for the supply of consumption goods to expand in a corresponding fashion to an increase in demand (i.e., concern for the prevalence of bottlenecks in wage-goods sectors). Ignoring this

[7] In Taylor and Bacha (1976), a strong emphasis is placed on assumptions regarding the pattern of *worker* consumption, such that low-wage and high-wage workers consumption demand caters to completely distinct sectors, respectively. Cimoli *et al.* (2017) meanwhile present an informative long-run model for the optimal level of fiscal policy for distributional outcomes, without specifying a detailed demand structure with corresponding patterns of consumption or specifications for how (private) investment is determined explicitly. The analysis departs from analysis in these papers by focusing on how inter-class differences in consumption patterns influence the effects of redistribution.

[8] A wider reading of Kalecki's writings might acknowledge the relevance of labor constraints to mature economies and capital constraints to dual economies. Lavoie (2020: 420) defends the application of NK models to developing country contexts on the following grounds: "I am no emerging economies expert, but what I find intriguing is that two of the first four authors in the Kaleckian tradition to build wage-led models came from India (Amitava Dutt) and Brazil (Edward Amadeo): both emerging economies."

[9] NK models are demand-led models where shocks to income distribution can have effects on economic performance by a range of channels (see Blecker, 1989). In this paper, I focus on analyzing the wage-led channel in the canonical form of the NK model and without questioning the value of demand-led approaches to theorizing growth. Moreover, some of the concerns outlined in this paper need not extend to other classes of post-Keynesian models, such as those in the Kaldorian tradition; see chapter 8 of Blecker and Setterfield (2019) for related discussion underscoring the value of sectoral/industrial policies.

[10] Sawyer (1985: 213) corroborates this perspective: a "first and basic theme expressed by Kalecki (e.g., Kalecki, 1975, Chapter 1) is that the cause of unemployment in underdeveloped countries… is seen to result from the shortage of capital equipment rather than from a deficiency of effective demand". The problem of underdevelopment is, according to this view, not unutilized capacities but rather insufficient capacities.

[11] The NK tradition treats shifts in income distribution as aggregate demand policy; however, it is questionable whether the functional distribution of income is a policy tool, and there are important senses in which distributional policies ought to be treated distinctly from the conventional fiscal and monetary instruments.

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feature of dual economies and boosting aggregate demand are prone to driving "forced savings" in the context of constrained quantity adjustment (Kalecki, 1955: 4). The bottom line is simple and has an intuitive congruence with long-run Harrodian policy conclusions: with a target for structural transformation necessitating a high investment rate, aggregate demand stimulus in the form of aggressive fiscal policy, or a heavy-handed wage policy runs against the problem of capital constraints.

However, a contemporary analysis of the relevance of general aggregate demand stimulus to the class of dual-economy growth issues cannot rest on the laurels of Kalecki's argument about the 1950s agrarian economy—the assumption of inelastic wage-goods supply may not be relevant to today's semi-industrialized economies, where feudal lords are less of the fetter historically emphasized by development planners and strategists influenced by Soviet industrialization debates.

There are still useful insights for the contemporary period to be drawn from the above account of Kalecki's approach to development. Two propositions follow. Firstly, Kalecki was not insensitive to the relevance of structural heterogeneity and how it shaped the generality (or lack thereof) of demand management recommendations. Secondly, Kalecki stressed the role of the supply side—specifically capacity constraints, rather than unutilized capacity and deficient demand as central to underdevelopment problems. On these grounds, Kalecki's writing on development could be contrasted with NK advocacy for wage-led growth, where the rate of utilization is assumed an accommodating variable in the long run and where policy conclusions for dual economies are derived from theoretical and empirical analysis of one-sector frameworks. More to the point, one could argue, as FitzGerald (1990: 185) does, that Kalecki explicitly dissents from the "underconsumptionist thesis that market size limits industrial growth in developing economies [and that] increased investment will generate matching demand for consumer goods from the wages fund."

Related concerns to those addressed by Kalecki have received attention in development theory after his writings. Later I review literature which makes use of, or comments on, two-sector models, with an eye to assess the implications for the applicability of NK insights in dual economies.

Two-sector models have played an important role in the development of growth theory in general,[12] but the dual-sector model has a special importance for development theory. Dutt (1996) notes that the one-sector Keynesian "model abstracts from all supply constraints that were argued to be relevant for LDCs, because it assumes that excess capacity always exists, that there is only one input (and no skilled labor, working capital, and infrastructure), there is only one sector (thereby ruling out agricultural constraints), and that we have assumed a closed economy, which makes foreign exchange constraints irrelevant" (Dutt, 1996: 130).

Taylor and Arida (1988: 167) similarly demonstrate the usefulness of a multi-sectoral approach for the topic at hand, identifying that "if industrialization beyond production of simple goods like food and textiles is to occur… then income concentration to sustain demand for more sophisticated commodities is unavoidable under present social conditions." This concept was important to Latin American structuralism and formally represented in de Janvry and Sadoulet (1983). The main innovation of the latter paper was to analyze structural change implications of redistributions amidst inter-class heterogeneity in consumption patterns. When the consumption pattern of the working class is in important senses distinct from the upper classes, and if production in the 'key growth sector'[13] is geared overwhelmingly to demand from the upper classes, growth of key sectors requires increasing inequality (de Janvry and Sadoulet, 1983: 278). This situation is referred to as "social disarticulation." The disarticulated economy can be contrasted with Kalecki (1968), where wages make up the largest proportion of demand for all sectors within the economy. In the latter case, "steady-state growth requires that any increase in the productivity of labor in the sphere of production must be matched by an increase in real wages in the sphere

[12] See Trigg (2006).

[13] Stylized representations of dual economies have considered the key growth sector in different ways. Some have distinguished between manufacturing/agriculture. Formal/informal and tradable/non-tradable have been other popular representations.

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of circulation", implying the dual nature of labor as both a cost and a source of profit realization (de Janvry and Sadoulet, 1983: 279).[14]

Harris (1996) accords with the preceding analysis and explores the implications for adoption of Keynesian policies to influence long-run growth in dual economies. Harris contrasts "articulated" Keynesian models with dual-economy "Kaleckian and Lewis-type models" showing that "if import substitution is ruled out and the modern sector's principal markets are external, it is not responsive to domestic demand management, and an expansionary shock to the modern sector does not generate multiplier type demand and output increases in a positive feedback with the backward sector because of their segmentation" (Harris, 1996: 160).

How relevant is the description of dual economies as disarticulated today? This is a complex empirical question.[15] For some, an approximating assumption of worker consumption of basic goods may seem anachronistic in an age where smartphones and other advanced manufactures are more widely available to and readily purchased by workers than before. But this is to miss the point. Very few developing countries produce advanced manufactures for the domestic mass market—even if workers may increasingly consume these goods as income levels grow. More importantly, short of a wholesale rejection of Engel's law, it appears uncontroversial that the share of income the rich devoted to consumption of advanced manufactures is greater than those at the bottom of end of the distribution.[16] Insofar as workers in low- and middle-income economies consume advanced manufactures, they usually make up a small percentage of their consumption basket and tend to be imported.[17]

Empirically evaluating the comprehensiveness of these claims is not the focus of this paper. However, empirical work on related subject matter may be informative. Imbs and Wacziarg (2003) find a U-shaped relationship between the pattern of sectoral diversification and per capita

[14] The dynamic analysis of de Janvry and Sadoulet shows the possibility of three types of growth: (i) where the investment structure implies the modern sector is the "key growth sector" and the income structure suggests the economy is suited to a process of "unequalizing industrialization" (typically observed in developing countries) (de Janvry and Sadoulet, 1983: 293). (ii) Where social articulation has occurred and the modern sector is the key sector, suggesting the economy is suited toward a more egalitarian distribution of income (a situation observed in advanced countries, where wages are high enough to support consumption of modern sector goods). The authors add that less-developed countries might still fit in this category and that "the poorer the country, the more egalitarian the 'articulating' threshold in the distribution of income is" (de Janvry and Sadoulet, 1983: 294). In the third and final case, (iii) equalizing growth can be achieved through making the traditional sector the key growth sector, but this requires investment to be shifted to this sector to meet equilibrium conditions (de Janvry and Sadoulet, 1983: 295). As investment rises in this sector, incomes rise and, provided Engel's law, consumption shifts from the traditional sector to the modern sector. While de Janvry and Sadoulet's analysis refers directly to Kalecki, the model departs from NK analysis by disregarding the functional distribution of income (preferring instead measures of wage inequality); meanwhile, investment is independent of demand conditions and/or profitability. Chapter 9 of Taylor (1983) provides a related analysis whereby a shock to the distribution of final income through fiscal policy is emphasized rather than the functional distribution of income or wage inequality. More recently, Milanovic (2019) briefly discusses disarticulation.

[15] The question is made complex by issues of data availability and identification of the "key growth sector". Identifying the key growth sector (or sub-sector) and the degree to which its output articulates with wage demand depends on a given economy's stage of development. Income expenditure surveys provide a sense about how the pattern of consumption varies by income percentile but tend to be measured infrequently. National accounts data meanwhile reflect the production structure but are insensitive to production complexity, i.e., manufacturing activities as varied as food processing (canning or bottling) are categorized together with the production of mining equipment. This makes analysis of categories in the national accounts more prone to indicating articulation between wage demand and manufacturing growth than may be the case and calls for examination of sub-sectoral data.

[16] Developing countries may be disarticulated because they tend to have high levels of inequality. However, path-dependence in the "subsistence" level of consumption of the rich in settler colonies might provide even greater impetus for the emergence of disarticulated structures of production/patterns of consumption. Despite their arrival in countries with vastly lower per capita income levels, it is plausible that settler colonialists "imported" their desired consumption standards to colonies and transferred this to their children. As Leon (1967: 120) puts it: "The level of consumption reached by the older generation is a given for the following generation, and the utility which that level furnishes to the following generation is nil." To explain the relevance of this perspective in an applied sense, consider Posel (2019: 30), writing of the South African context in 1861: "an unnamed 'lady', recently arrived in Cape Town, was relieved to discover the degree of material comfort among the colony's propertied elite, notwithstanding the fact that 'the place was in its infancy as to riches, conveniences, taste and luxury'" (A Lady 1998: 37). Referring to the homes of the "ladies of the garrison", the author registered her initial surprise at: "how very well-ordered are the appointments of many of these houses. They are generally situated in the suburbs – called the 'Gardens' – and besides being provided with stables and coach-houses, have flower-pots and verandahs with bloom. Most of the drawing-rooms are very prettily furnished, with profusion of vases, easy chairs and walnut and rosewood articles 'deluxe'. (A Lady 1998: 11)"

[17] Lavinas (2017) notes that insofar as social policies (i.e., cash transfers and raising minimum wages) designed by the Worker's Party to drive industrial development succeeded in stimulating consumption of industrial goods, they did so for *imported* home appliances.

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income. Low-income economies are relatively specialized and tend to diversify as they grow until they reach fairly high levels of per capita income. The finding is highly robust, and Engel effects are one of two arguments used to explain the observation: by and large the structure of production corresponds to the pattern of demand and the pattern of demand is a function of income levels (Imbs and Wacziarg, 2003: 42). Arguably, there are good reasons to believe Engel effects remain of relevance to investigation of the structural transformation implications of redistributive policies and aggregate demand policy more broadly.

A common thread in the frameworks commented on earlier regards their emphasis on the importance of heterogeneous production structures in discussing distribution and growth dynamics. The next section explores the relevance of Engel effects for the structural change implications of redistributions, based on theoretical and empirical justifications provided in the current section.

3. An internal critique

This section outlines an alternative framework for considering the structural transformation implications of redistribution in an underdeveloped economy. Modifying Razmi *et al*. (2012), a model of a disarticulated economy is set out for the purpose of internal critique.[18] The analysis here departs from Razmi *et al*. for reasons related to the distinct purposes of the respective models. Razmi *et al*. focus on the role for real exchange rate policy in development; the present analysis departs by removing the real exchange rate from the analysis altogether, incorporates a different specification of investment[19] for the purpose of the internal critique, equalizes real consumption wages across each sector as a simplifying assumption, and introduces a modern sector pricing equation for one of two cases—to address the structural change implications of shifts in income distribution (via changes in the worker productivity share). Razmi *et al*. study the long run but in a framework that is more Harrodian. On the terms of the NK approach, which assumes capacity utilization an adjusting variable in the long run, the time horizon of the model in this paper also concerns the long run. Outside the terms of the internal critique, the model (in this section) may more aptly be considered a short-run model since it takes the preference structure of consumption as given.[20] In common with Razmi *et al*., this paper assumes strong inter-class heterogeneity in consumption patterns and the presence of substantial unemployment (expansion of one sector need not implies inter-sectoral relocation of labor).

Since a defining feature of the traditional sector is labor intensity, for simplicity I assume no capital is used in production and that with land in fixed supply landlords extract a share of output in the form of rents. There are constant returns to labor.

$$Y_T = AL_T \tag{1}$$

By contrast, the modern sector produces using a Leontief technology.

$$Y_M = aL_M = ubK \tag{2}$$

$$\omega_T = \frac{w_T}{p_T} = vA; 0 < v \leq 1 \tag{3}$$

Equation (3) gives the real *consumption* wage rate in the traditional sector. A gives labor productivity in the traditional sector. The worker productivity share, v, influenced by worker bargaining power, is the primary exogenous distributional variable of interest in this model,

[18] The model is NK in the sense of retaining all features argued to be key to this class of models by Lavoie (2014). Retaining these features but including sectoral heterogeneity and a disarticulated pattern of consumption, I explore the robustness of the key results from standard one-sector NK models.

[19] Resembling the Bhaduri and Marglin (1990) specification.

[20] An extension addressing this issue is provided in section 4.

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treated as a policy variable. Equation (4) gives the simplifying assumption that real consumption wages are equalized across the two sectors on the basis that workers in each sector have identical consumption patterns.[21] All consumption is of domestically produced goods.

$$\omega_M = \omega_T = \frac{w_T}{p_T} = vA \tag{4}$$

Equation (5) gives inter-sectoral relative prices, q:

$$q = \frac{p_M}{p_T} \tag{5}$$

Equation (6) gives demand for the traditional sector good. It is assumed that workers spend all their income on consumption of T-goods.[22] Meanwhile, capitalist (in the M-sector) and landlords (in the T-sector) save a fraction of income (s) and consume a fraction (α) of non-saved income on traditional goods, with the remainder ($1-\alpha$) devoted to consuming the modern good.

$$C_T = vAL_T + vAL_M + (1-s)(\alpha)[qubK - vAL_M + AL_T - vAL_T] \tag{6}$$

Equation (7a) gives the determination of α, where h is a positive constant.

$$\alpha = h\frac{p_M}{p_T} = hq \tag{7a}$$

Equation (8) gives pricing in the modern sector. Prices are marked up on the unit cost. a gives labor productivity for the T-sector.

$$p_M = (1+\theta)vAp_T/a \tag{8}$$

Hence, under a regime of mark-up pricing, equation (7a) can be re-written as:

$$\alpha = hq = h(1+\theta)vA/a \tag{7b}$$

Demand for M-goods excludes worker consumption demand, reflecting disarticulation. The complete exclusion of worker consumption for modern goods is a strong assumption, but one that allows for simple inclusion of a static representation of Engel's law.[23,24] Robinson (1979: 32–33) provides a corresponding verbal account, and it has been modeled in a similarly strong form in Eswaran and Kotwal (1993).[25]

$$C_M = (1-s)(1-\alpha)[qubK - vAL_M + AL_T - vAL_T]/q \tag{9}$$

In the short run, export demand is not assumed to be perfectly elastic, instead the level is predetermined. Meanwhile, the accumulation rate ($\frac{I}{K}$) is both increasing in the M-sector profit

[21] Appendix A includes a union/formal/tradable sector wage premium, which leaves the results qualitatively unchanged and opens space for analyzing the implications of a wider range of (policy) shocks.

[22] In other words, it is assumed that the share of worker consumption dedicated to the T-sector good, β equals 1. Appendix B sets out the equilibrium solution for each sector where $0 < \beta < 1$.

[23] For some, the treatment of the pattern of consumption as exogenous to changes in income may seem less than ideal for a framework directed toward evaluating the implications of changing income distribution/income levels. However, it is important to stress that the framework developed here addresses primarily short-run effects of changes in income distribution at the margin, while the dynamic properties of Engel's law can be understood as a long-run phenomenon (Leon, 1967: 45). This issue is addressed in the following section.

[24] Worker consumption of domestic manufactured goods may be limited in economies with an important commodity sector, especially where manufacturing is backwardly linked to this sector. More importantly, with the structure of consumption preferences given over the short/medium run, any growth strategy targeting rapid industrial growth and "big push" externalities from inter-firm demand linkages [as seen in South Korean industrial strategy organized around heavy-chemical industry (HCI)] will not be able to rely on wage demand for the product of the key growth sector.

[25] In practice, there may be multiple sources of the type of consumption polarization discussed in this paper; the era of settler colonialism left a profound and lasting imprint on the economic structure of many economies. Many of these

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share (π_M) and utilization rate (u) in line with standard representations in the (post-)Kaleckian literature. Z captures the "animal spirits" of capitalists and all investment goods are imported (as the only import goods in this economy).

$$\frac{I}{K} = z + \gamma u + \rho\pi_M \tag{10}$$

Export levels are predetermined, ensuring that capacity utilization remains an accommodating variable and realization problems may affect modern sector firms at this time horizon.

$$X = \bar{X} \tag{11}$$

The aggregate output level, in terms of T-sector prices, is given by:

$$Y = Y_T + qY_M \tag{12}$$

Equilibrium in the T-sector requires that real output and consumption are equal.

$$Y_T = C_T \tag{13}$$

While M-sector equilibrium requires that:

$$Y_M = C_M + X \tag{14}$$

Equations (1), (2), (6), and (13) are combined and manipulated for the following equilibrium level of output in the T-sector:

$$Y_T^* = \frac{ubK}{(1-v)}\left[\frac{vA}{a} + \frac{\alpha(1-s)q}{[1-\alpha(1-s)]}\right] \tag{15}$$

Regarding the T-sector equilibrium, equations (2), (9), (11), (14), and (15) combine to be solved for an equilibrium rate of capacity utilization:

$$u^* = \frac{X[1-\alpha(1-s)]}{bKs} \tag{16}$$

Analysis of the equilibrium solutions takes place under two cases in this paper: "case 1" (a fixed-price scenario associated with the law of one price), where the mark-up declines because of the increase of v, to keep q and α constant, and "case 2" (a flexible-price scenario corresponding to a regime characterized by trade protection).

3.1 Case 1

The effect of an increase in v in case 1 (where q and α are constant) is given by equation (17), assuming the presence of open unemployment ($L_M + L_T < N$, where N gives the labor force).

$$\frac{\partial Y_T^*}{\partial v} = \frac{ubK}{(1-v)^2}\left[\frac{vA}{a} + \frac{\alpha(1-s)q}{1-\alpha(1-s)}\right] + \frac{ubKA}{(1-v)a} > 0 \tag{17}$$

economies had "dual" structures in senses beyond the mere presence of abundant labor supplies. Concretely, economies like the settler economies of southern Africa had relatively developed capitalist sectors that often catered primarily to the high-end demand of a small white population composed of supervisory laborers, managerial-professionals, and capitalists. Black labor was commonly seen exclusively as an industrial input and scarcely an important source of industrial demand, in contrast to the hallmarks of the Fordist model in advanced capitalist economies. See Grandin (2009) for a related account of the Ford company town *Fordlandia* in Brazil. Posel (2019: 41) meanwhile notes of (racist) views in the *South African Spectator* in 1902 that "we should aim at the production of good black men and not attempt to make impossible white men out of good black men and thereby waste excellent raw material." As a result of this history, in many of today's low- and middle-income economies, the middle class has remained small and, economically speaking, labor has remained little more than a cost to capital in certain key sectors.

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Intuitively, an increase in the wage bill across both sectors stimulates demand for T-sector output and the presence of open unemployment makes quantity adjustment feasible.

Taking exports and the share of capitalist and landlord expenditure on the traditional good as fixed, a change in v leaves modern sector output unchanged.

$$\frac{\partial Y_M^*}{\partial v} = 0 \tag{18}$$

Intuitively, where M-sector prices are given, an increase in v implies a reduction in the mark-up, and workers increase their income share, in turn stimulating demand of the T-sector good. Gross rents in the T-sector grow as the demand effect dominates the decline in the T-sector rent share, and this increase in the level of rents offsets the effect of the falling M-sector capital share on demand for the M-sector consumption good.

Given the importance of capital accumulation to structural transformation problems (as in Lewis (1954)], a central result for the present framework regards the negative relationship between the worker productivity share and the rate of investment:

$$\frac{\partial\left(\frac{I}{K}\right)^*}{\partial v} = \frac{-\rho A L_M}{q Y_M} < 0 \tag{19}$$

This result derives from the invariance of capacity utilization to changes in the worker productivity share when M-sector prices are exogenously given—changes in v influence the investment rate via the direct effect on income distribution, outlined in equation (10).[26]

3.2 Case 2

Taking θ as exogenously given (case 2), by incorporating definitions of α and q that include their relationship to v, produces qualitative ambiguity to the analysis of how T-sector outcomes change with v. Intuitively, however, one would expect output to increase by a greater extent than in equation (17) since the proportion of capitalist and landlord expenditure on traditional goods (α) would increase, in addition to the wage bill (all of which goes to the consumption of T-sector goods).

The case 2 results are more straightforward with respect to M-sector output. Profit income does not fall when the worker productivity share rises and the mark-up is given exogenously; however, shifts in relative prices (q) prompt changes in capitalist and landlord consumption preferences in an unfavorable direction for the M-sector.

$$\frac{\partial Y_M^*}{\partial v} = \frac{-XbA(1+\theta)(1-s)}{s} < 0 \tag{20}$$

This negative outcome from a change in v for M-sector output is mirrored by a fall in the accumulation rate:

$$\frac{\partial\left(\frac{I}{K}\right)^*}{\partial v} = \frac{-\gamma XbA(1+\theta)(1-s)}{bKs} < 0 \tag{21}$$

[26] By influencing the rate of capital accumulation, which determines the growth rate of the modern sector and with the growth rate of the traditional sector given exogenously by population dynamics, changes in v influence dynamics for sectoral structure.

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4. A positive analysis

On NK terms, the aforementioned analysis could be said to constitute a long-run analysis.[27] However, outside the NK tradition, several assumptions to the aforementioned framework are questioned in the long run. Consequently, a *positive* analysis beyond exploration of the robustness of NK analysis requires the alteration of some assumptions and inclusion of at least two new premises regarding dynamics. Most significantly, it regards the adjustment variable. The assumption that capacity utilization adjusts in the long run has been subject to long-standing criticisms in the growth and distribution literature (discussed earlier). However, in this framework, fast adjustment of the profit share to clear the modern sector goods market is impossible, as the profit share does not enter the goods market equilibrium if investment is predetermined and the economy is "disarticulated."[28]

In line with a "Robinsonian" specification, however, income distribution may adjust sluggishly in response to deviations of actual rates of capacity utilization from a target. Endogenizing income distribution renders the analysis of "wage-led growth" moot since income distribution becomes an outcome variable in the long run. One means by which income distribution adjusts is through implicitly assuming that firms' pricing decisions are flexible with respect to the degree of goods market slack and hence requires moving away from the assumption of a fixed mark-up, which would otherwise pin down income distribution.[29] Corresponding to the dual-economy assumption,[30] wages are inelastic to capital accumulation until the "Lewis turning point" and workers' consumption patterns are static.[31] Evidently, if the investment rate is persistently greater than the growth rate of the T-sector (given exogenously by population growth, n), the dual-economy assumption will eventually be violated, but an extended period of steady growth with is $\frac{1}{K} > n$ possible along with a growing modern sector share of aggregate output and employment.

For the analysis of the long run, I assume that trade is balanced (net exports are equal to zero). I also maintain the modern sector's goods market equilibrium condition and solution for capacity utilization represented by equations (14) and (16), respectively.

A Robinsonian specification of long-run dynamics for the system could be given by dynamics for the accumulation rate and distribution of income. A preferable system for analyzing dynamics of a dual economy would include the dynamics of capitalist and landlord consumption shares as a proxy for modern sector price adjustment (considering the specification of 7b) and could be considered a placeholder for the Robinsonian distributional dynamics. σ is a positive constant:

$$\dot{g} = \lambda \left[z + \rho \pi_M u^* b - g \right] \tag{22}$$

$$\dot{\alpha} = \sigma \left[u^* - u^n \right] \tag{23}$$

The Jacobian of this system is given by:

$$J(g, \alpha) = \begin{bmatrix} -\lambda & \frac{-\lambda \rho \pi_M X(1-s)}{sK} \\ 0 & \frac{-\sigma X(1-s)}{sKb} \end{bmatrix} \tag{24}$$

The determinant of the Jacobian is given by:

[27] Although, as correctly pointed out by an anonymous referee, several recent papers in the NK tradition have sought to reconcile their arguments with long-run extensions that generate convergence to a normal rate of capacity utilization. The argument is reliant on a dynamic equation for the normal rate of utilization, which has been challenged on behavioral grounds (Skott, 2012).

[28] This is a unique property of the disarticulated economy; if workers consume even small quantities of the modern good (if $\beta < 1$), capacity utilization becomes endogenous to the profit share.

[29] Correspondingly, the two-case exercise explored in the internal critique becomes irrelevant to the long run dynamic analysis.

[30] The availability of labor is not a binding constraint.

[31] Even after the turning point when surplus labor has been absorbed, it may take some time for wage growth to hit the articulating threshold after which consumption of the modern good becomes a priority. Eswaran and Kotwal (1993) explore a related formalization.

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$$\det(J) = \frac{\lambda\sigma X(1-s)}{sKb} > 0 \tag{25}$$

And the trace by:

$$tr(J) = \frac{-\lambda sKb - \sigma X(1-s)}{sKb} < 0 \tag{26}$$

The signs on equations (25) and (26) indicate the presence of a stable dynamic system. Moreover, analysis of equation (22) (for $\dot{g} = 0$) demonstrates a negative long-run relationship between the rate of accumulation and worker bargaining power, under the assumption of an endogenous mark-up; the negative relationship between accumulation and progressive redistribution persists in the long run:

$$\frac{\partial g^{**}}{\partial v} = -\frac{\rho A u^n}{aq} < 0 \tag{27}$$

Analysis of equation (23) (for $\dot{\alpha} = 0$) shows that a positive value of α^{**} requires that $X > u^n bKs$ (there will be no effective floor to the sectoral reallocation of capitalist/landlord consumption demand amidst chronic modern sector demand insufficiency).

For consideration of the implications of Engel's law, in a dynamic sense, equation (23) could be amended to account for the effect of income growth (proxied by the rate of capital accumulation) on capitalist consumption preferences. Formally, we have the following, where φ is a positive constant:

$$\dot{\alpha} = \sigma\left[u^* - u^n\right] - \varphi(g) \tag{28}$$

The trace of this system remains negative, as before, and the sign of the determinant becomes dependent on the term $\sigma - b\varphi\rho\pi_M$. Resultantly, it is positive if capitalist/landlord preferences are relatively price- rather than income-elastic, in which case the system remains stable, as before.[32]

5. Discussion

In summary of the aforementioned internal critique, there are two broad scenarios under which changes in v are assessed in this paper: case 1, where an increase in v underlies a reduction in the mark-up (q and α remain constant) and case 2, where the mark-up is constant (q and α increase with p_T). In the first case, output in the traditional sector increases, while output in the modern sector remains unchanged. While the rate of utilization remains unchanged, the modern sector is hindered by the modern sector profit share falling in v, driving down the rate of capital accumulation.

In case 2, in contrast to the traditional sector, the consequences of an increase in v for modern sector output are again unambiguously negative. The assumption of a constant mark-up implies an increase in v raises p_M, in turn increasing q and α. In this instance, utilization is negatively affected by an increase in α, while the profit share in the modern sector remains unchanged. The combination of these factors brings down the rate of capital accumulation, albeit through a distinct mechanism than that which characterizes case 1.

[32] Capitalists and landlords, whose income levels may be high (even in low- and middle-income economies, given high rates of income inequality) may have consumption preferences that are relatively income-inelastic. Ultimately, this is a matter left for further empirical study.

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It should be noted that in contrast to one-sector NK models, the disarticulated model presented here precludes the prospect of direct class conflict in the sense usually outlined in models of the former variety. Where an increase in mark-up mechanically reduces the real wage in standard Kaleckian models, in a disarticulated model an increase in the modern sector mark-up has no direct effect on the real consumption wage in either sector. Distributional conflict over modern sector pricing would reappear in the model if workers consumed M-goods.

Intuitively, a redistribution toward workers (underlined by an increase in the main distributional variable of interest in this model, ν) brings about an increase in consumption of T-goods, as these are the goods workers purchase exclusively. It is expected that an increase in ν would particularly stimulate T-sector output when the mark-up is constant, because of how α is specified. For simplicity, I assume no capital is used in this sector and that the economy is characterized by open unemployment, as such output adjusts through greater utilization of the labor force. Although T-sector production takes place without capital, we broadly have the conditions for "wage-led" output growth in this sector after a redistribution since nothing in this model suggests the possibility of increased consumption demand being mitigated by lowered rates of accumulation nor worsened export performance, due to the key modeling assumptions.

However, in contrast to the traditional sector, the modern sector exhibits a profit-led character with the increase in ν negatively affecting the profit share (in case 1) and negatively affecting the rate of utilization (in case 2). Output remains unchanged in this sector when ν increases (unless the mark-up is constant, in which case output declines as α increases). The core finding from this model, which ties into the literature review, is that the rate of accumulation declines in both cases.

How does this differ from the results that follow from standard NK models? Since we have a sectoral disaggregation where one sector can exhibit wage-led and the other profit-led tendencies, the aggregate character of the economy is left ambiguous. However, policies for raising ν have unambiguously adverse ramifications for structural change[33] and capital accumulation. Taking authors in the NK tradition to interpret the implementation of wage-led growth policies primarily in terms of measures that strengthen worker bargaining power, as in Lavoie and Stockhammer (2012): 18), these results run in contrast to much of the wage-led growth literature.

Interestingly, since the mark-up, θ, enters multiplicatively with ν under case 2, the effects of a decline in the (modern sector) mark-up are quite different than those of an increase in workers' real consumption wage. This is because a reduction in the mark-up and a fall in real consumption wages (often treated as shocks to income distribution in opposite directions) share common effects on putting downward pressure on α, which the rate of capacity utilization is falling in. The precise source of the shock to income distribution is hence relevant to analysis of the outcomes following changes in income distribution.[34]

While the one aim of this paper is to illustrate that Kaleckian conclusions are not robust to disarticulated contexts, interest in questions of development necessitates a view on the long-run. Purely the grounds of an internal critique, the aforementioned analysis stands as a long-run analysis.[35] Beyond the internal critique, a positive long-run argument with a Robinsonian character[36] introduces dynamics for the rate of capital accumulation and elite consumption preferences. In the long run, with the economy resting at a normal rate of capacity utilization, worker bargaining power is unambiguously negatively related to the rate of capital accumulation. Capitalist and landlord consumption preferences adjust with the state of the goods market and as the beneficiaries of aggregate income growth. In line with the "Lewisian" dual-economy assumption, workers consumption patterns are given until surplus labor is absorbed.

[33] The T-sector is increasing in ν, whereas the M-sector falling; a positive shock to ν unambiguously generates adverse structural change.

[34] See Skott (1989: 38–9 & 151–2).

[35] For NKs, the rate of capacity utilization adjusts *in the long run*. In line with behavioral accounts in the Harrodian tradition, utilization rates are not plausibly an accommodating variable in the long run, as such demand-induced accelerator effects from changes in the pattern of consumption after redistribution are precluded by definition.

[36] Skott (2010) provides a relevant formalization.

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6. Caveats

The analysis in this paper relies on several stylized assumptions to keep the analysis tractable and to serve the purpose of, initially at least, an internal critique. Questions about the pattern of consumption, specification of investment, and structure of production are particularly open to challenge. It is doubtful whether the aforementioned simplified models have any "historical" application and a number of caveats, as follows, are worth highlighting. Any propensity for relatively substantial capitalist consumption to be directed toward the modern sector must be contextualized alongside high degrees of unproductive capitalist expenditure toward consuming luxury services like financial products or expensive meals. These are forms of elite consumption unamenable to dynamic feedback effects with the modern sector.

Wage demand in developing economies meanwhile may exhibit complementarities with sectors like clothing and textiles, white-goods, and household furnishings. The point, however, regards the extent to which these sub-sectors correspond to industrial strategy in both static and dynamic senses. If one is assessing the ramifications of income redistribution for upper-middle-income economies, will it be sufficient to articulate domestic demand with manufacturing sub-sectors associated with the industrial strategy of the low-income economy? In low-income economies, meanwhile, if wage demand articulates with the sub-sectors key to industrial strategy at an initial stage, will the preference structure of wage earners be able to evolve rapidly enough to sustain demand as the industrial structure upgrades rapidly, with the latter as the target of growth policy? This latter likelihood seems hard to square with a dual-economy assumption. Moreover, if one is analyzing special cases like a semi-industrialized economy with an important minerals sector, stimulating domestic demand for the manufacturing sub-sectors with backward linkages to mining means something very different to what NKs might contend.[37]

In the long run, the caveats regarding the pattern of consumption matter doubly. Some of the long-run evidence in empirical work on growth suggests that preferences dynamically evolve over the development process (Imbs and Wacziarg, 2003). This evidence is, however, highly aggregated across income and class groups and not a priori inconsistent with the theoretical assumptions of this paper.[38] The dynamic properties of the pattern of consumption are mirrored by properties of the production structure—informal firms catering to low-income consumption become formal and the highly-dualistic structure of the model becomes an impediment to understanding the relationship between distributive patterns and growth.[39] This paper abstracts from these important issues, leaving them as a topic for further research.

A final caveat concerns the role of worker bargaining power in industrial development. The aforementioned model provides a reified introduction of worker bargaining power, reflected in the variable v, which does not consider the full complement of plausible effects introduced by changes in worker bargaining power. An argument in accounts of stalled industrialization in India has emphasized the role of a mobilized labor movement with the capability of populating the state with bureaucrats carrying a proclivity for disciplining capital, in line with the state's development strategy (Chibber, 2003: 111). Whether or not this account of the role of labor aligns with successful models of development employed elsewhere,[40] it is worth taking into consideration broader

[37] The caveats concerning the pattern of consumption are addressed in Appendix B, including worker consumption of the modern sector good. The qualitative results depend on the values of parameters reflecting worker and capitalist, respective, propensities to consume modern sector goods, and the saving rate out of profits.

[38] One means by which the aggregate preference structure could evolve as economies industrialize is by the emergence of a capitalist class with distinct consumption preferences from workers and peasants. An incrementally evolving aggregate preference structure need not imply incremental evolution of *worker* consumption preferences. It is also logically compatible with a growth in the absolute number of capitalists. Moreover, besides the inelasticity of wages to capital accumulation in dual economies, hierarchical preferences can be lumpy if initial incomes are below a saturation point for food consumption. This notion is key to the modeling choices in other dual-economy literature (Eswaran and Kotwal,1993; Murphy *et al*., 1989) and seems empirically vindicated.

[39] Gollin (2014) discusses related issues concerning the Lewis model's characterization of dualism.

[40] My perception is that it does not or at least not unambiguously (see Deyo *et al*., 1987; Koo, 1984; Wade, 2018: 527). If we use raising the labor share as a proximate objective of a strong labor movement, it is interesting to note that the prominent accounts of the Nordic model emphasize its distributive objectives as limiting wage inequality rather than raising the labor share (Moene and Wallerstein, 2003). A key feature of the Nordic model, solidaristic wage bargaining, was a tool for ensuring wage compression and spurred development insofar as it brought the wage share down in the key growth sector (in high-productivity firms). On this reading, the Nordic model ensured a sufficiently high share of the surplus went to firms in the key growth sector through a process of centralization that weakened the wage setting power

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institutional benefits to society, state and industrial strategy that may stem from greater worker control and influence over the political process. I am, however, skeptical that these benefits run primarily through linkages between domestic worker demand and the output of the key growth sector.[41]

Does recognition of this point imply the applicability of Thatcherite policies that weaken labor's bargaining position? Potentially harmful effects to raising v *need not* imply that growth strategy should put downward pressure on v, and the latter is undesirable in the presence of alternatives. Beyond the time horizon where capacity utilization is an accommodating variable, raising the growth rate of the modern sector is made possible by a range of policies that stimulate the investable surplus. Disarticulation can become convenient from a distributive perspective—policies that raise the modern sector mark-up may facilitate capital accumulation without lowering the real consumption wage, and hence industrial policies need not engender class conflict over worker purchasing power.[42]

7. Conclusion

The analysis in this paper starts from the premise that high levels of income inequality in economies with low or moderate per capita incomes ensure that individuals at various ends of the income distribution will consume differently. This is a descriptive claim about a particular set of economies as they are and of relevance to a myriad of low- and middle-income economies that wish to rapidly upgrade technical productive capability in sectors key to a national development strategy. For these set of economies, building industrial capacity around broad-based domestic demand would constrain industrialization, if the preference structure of workers is not implausibly elastic to aggregate income growth. Were there not a sufficiently large pool of external consumers willing and able to consume sophisticated products at competitive prices with little regard for where those goods are made, the argument for constraining the expansion in complexity of the production side of the economy by pursuing a domestic wage-demand centric strategy may be more convincing.

This descriptive claim should not be misunderstood as a normative claim regarding the desirability of inequality. On fundamental intrinsic grounds income inequality is undesirable and requires a considerable policy response.[43] However, the analysis presented in this paper suggests that both short- and long-run arguments for redistributing income should not be confused with a development strategy. Moreover, the availability of industrial policies ensures that development policy need not imply slashing real consumption wages.

To put the central analysis derived earlier concisely, the lack of worker consumption for manufactures negatively impacts on the space for wage-led industrialization. One way of presenting the negative claim about the applicability of wage-led strategies in developing countries in terms of a positive claim is to argue for the importance of sectoral industrial policies. To achieve development (structural transformation), merely boosting aggregate demand, in this case via attempted shifts in income distribution, is insufficient. This insufficiency is underlined by one-sector models in general and calls for wage-led growth in particular.

of unions in the high-productivity sector. Unions may have strengthened in aggregate but in the modern sector their influence, and worker's share of output, fell. Seguino's (1997) account of South Korean industrialization meanwhile shows the prevalence of real wage growth falling significantly below productivity growth in key industrial sub-sectors like electronics.

[41] Other channels by which downward redistribution can plausibly (positively) affect growth include via stimulatory effects on productivity growth; see chapter 8 of Hein (2014). I leave this channel as an issue for further extensions to the present analysis.

[42] An unsettling corollary of this claim is that disarticulation implies the direct benefits to modern sector productivity growth accrue exclusively to the owners of capital. Eswaran and Kotwal (1993) explore this proposition analytically.

[43] Wage policies and trade union protections are obvious solutions. Other solutions include considerable public investments that equalize the access to critical services like healthcare and education, which are unjustifiably concentrated in the hands of elites in both advanced and developing economies. However, one might ask (aptly, in my view) where the social and political pressure for these developments in a context where the institutional power of the working class is weakened by a high degree of open or hidden unemployment. One might correspondingly consider whether industrialization is logically (or historically) prior to sustained overhaul of distributional regimes.

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Appendix A

For the purposes of deriving further policy conclusions in the absence of cross-sector wage equalization, a simple extension to the model, incorporating a fixed modern sector union wage premium (d), may be of interest:

$$C_T = vAL_T + dvAL_M + (1-s)(\alpha)[qubK - dvAL_M + AL_T - vAL_T] \tag{A.1}$$

Demand for modern goods becomes:

$$C_M = (1-s)(1-\alpha)[qubK - dvAL_M + AL_T - dvAL_T]/q \tag{A.2}$$

Pricing and correspondingly income distribution also undergo some changes:

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$$p_M = (1+\theta)\, dvAp_T/a \tag{A.3}$$

$$\pi_M = 1 - \frac{dvAL_M}{qY_M} \tag{A.4}$$

Appendix B

Introducing worker consumption of the modern good, such that workers consume β share of their income on traditional goods out of the wage bill and $1-\beta$ on modern goods, influences the equilibrium solution for each sector as follows:

$$Y_T^* = \frac{ubK\left(\frac{vA}{a}(\beta - \alpha(1-s)) + q\alpha(1-s)\right)}{1-\alpha(1-s)-v(\beta-\alpha(1-s))} \tag{B.1}$$

$$u^* = \frac{X(1-\alpha(1-s)-v(\beta-\alpha(1-s))}{bKs\left[1-v\beta-\frac{vA}{aq}(1-\alpha(1-s))\right]} \tag{B.2}$$

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