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Globalization as coordination failure: A Keynesian perspective

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Abstract

This paper presents an(other) investigation of the links between growth and distribution. We discuss a Neo–Kaleckian two country model with fixed mark–ups, where repercussions between the two countries matter. We assume that demand is wage–led in autarky but profit–led with trade, and study the effect of home country redistribution toward labor on aggregate demand in both countries. We derive closed form results for two identical countries, and run simulations to consider different economic structures (initial trade balance, relative country size, trade openness) and behavioral parameters (investment, savings and import elasticities). First, redistribution towards labor in one country always increases demand globally. Second, even with conservative parameterizations, the demand increase in the redistributing (appreciating) country can be positive, although the demand increase is definitely larger in the depreciating country. Therefore, third, globalization generates incentives for individual countries to suppress labor, which depresses global demand.

Keywords: Neo–Kaleckian demand and distribution, globalization, two country model, demand repercussions, coordination failure

JEL Classification: E12, E27, F42, F59

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1 Introduction

This paper presents an(other) investigation of the links between growth and distribution, with a focus on open economies.¹ The key question is whether a local redistribution toward wages in an economy open to trade is able to generate higher effective demand globally as well as locally. To address the issue, we discuss an off-the-shelf Neo-Kaleckian two country model of the real side in which mark-ups are fixed, but repercussions between countries matter.

The literature usually focuses on small open economy (SOE) settings where income effects on the demand for exports are neglected (Krugman and Taylor, 1978; Blecker, 1989).² Our starting point is that demand tends to be profit-led with trade, even if domestic demand—consumption vs. investment—is wage-led.³ This result is usually explained by the role of the wage share in determining relative unit labor costs and therefore international competitiveness. If this is the case, then there is little controversy that in a SOE a redistribution toward wages is likely to be harmful for growth (Blecker, 2010).

However, such a conclusion need not be true in a multi-country model with demand repercussions. Analyzing the general equilibrium linkages between demand and distribution in two countries with wage-led demand in autarky, but profit-led demand with trade, our basic findings are that: (i) redistribution towards labor in one country always increases demand globally; (ii) the demand increase in the redistributing (appreciating) country can be positive, although the demand increase is always larger in the depreciating country; (iii) redistribution towards labor in both (identical) countries is globally expansionary, since

¹The literature on the topic is extensive, and we will not review it here. Arguably, it all begins with Goodwin (1967). References in the Post-Keynesian tradition include Rowthorn (1982), Dutt (1984), Taylor (1985), Bhaduri and Marglin (1990). More recently, contributions have focused on dynamic models; see for example Barbosa-Filho and Taylor (2006), Skott (2008), and Taylor (2012).

²The two country model developed in Rezai (2011) is an exception.

³The debate on empirical evidence is complicated. Results depend on countries, time periods, and on specifications of demand as well as distributive variables. Some studies confirm our starting point (Bowles and Boyer, 1995; Ederer and Stockhammer, 2007; Hein and Vogel, 2008). Estimations of full macromodels tend to show profit-led results (Franke et al., 2006; Chiarella et al., 2006; Barbosa-Filho and Taylor, 2006), but often do not explicitly account for the export channel. As Nikiforos and Foley (2012) show, non-linearities in distributive feedbacks can matter greatly.

external positions remain unaffected.

Motivating this story goes as follows. Suppose a particular *local* unit—let us call it *A*—starts off in autarky with wage-led demand. As soon as *A* opens up to trade, it can increase sales to other localities by improving its cost competitiveness. In a vertically integrated one sector economy, such improvements in cost competitiveness are equivalent to a reduction in real unit labor costs, or the labor share. Hence, due to the higher sales to consumers in other localities, aggregate demand in *A* will increase by suppressing the share of labor. With trade, effective demand turned profit-led, and the expansion in exports is accompanied by an increase in investment.

But: just as effective demand in individual localities was wage-led in autarky, *global* demand across all localities ultimately must be constrained by consumption. Assume, for the sake of argument, that there are only two localities, *A* and *B*. If a reduction in *A*'s real unit labor costs improved *A*'s cost competitiveness, then relative real unit labor costs in *B* will increase. This will be equivalent to a redistribution toward wages (a real appreciation) in *B*. As a consequence, *B* will lose sales to *A*, and incur a trade deficit. The share of *A* in global income increases, in straightforward beggar-thy-neighbor fashion, although the rise in *A*'s income spills back over to *B* in the form of higher import demand, thus limiting the adverse effect of relative cost increases.

Whether the demand spill over back to *B*—together with higher domestic consumption—is sufficient to support an expansion in *B* is not clear *a priori*. One thing is certain, though: if *A* and *B* are identical, and experience a cost increase of equal size, then global demand must rise. Simply put, the global economy as a whole operates in autarky, and each of the two localities in isolation is subject to the global consumption demand constraint. With equal size cost increases, relative prices between the two otherwise identical localities remain unchanged, so that exports do not change; but *locally*, the increase in consumption from redistribution must outweigh the decrease in investment.

Now, think of *A* and *B* as two identical countries, Home and Foreign. For redistribution in Home to generate an expansion in Home, the internal demand regime (consumption and investment) relative to the external demand regime (net exports) must be large. Even when a domestic real appreciation is expansionary,

however, the expansionary effect of redistribution is always larger in the foreign country. As a result, Foreign will see an increase in its share of global demand. For this reason, individual countries have an incentive to suppress labor in beggar-neighbor fashion so as to increase their share in global income.

Hence, globalization generates an aggregate fallacy of composition, or *coordination failure*. Each country could successfully expand domestic demand by redistributing toward labor. However, the resulting increase in foreign demand, as well as the consequent increase of the foreign share in global income, can be avoided by suppressing labor instead. Thus, uncoordinated action leads to redistribution away from labor in each country. Yet, the global economy is constrained by consumption, so that the ultimate effect must be that of depressing global aggregate demand.⁴

This narrative is fairly general—despite its simplicity. We show analytically that it holds for two *identical* nation-state economies that make up the world. We generalize our claims through numerical simulations, focusing on (1) differences in structure such as: (i) the degree of openness of the two countries; (ii) country size; (iii) initial trade position; and (2) differences in behavioral parameters as they relate to: (iv) price-elasticity of imports; (v) sensitivity of investment to profitability; (vi) effective demand regime in autarky. Our main findings are intuitive. The smaller the domestic economy relative to the foreign one; the more open to trade the domestic economy is; the weaker the extent to which domestic aggregate demand is wage-led; and the more elastic are imports to the exchange rate, the stronger will be the incentive for the home country to suppress labor.

To qualify our results, we should briefly consider finance, as well as the relevant time scales. First, yes, in the real world money matters. We abstract from financial considerations for simplicity, but would like to argue that that does not undermine our basic argument. Open capital accounts reinforce the role of higher openness to trade, and transnational production networks with flexible sourcing options present strong arguments for local labor suppression. These issues are discussed in more detail below. Finally, we will restrict the present analysis to the

⁴A similar argument, as well as empirical support for semi-industrialized countries, can be found in Blecker and Razmi (2008).

short run. We can then look at a simple demand–driven model with endogenous rates of utilization, and avoid controversy over the long run applicability of the Kaleckian model.⁵ Again, that is not to say these questions do not matter, but we will leave them for future research.

The remainder of the paper is organized as follows. Section 2 presents the basic model, analyzes its dynamics, and provides closed form results for two identical countries. A battery of simulations in Section 3 extends the analysis to differences in structure and behavior in the two countries. Finally, Section 4 discusses our findings and concludes.

2 Global demand in a two country model

This section presents a simple Neo–Kaleckian model of the short run for two countries. Income–output accounting can be summarized as:

$$u^d = c + g + \mu' - q\mu \quad (2.1)$$

$$u^{td} = c' + g' + \mu - (1/q)\mu' \Rightarrow qu^{td} = q(c' + g' + \mu) - \mu', \quad (2.2)$$

where primed variables represent the foreign country; u stands for the rate of capacity utilization as given by the ratio of actual output Y to the *world* capital stock K^w ;⁶ the superscript d denotes effective demand; q is the home real exchange rate (real price of foreign currency in domestic currency) such that a rise is a real depreciation; and c, g, μ are consumption, investment and imports all relative to the fixed *world* capital stock K^w . Home imports are equal to foreign exports and vice versa.

Behavioral functions can be summarized—and, for brevity, shown only for the

⁵See Skott (2012); Lavoie (1995) and Missaglia (2007) for theoretical discussions, and Schoder (2012) for an empirical investigation of the relevant issue; the endogeneity of the rate of utilization.

⁶If the rate of utilization is defined as the ratio of actual to potential output $U = Y/Y^*$ and we assume the potential output–to–*world* capital ratio $\sigma = Y^*/K^w$ as constant, we can use the actual output–to–capital ratio $u = U\sigma = Y/K^w$ as a proxy for the rate of utilization. It follows that Y^w/K^w approximates the world rate of utilization, where $K^w = K + K'$, $Y^w = Y + Y'$, $u = Y/K^w$ and $u' = Y'/K^w$.

home country—as:⁷

$$c \equiv C/K^w = (1 - s[\psi])u = (1 - (s_\pi - (s_\pi - s_\psi)\psi))u \quad (2.3)$$

$$g \equiv I/K^w = g[u, \psi] = g_0 - \alpha\psi + \beta u \quad (2.4)$$

$$\mu \equiv M/K^w = \mu[u, \rho] = m_0 + mu - \delta\rho \quad (2.5)$$

$$\rho \equiv \ln(q) = \ln(\psi') - \ln(\psi) + \Gamma, \quad (2.6)$$

with $0 < s_\psi < s_\pi < 1$, where s_ψ and s_π stand respectively for the propensity to save out of wages and out of profits, ψ is the wage share of income Y , and $\alpha, \beta, m, \delta, \Gamma$ are non-negative parameters. The real exchange rate q is then assumed to be proportional to relative unit labor costs ($q = \Gamma(\psi'/\psi)$) so that $\partial\rho/\partial\psi = -1/\psi < 0$ and $\partial\rho/\partial\psi' = 1/\psi' > 0$, meaning that real unit labor cost increases lead to a real appreciation of domestic currency, reducing exports and increasing imports. For the foreign country, imports are given by $\mu' = m'_0 + m'u' - \delta'\ln(1/q) = m'_0 + m'u' + \delta'\rho$, so that a decrease in ρ or real appreciation decreases home exports.

2.1 Dynamic stability

Let us assume simple partial adjustment in both goods markets, focusing on the dynamics of capacity utilization rates in the two countries. The purpose is to analyze distributive changes as parametric shifts in the next subsection. We stipulate here a standard excess demand function, where u^d is the rate of utilization implied by the current level of effective demand, and u is the rate of utilization given by current production. If $u^d > u$, the rate of utilization rises, and vice versa.⁸ For the home country,

$$\dot{u} = \eta(u^d[u, u'; \psi, \psi'] - u), \quad (2.7)$$

⁷A notational convention used in this paper is that functional relations are indicated by square brackets, so that $x[a, b]$ indicates that the endogenous variable x is a function of a, b .

⁸This is nothing else than a Keynesian cross in rates of utilization.

with $\eta > 0$ a parameter. We express the foreign country analog in units of the home country-currency:

$$q\dot{u}' = \eta'q(u'^d[u, u'; \psi, \psi'] - u') \quad (2.8)$$

with again $\eta' > 0$. Equations (2.7)-(2.8) form a dynamical system in the state space (u, u') . To study its stability properties, we calculate the Jacobian matrix:

$$J \equiv \begin{pmatrix} \frac{\partial \dot{u}}{\partial u} & \frac{\partial \dot{u}}{\partial u'} \\ \frac{\partial q\dot{u}'}{\partial u} & \frac{\partial q\dot{u}'}{\partial u'} \end{pmatrix} = \begin{pmatrix} \eta(\beta - (qm + s)) & \eta m' \\ \eta' qm & \eta'(q(\beta' - s') - m') \end{pmatrix}. \quad (2.9)$$

Assuming a positive multiplier or, equivalently, $\beta - (qm + s) < 0$ ($q(\beta' - s') - m' < 0$) for the home (foreign) country, the trace will be negative, or $Tr[J] < 0$. Further, $Det[J] > 0$ if $0 < \beta < s < 1$ and $0 < \beta' < s' < 1$, with the implication that the short run model is converging if the Keynesian stability condition is satisfied for the two countries in isolation.⁹

2.2 Distributive changes

To gauge the impact of distributive changes, let us start by simplifying a bit and think in terms of generic underlying functions. The rate of utilization for the home country in income-expenditure equilibrium is then:

$$u = (1 - s[\psi])u + g[u, \psi] + \mu'[u', \rho] - q\mu[u, \rho], \quad (2.10)$$

where $\partial\mu'/\partial\rho = \delta' > 0$, $\partial\mu/\partial\rho = -\delta < 0$ and $\rho = \ln(q)$, as defined above, with q proportional to relative unit labor costs, such that a rise represents a real depreciation of home country currency. In order to keep the exposition as transparent as possible, we proceed in totally differentiating each of the components of aggregate demand. Starting with (2.3) and (2.4), total variations in consumption

⁹ $0 < \beta < s < 1$ is sufficient and necessary in a two country model. In models with more than two countries, instability in autarky for any particular country does not necessarily imply instability of the multi-country model. Further, the linearity of the dynamical system ensures that these stability results hold globally as well as locally in the state space.

and investment are:

$$\Delta c = (1 - s)\Delta u - us_\psi\Delta\psi = (1 - s)\Delta u + (s_\pi - s_\psi)u\Delta\psi \quad (2.11)$$

$$\Delta g = -\alpha\Delta\psi + \beta\Delta u. \quad (2.12)$$

Further, from (2.5) and using (2.6), we have the following expressions for exports and imports:

$$\Delta\mu' = m'\Delta u' + \delta'(\hat{\psi}' - \hat{\psi}) \quad (2.13)$$

$$\Delta(-q\mu) = -\left(qm\Delta u + (\mu - q\delta)(\hat{\psi}' - \hat{\psi})\right). \quad (2.14)$$

where hat variables denote logarithmic derivatives. Calculating total differentials for the foreign country in similar fashion, setting $q = 1$ in the initial equilibrium, summarizing $\Delta u, \Delta u'$ and simplifying yields¹⁰:

$$\begin{pmatrix} \Delta u \\ \Delta u' \end{pmatrix} = (-J)^{-1} \begin{pmatrix} \epsilon\Delta\psi + \phi(\hat{\psi}' - \hat{\psi}) \\ \epsilon'\Delta\psi' - \phi'(\hat{\psi}' - \hat{\psi}) \end{pmatrix}, \quad (2.15)$$

where $(-J)^{-1}$ is the negative inverse of the Jacobian matrix above, and

$$\epsilon \equiv (s_\pi - s_\psi)u - \alpha, \quad (2.16)$$

$$\phi \equiv \delta' + \delta - \mu, \quad (2.17)$$

and ϵ', ϕ' analog for the foreign country.¹¹ Equation (2.15) disentangles the internal and external effects of distributive changes in the two countries. The parameter ϵ (ϵ') describes the autarky demand regime, while ϕ (ϕ') the external demand regime. In line with the narrative of wage-led economies in autarky, we assume $\epsilon > 0$. Further, as we are working with linear functions, the point elasticity of import demand at $q = 1$ is δ/μ so that, for two identical countries, $\phi > 0$ is the Marshall-Lerner condition.¹² If the home country satisfies the Marshall-

¹⁰Let the speed of adjustment $\eta = \eta' = 1$ in the matrix J for simplicity.

¹¹Clearly, $\phi' = \phi$ when $q = 1$ and $\Gamma = 0$. For $q \neq 1$, $\phi \equiv \delta' + q\delta - \mu$, $\phi' \equiv \delta + q\delta' - \mu$.

¹²This result depends on the two countries being identical; if the two countries differ in size, import propensities etc., the Marshall-Lerner condition becomes more complicated, without altering the underlying principle. Let us further assume that the countries are initially in trade balance, so that $\mu = \mu'$.

Lerner condition, the foreign country does, too: a real depreciation of the home country improves (worsens) the home (foreign) trade balance.

2.3 Identical Countries: Closed Form Results

As a first thought experiment we consider two identical countries in trade balance for which all parameters are equal.¹³ The change in the rate of capacity utilization of the home country in response to distributive shifts then simplifies to:

$$\Delta u = \frac{\epsilon(m\Delta\psi' + (m + s - \beta)\Delta\psi) + \phi(s - \beta)(\hat{\psi}' - \hat{\psi})}{\text{Det}[J]}, \quad (2.18)$$

where $\text{Det}[J] = (s - \beta)(2m + s - \beta) > 0$ if the Keynesian stability condition is satisfied, which is the scenario we focus on.

Let us now consider two cases. First, we assume appreciation in the domestic country but no change in the labor share in the foreign country. A few basic results stand out, and they are summarized in the following proposition.

Proposition 1 *Consider two identical countries in trade balance for which the Keynesian stability condition is satisfied in isolation and the autarky demand regime is wage-led. An increase in the domestic (appreciating) country's labor share, everything else equal: (i) always increases global demand; (ii) always increases aggregate demand in the foreign (depreciating) country; (iii) increases domestic aggregate demand if and only if $\frac{\phi}{\epsilon} < \frac{1}{\psi} \left(1 + \frac{m}{s-\beta}\right)$, while reduces domestic aggregate demand if the inequality is reversed.*

The following expressions prove the above claims. We have, in turn:

$$\frac{\Delta u^w}{\Delta\psi} > 0 \Leftrightarrow \frac{\Delta u + \Delta u'}{\Delta\psi} = \frac{\epsilon}{s - \beta} > 0; \quad (2.19)$$

$$\frac{\Delta u'}{\Delta\psi} > 0 \Leftrightarrow \psi m \epsilon + (s - \beta)\phi > 0; \quad (2.20)$$

$$\frac{\Delta u}{\Delta\psi} \geq 0 \Leftrightarrow \frac{\phi}{\epsilon} \leq \frac{1}{\psi} \left(1 + \frac{m}{s - \beta}\right). \quad (2.21)$$

¹³The set of parameters includes s, m, β, ϵ and ϕ . The propensity to save s is endogenous, but the change is taken into consideration; see ϵ .

The first two lines indicate that a redistribution toward labor in the appreciating country not only generates an increase in foreign income, but also a world income increase. Without a doubt, though, the foreign country's increase in the rate of utilization is higher than the home country's, if the latter is positive at all. On the other hand, equation (2.21) provides a condition under which the appreciating country can actually benefit from an increase in economic activity. What matters on this regard is the relative size of the external *vs* the domestic demand regime. A higher domestic labor share ψ will have a negative effect on home country economic activity if the external demand regime is, loosely speaking, large relative to the autarky demand regime. In other words, a redistribution toward wages will depress economic activity if exports are relatively sensitive, and consumption relatively insensitive to changes in the labor share.

Hence, an important message of this analysis is that, for reasonable ranges of parameter values, we can not rule out the possibility that the repercussion multiplier tilts the scale in favor of a domestic increase in capacity utilization *even if the same country looked at as a small open economy would have been profit-led*.¹⁴ To see this clearly, let us consider one country in isolation. The equivalent to (2.21) is:

$$\frac{\Delta u}{\Delta \psi} \geq 0 \Leftrightarrow \frac{\phi}{\epsilon} \leq \frac{1}{\psi}, \quad (2.22)$$

whose RHS is *always smaller* than the right hand side of (2.21) above.

The second question we can address by considering two identical countries is the following: what if both countries redistribute towards labor?

Proposition 2 *Consider two identical countries in trade balance for which the Keynesian stability condition is satisfied in isolation and the autarky demand regime is wage-led. Assume $\Delta\psi = \Delta\psi' > 0$. Then,*

$$\frac{\Delta u}{\Delta \psi} = \frac{\Delta u'}{\Delta \psi'} = \frac{\epsilon}{s - \beta} > 0, \quad (2.23)$$

because on our assumption that both *local* demand regimes are wage-led; global

¹⁴To better appreciate these statements observe that, the labor share being bounded above by one, the RHS of (2.21) is strictly greater than one.

demand increases by $2\Delta\psi\epsilon/(s - \beta)$. The reason for this result is simply that, when both countries redistribute in the same amount, their external positions remain unaffected. Both countries will rationally redistribute away from labor so as to prevent the other country from increasing its share in global income. Without a doubt, though, labor suppression of equal size in each country will cause global demand to decrease.

In summary, not to assume that one country's impact on the rest of the world is negligible has important implications. First, global demand is always wage-led. Second, even the redistributing (appreciating) country might see an increase in the rate of utilization, albeit smaller than the increase in the depreciating country. Third, if both countries suppress labor in order to avoid losing in terms of their share of global income, the ultimate effect will be that of depressing global demand.

3 Simulations

Simulations of the model demonstrate how a Home real appreciation ($\Delta\psi > 0$) affects the degree of capacity utilization in each country and in the world, depending on the initial structure (e.g. initial trade balance, relative country size and degree of openness to trade), as well as on behavioral features of the two economies (e.g. difference in savings propensities out of wages and profits, sensitivity of investment to the profit share, price and income elasticity of imports). All simulations are based on a shock to the wage share that is sufficient to worsen the trade balance at Home by 1% of GDP of the base year. Charts in Figures 1–4 present the relevant parameter values at the Home country used in each scenario and three different simulated trajectories. These trajectories represent the Home and Foreign degrees of capacity utilization u and u' resulting from the simulation of the general equilibrium setup of the model developed in Section 2, as well as the degree of utilization which would be obtained at Home if this country is considered as a small open economy (SOE).¹⁵

¹⁵The SOE case is obtained by solving the model with the Foreign rate of utilization as an exogenous variable in the function for the Foreign country's imports (or Home country's exports) μ' . Repercussions between the income level of the two countries via trade are therefore

3.1 The initial structure

Figure 1 presents the model simulations based on four different degrees of openness to trade.¹⁶ As shown in Figure 1a, in the baseline scenario where the import share is 25% (with the sum of imports and exports as 50% of GDP), a Home appreciation leads to an increase in demand in both Home and Foreign, even if Home demand is shown to be reduced in a SOE case. Moreover, the positive response of Home demand to an increase in the wage share in chart 1b makes clear that the choice of parameters for the differential savings rate and the distributive elasticity of investment in these simulations are such that there is a wage-led demand regime in autarky, which only turns profit-led in the SOE case previously described.

The results presented in Figure 1c are also intuitive. When the two economies are relatively closed to trade (the import share of GDP is 15%), an increase in the Home wage share leads Home demand to increase more than in the baseline scenario. This is because the negative impact of a higher unit labor cost on demand due to a deterioration in net exports is reduced (the SOE scenario is now wage-led). The other side of the coin is that Foreign demand increases less than in the baseline, as it does not benefit much from higher net exports. For this reason, even if Home demand is higher, the overall stimulus to the world degree of capacity utilization seems to be weaker than in the baseline scenario.

Figure 1d shows the opposite case, namely what happens when there is more openness to trade. When the import share is 50% of GDP at the base year, Foreign demand increases even more following a Home appreciation than in the baseline, due to a stronger impact of net exports. In this context, even if demand at Home falls initially following the deterioration in the trade balance (as supported by the strongly profit-led result in a SOE setup), the net effect becomes positive as Home exports start benefiting from the higher demand at Foreign. Finally, this scenario suggests that when the two economies open more to trade, the impact on global demand of a redistribution towards wages at Home does

neglected in this case.

¹⁶Since trade is balanced and the countries are identical in the baseline, the value of the import share μ corresponds to exactly half of the degree of openness to trade as traditionally defined by the share of the sum of imports and exports in GDP.

not change significantly relative to the baseline, but the inequality between the Foreign and Home degrees of capacity utilization becomes higher.

Figures 2a and 2b highlight the importance of the relative size of the two countries for the results previously described. The smaller is Home relative to Foreign, the more it will suffer negative effects from an appreciation due to the higher weight of exports in total demand. Foreign utilization also shows a weaker increase when Home is relatively small than in the baseline due to income effects on exports (see chart 2a for the scenario where Home is half the size as Foreign). When Home is larger than Foreign, both countries benefit more from a Home appreciation than in the baseline (the case where Home is 50% larger than Foreign is presented in chart 2b). The reason why an increase in the wage share at Home may not even lead to a fall in demand when income effects on trade are ignored (as shown by the SOE scenario in 2b) is that the increase in Home demand due to higher consumption in this case more than compensates for the decrease in exports to (a relatively small) Foreign.

The closed form results derived in Section 2.3 were obtained based on the simplifying assumption that trade was initially balanced between the two countries. Figures 2c-2d generalize these results by presenting the effect of a Home appreciation in the case of unbalanced trade. In Figure 2c, the Home country is assumed to have an initial trade surplus of 4% of GDP. Even if a rise in the wage share at Home in this case still leads to an increase in both Home and Foreign demand, the resulting degrees of capacity utilization are lower than in the baseline scenario in both countries (due to a higher negative effect in Home demand via trade). Chart 2d shows that the opposite happens when there is an initial trade surplus: final demand in both Home and Foreign is higher than in the baseline. These results are not surprising if one considers that by simple accounting, the higher is the initial trade balance, the higher is the marginal effect of a deterioration in net exports on total demand. In this sense, results in Figure 2c and 2d are analogous to the ones obtained by assuming a higher or a lower share of imports, respectively, in Figure 1d and 1c.

3.2 Behavioral equations

The role of assuming different elasticities of imports to the real exchange rate in the simulations can be observed in Figure 3. Not surprisingly, the more elastic is demand for imports to the real exchange, the more an appreciation at Home will affect net exports and potentially reduce Home demand while boosting Foreign. Chart 3b shows a case in which a price elasticity of imports $\delta\rho/\mu > 1$ leads to an initial decrease in the Home degree of capacity utilization even if Foreign demand is strongly stimulated. Again, the net effect on global demand may even be as high as in the baseline simulations, but the difference in degrees of capacity utilization in the two countries is substantially higher in this case.

Conversely, when imports respond weakly to the real exchange rate, Home demand may rise overall following an increase in the wage share (due to higher consumption) even if the income effects on net exports are not considered (SOE case). In other words, Home utilization is much higher than in the baseline scenario once all the repercussions via trade are taken into account. However, as shown in chart 3a, demand at Home may increase more than demand at Foreign, which does not benefit much from higher exports in this setup. Due to the weak response of Foreign demand, the overall stimulus to global utilization in this particular scenario is slightly weaker than in the baseline.

Different income elasticities of imports mu/μ are used in the simulations shown in Figures 3c and 3d. As expected, when income effects on imports are weaker (stronger), the increase in Home demand is lower (higher) and the increase in Foreign demand is higher (lower). These observations only highlight the fact that a higher income at Foreign as resulting from a Home appreciation benefits more strongly Home exports when the income elasticity of imports is relatively high. For this reason, as shown in chart 3d, this case also leads to a more equal distribution of global demand between the two countries. Conversely, these results suggest that the lower is the share of products with high income elasticity exported by Home, the less it will benefit from an increase in the wage share due to the repercussions via trade, and the more unequally distributed will global demand be following the Home appreciation.¹⁷

¹⁷Assuming that the Prebisch-Singer hypothesis holds, this result indicates that in a North-

Figure 4 presents the effect of changing key distributive parameters, namely increasing the sensitivity of investment to the profit share α and/or decreasing the difference between propensities to save out of profits and wages ($s_\pi - s_\psi$), on the overall result. Since all the parameter changes are in the direction of lowering the magnitude of internal demand ϵ , the rationale behind these simulations is to generalize the main results to cases where demand at Home is more weakly wage-led in autarky than in the baseline. Due to the lower increase in Home consumption and/or the higher decrease in Home investment following the positive shock in the wage share, all scenarios in Figure 4 lead to a relatively lower demand in both countries when compared to the baseline. The details of each simulation are described below.

Chart 4a shows that an increase in the elasticity of investment to the profit share α from 0.25 to 0.4 is still not sufficient to generate a decrease in Home demand following a Home appreciation. The same is not true for the scenarios where the difference in savings propensities is reduced from 0.4 to 0.2 (with the sensitivity of investment being kept as in the baseline in chart 4b or increased to 0.4 in chart 4c). Even if Home demand falls in both cases, the improvement in Foreign net exports following a Home appreciation still leads to a positive effect on global demand.

Finally, chart 4d shows simulation results for the case where Home demand is weakly profit-led in autarky ($\epsilon < 0$), thus not addressed by the closed form results in Section 2.3. Not surprisingly, as derived in Equation 2.19, when the Home country is assumed to be profit-led in autarky, a Home appreciation defined as an increase in the Home wage share may lead to a decrease in global demand.¹⁸

South model, labor suppression and appreciation may be more beneficial in the commodity exporting South than in the manufacturing exporting North, as the demand for primary goods is characterized by a lower income elasticity.

¹⁸Note that in this scenario the sensitivity of investment to the profit share was assumed to be as high as $\alpha = 0.45$ and the difference in savings propensity as low as $s_\pi - s_\psi = 0.2$. Such parameter values are not supported by empirical evidence, see citations above.

4 Discussion

In this paper, we studied an open–economy Kaleckian model in which repercussions between countries matter. We showed that, if countries are wage–led in autarky but profit–led with trade, globalization generates perverse incentives to suppress labor for each individual country, even though coordinated redistribution toward labor would achieve larger global aggregate demand gains.

The analytical results for two identical countries are generalized to two countries differing in structure and behavior by the use of numerical simulations. The numerical analysis shows that incentives for labor suppression are stronger: (i) the more the domestic economy is open to trade; (ii) the smaller the domestic economy relative to the foreign economy; (iii) the more elastic is import demand to the real exchange rate; (iv) the less elastic is import demand to income; (v) the weaker the wage–led nature of the domestic internal demand regime. While the analytical results required initial trade balance, simulations demonstrate that argument and conclusions are robust to a scenario in which the two countries start off with trade imbalances.

The nature of the coordination failure arising in this setting is that of a *prisoner’s dilemma*. Preferable outcomes could be achieved if individual countries *cooperate* by redistributing toward labor, but a *defecting* strategy based on labor suppression is dominant for each country. Then, each country—rationally—will suppress labor, with the ultimate effect of lower global aggregate demand gains relative to cooperation.

How best to interpret these results? In the following concluding paragraphs we want to offer some quite broadly conceived context, as we understand it. To set the stage, let us consider post World War II economic history split into two distinct periods: namely the *Golden Age* of capitalism of the immediate post-World War II era, which ended with the collapse of the Bretton Woods system in the 1970s, and the *second era of globalization*, which began with the conservative revolution towards the end of that decade.

The Golden Age saw fast global growth, including in developing economies. Trade links between economies strengthened, but trade shares were decidedly lower than today. Further, capital account openness was very limited, and key

exchange rates fixed. In many advanced as well as catching-up economies, welfare states deepened. Expanding labor institutions protected jobs and ensured sharing of rapid productivity growth. Generally, these developments supported the labor share of national income. In that manner, global growth was sustained by local demand.

During the second era of globalization, in sharp contrast, trade shares deepened substantially, international production defragmented into flexible transnational sourcing networks, and capital accounts were liberalized.¹⁹ All these factors pushed individual countries towards *defection* strategies. Flexible sourcing in transnational production networks increases trade flexibility, international specialization increases trade shares, and capital account openness fuels fragmentation and disciplines labor through the very real relocation threat. As a result, real wage growth has lagged productivity growth in many countries, leading to falling labor shares and a lack of global effective demand.

Open capital accounts take center stage in this narrative. First, open capital accounts produce volatile, pro-cyclical capital flows, which provide fertile ground for unsustainable credit expansion (often feeding into real estate exuberance and debt-led consumption) on the way up, and balance-of-payments crises on the way down. To avoid reoccurrence of massive financial crises in emerging markets, self-insurance via reserve accumulation has been pursued in a multitude of countries (Ocampo, 2007). Erturk (2009) emphasizes a related aspect of open capital accounts: capital account transactions come to dominate international economic interactions, and the resulting global financial intermediation can foster growth. But, faltering financial intermediation during a crisis can as well trigger coordination problems, which carry the seeds of global deflation. Second, reserve accumulation goes hand in hand with maintenance of competitive exchange rates and trade surpluses. Sustained trade surpluses require net foreign debt build-up in deficit countries; global imbalances are the logical consequence. In its broad outlines, these narratives—ours focused on current accounts, others focused on capital accounts—are complementary.

Clearly, wage suppression and real exchange depreciations in such a system are

¹⁹On fragmentation, see for example Milberg (2004); on capital account liberalization, see for example Stiglitz and Ocampo (2008) and Eatwell and Taylor (2001).

what Robinson (1966) called beggar-thy-neighbor policies. Incentives for such policies may increase when there is a fall in world employment and international trade. Pursuing a greater share in the shrunken total of world economic activity implies *exports of unemployment* to the rest of the world. With that in mind, Joan Robinson condemned any mechanism for re-balancing trade that is pursued by deficit countries. Exchange rate depreciations, reduction of incomes or imposition of tariffs in the deficit country could generate a slump in the surplus country and potentially reduce the deficit country's exports, thus increasing imbalances. This view was also that of Keynes (1944) in the formulation of the Bretton Woods system; Keynes noted that the use by debtor countries of competitive deflation and depreciation may have such adverse effects. The question is relevant in today's situation, and harkens back to the transfer problem in a demand-driven world, where reduction of an imbalance is *not* contractionary, if the surplus country sufficiently spends on the deficit country's exports—thus re-exporting jobs (Keynes (1929), Johnson (1956)).

Polanyi (1944) argued that market economies must be embedded in a web of socio-political institutions that buffer their disruptive effects. Rodrik (2012) restates the issue, arguing that globalization is ultimately incompatible with democratic nation states. The economic imperative to dismantle national embedding institutions puts the very functioning of markets in doubt. What he calls a paradox, we call a prisoner's dilemma, but the difference matters: in our analysis it is not democratic support for open markets that vanishes, but *global demand that vanishes*. Palley (2009, 2012) labels this narrative the transition from broadly shared prosperity to stagnation, via financial crisis; and calls for new rules to manage globalization. Will that be possible? Viewed from (a high-flying) bird's eye, and following Polanyi, the world must step forward, and allow global institutions to re-embed global markets. The relevant question would be *how* (rather than whether) to do that.

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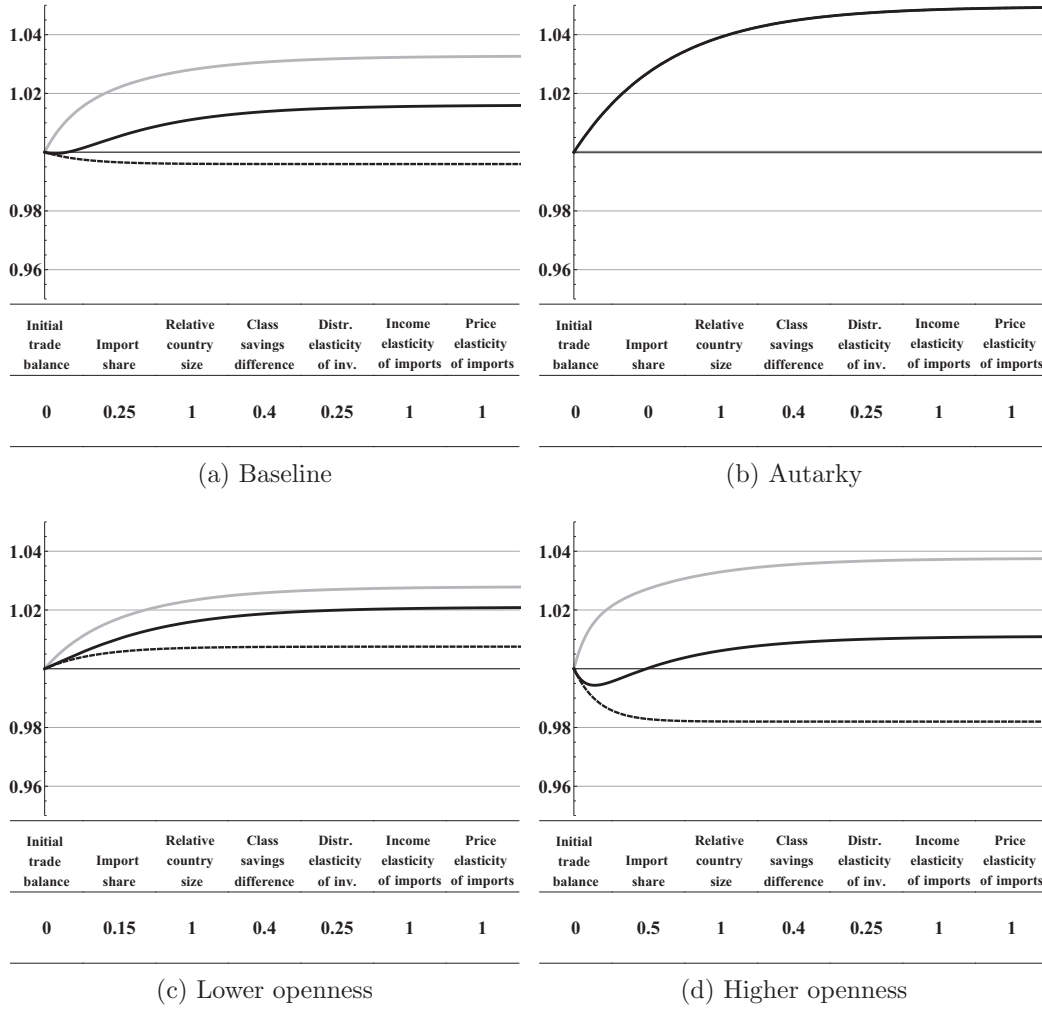


Figure 1: Effects of a Home appreciation assuming different degrees of openness to trade. The gray and black solid line show foreign and home country with demand repercussions; the black dashed line the home country as small open economy.

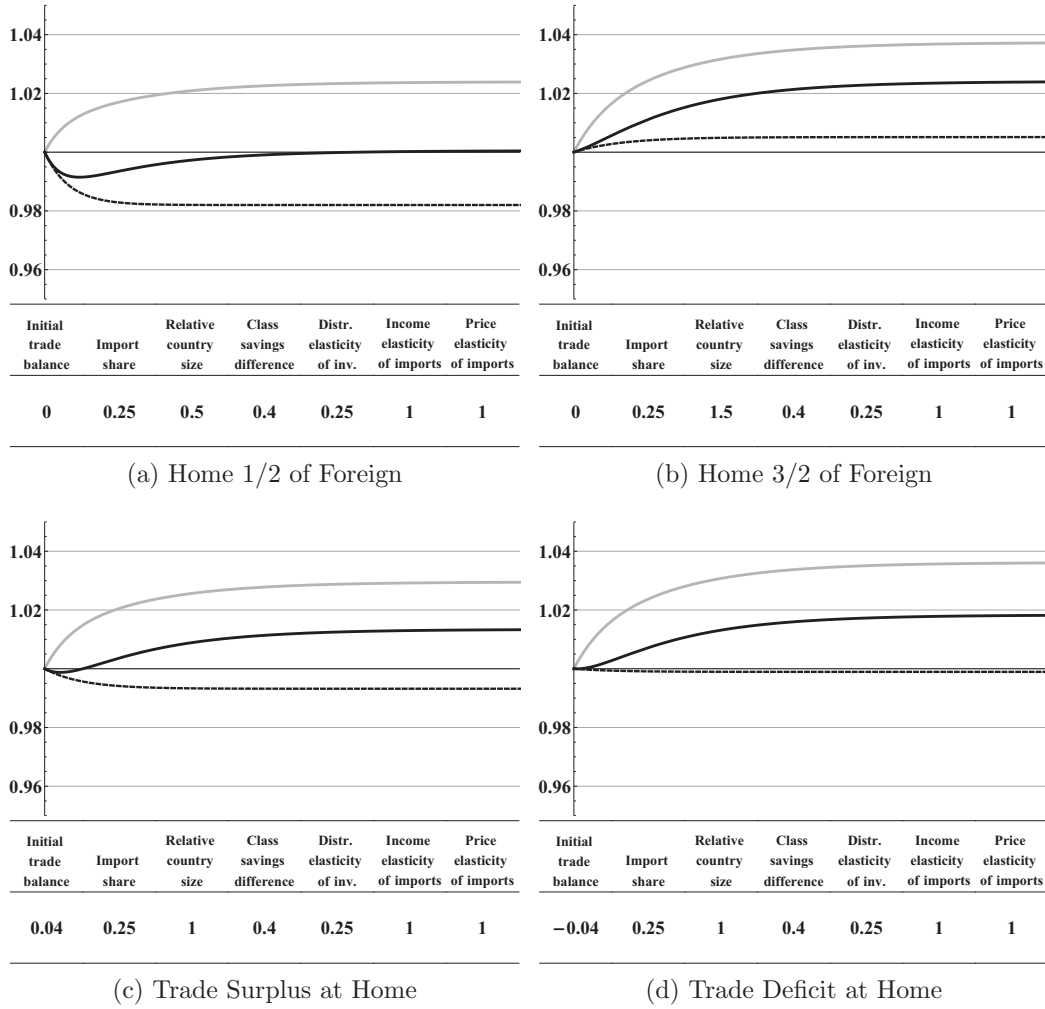


Figure 2: Effects of a Home appreciation assuming different country sizes and initial trade balance. The gray and black solid line show foreign and home country with demand repercussions; the black dashed line the home country as small open economy.

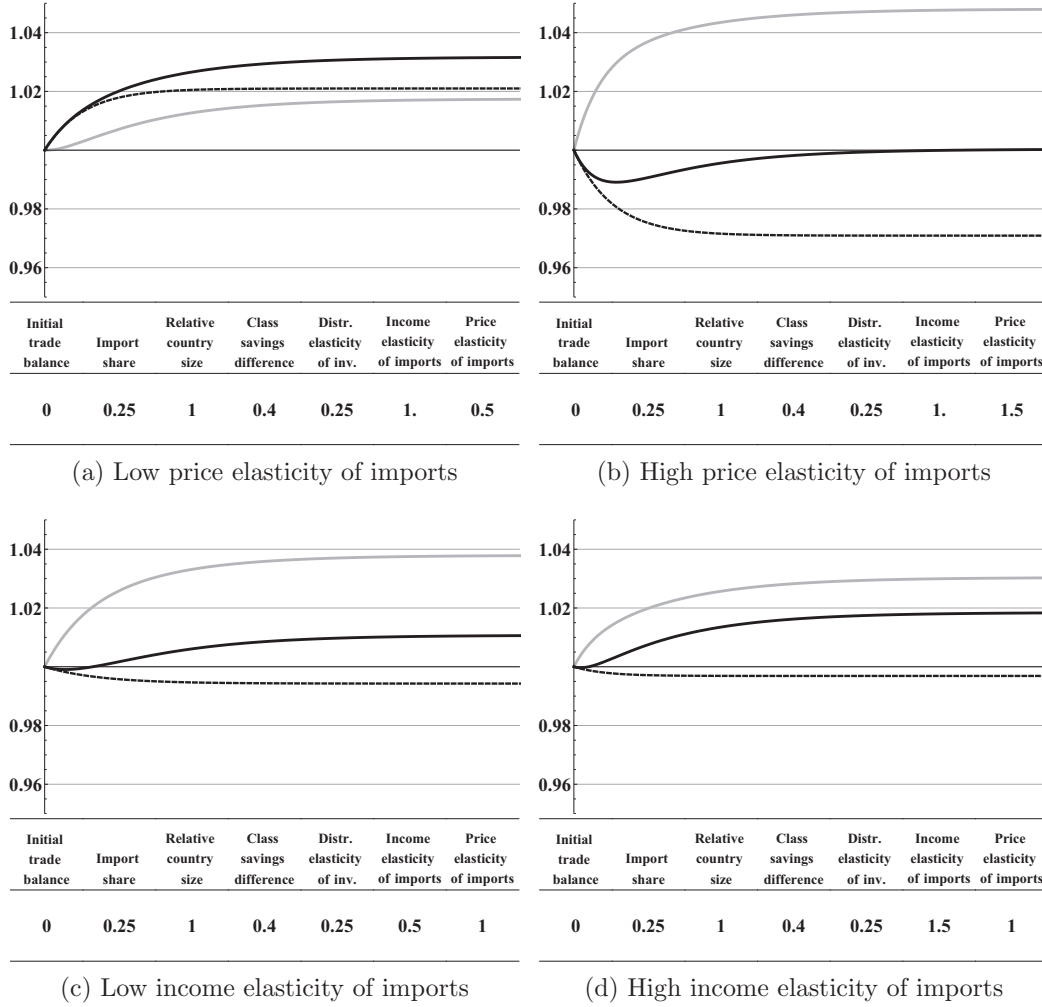


Figure 3: Effects of a Home appreciation assuming different price and income elasticities of imports. The gray and black solid line show foreign and home country with demand repercussions; the black dashed line the home country as small open economy.

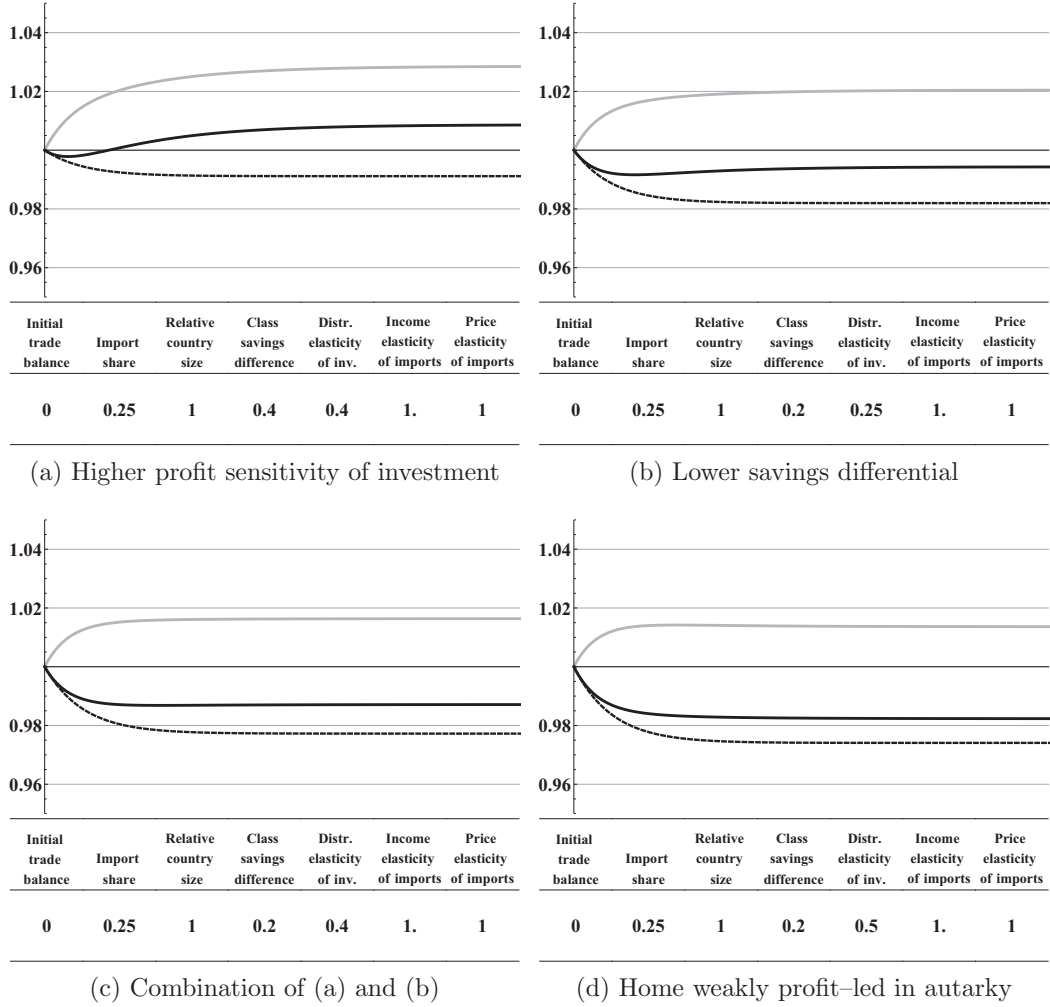


Figure 4: Effects of a Home appreciation assuming different distributive parameters (savings and investment). The gray and black solid line show foreign and home country with demand repercussions; the black dashed line the home country as small open economy.