GENDER WAGE EQUALITY AND INVESTMENTS IN CARE: MODELING EQUITY AND PRODUCTION

Elissa Braunstein, Colorado State University
Daniele Tavani, Colorado State University

CWE-GAM Working Paper Series: 20-10
Program on Gender Analysis in Economics (PGAE)
American University, Washington, DC
DOI: 10.17606/kr5j-m452
OCTOBER 2020

This working paper is part of the Care Work and the Economy (CWE-GAM) Project, based at American University's Program on Gender Analysis in Economics (PGAE). The authors would like to acknowledge the financial support of the William and Flora Hewlett Foundation for this report. The findings, views, and conclusions or recommendations expressed in this material are strictly those of the authors and do not necessarily reflect those of the William and Flora Hewlett Foundation.

*Corresponding author email: Elissa.Braunstein@colostate.edu

CWE-GAM WORKING PAPER SERIES

Working Paper Series

Care Work and the Economy

THE CARE WORK AND THE ECONOMY (CWE-GAM) PROJECT

The Care Work and the Economy (CWE-GAM) Project strives to reduce gender gaps in economic outcomes and enhance gender equality by illuminating and properly valuing the broader economic and social contributions of caregivers and integrating care in macroeconomic policymaking toolkits. We work to provide policymakers, scholars, researchers and advocacy groups with gender-aware data, empirical evidence, and analytical tools needed to promote creative, gender-sensitive macroeconomic and social policy solutions. In this era of demographic shifts and economic change, innovative policy solutions to chronic public underinvestment in care provisioning and infrastructure and the constraints that care work places on women's lives and employment choices are needed more than ever. Sustainable development requires gender-sensitive policy tools that integrate emerging understandings of care work and its connection with labor supply, and economic and welfare outcomes.

Find out more about the project at www.careworkeconomy.org.

THE AUTHOR TEAM

ELISSA BRAUNSTIEN

Elissa Braunstein is Professor of Economics at Colorado State University in Fort Collins, as well Editor for the journal *Feminist Economics*. Most recently she worked as a Senior Economist and Head of the unit on Economic Cooperation and Integration Among Developing Countries at the United Nations Conference on Trade and Development (UNCTAD). Her work focuses on the international and macroeconomic aspects of development, with particular emphasis on economic growth, macro policy, social reproduction and gender. She publishes widely in both academic and policy venues, and has done consulting work for a number of international development institutions, including the International Labour Organization, the World Bank, the United Nations Research Institute on Social Development, and UN Women. She holds a Ph.D. in economics from the University of Massachusetts Amherst, and a Master's of Pacific International Affairs from the School of Global Policy and Strategy at the University of California San Diego.

Working Paper Series

Care Work and the Economy

DANIELE TAVANI

Daniele Tavani is an Associate Professor of Economics at Colorado State University (CSU). Tavani earned his PhD in Economics from The New School for Social Research in 2009, and a Dottorato in Economia Politica (PhD, Political Economy) from Sapienza University of Rome, also in 2009. His research focuses on: (i) the linkages between economic growth and income distribution, and in particular the interaction between the labor market, income shares and technological change; (ii) the role of the public sector in economic growth and income distribution; (iii) the evolution of income distribution in the long run and during economic fluctuations, and recently (iv) the role of social interactions and social multipliers on economic performance. Tavani is an Investigator in the Economics team of a National Institute for Standards and Technology (NIST) $20 million grant over 5 years instituting a Center of excellence for Risk-based Community Resilience Planning, located at CSU.

TABLE OF CONTENTS

LIST OF FIGURES & TABLES

1. INTRODUCTION

Incorporating gender into macroeconomic analysis, if not mainstream, has become much more common over the last decade. Probably the most approach is that which empirically estimates the consequences of gender inequality (in a variety of manifestations) for economic growth and other macroeconomic outcomes. This has given rise to a growing body of work across the methodological spectrum, as well as an efficiency argument for advancing gender equality in global policy institutions as diverse as the United Nations, the World Bank, and the International Monetary Fund.[1] Though much sparser, work on engendering macroeconomic models (as opposed to empirical estimates of them) has progressed as well, coming from both orthodox and feminist heterodox perspectives. Orthodox macroeconomic models tend to focus on supply-side problems, where constraints on women's participation in paid employment or gender inequality in the accumulation of human or financial capital limit aggregate economic performance (e.g. Agénor 2017; Cuberes and Teigneir 2016). Heterodox models focus more on the structural and distributional sources and consequences of insufficient aggregate demand, where gender inequality in labor markets provides an additional dimension of the connection between distribution and macroeconomic outcomes (e.g. Blecker and Seguino 2002; Onaran 2016; Seguino 2010).[2] Though the introduction of gender as an analytical variable is an important innovation, neither heterodox nor orthodox macroeconomic models have done much to explicitly incorporate care and social reproduction. Most often, women's responsibilities for care serve merely as a constraint on their labor force participation. Its role as an input into the production of labor, and the potential for investment in human capacities to raise productivity, is rarely explicitly considered.

The model of care and the macroeconomy in Braunstein, van Staveren and Tavani (2011) (hereafter referred to as "BVT") was an early effort to fill this gap. Building on a classic structuralist/heterodox model of growth and distribution (Bhaduri and Marglin 1990), the BVT (2011) model introduced care and social reproduction into a macroeconomic framework. Later iterations focused on real-world applications (Braunstein 2014), empirical estimates of social reproduction regimes (Braunstein, Bouhia and Seguino

[1] Some classic examples from this genre include Klasen and Lamanna (2009), Lagerlöf (2003), and Seguino (2000). For a recent critical feminist review, see Kabeer (2016); for one from the neoclassical mainstream, see Cuberes and Teignier (2014).
[2] For a broad survey of the gender and macro literature, see Seguino (2020).

2020), and their consequences for growth and volatility (Braunstein, Seguino and Altringer 2019). In this paper we step back into the theoretical modeling, focusing in particular on the dynamics of gender-based wage inequality and how these articulate with outcomes for both market production and care-based investments in human capacities. Our primary goal is to create a framework for public policy analysis, one that is amenable to empirical simulation that reflects particular country circumstances, the next step in our research agenda.

The setup focuses on the rate of capacity utilization as a measure of economic activity and gender wage equality as a measure of income distribution. First, the resulting *producer's equilibrium*, which describes the supply side of the model, always features a direct relationship between economic activity and gender wage equality. Second, the goods market equilibrium or *IS curve* can be either care-led or inequality-led, depending on the relationship between labor's share of income and demand for investment in human capacities versus investment in physical capital. In terms of policy analysis, we evaluate the equilibrium effects (on gender wage equality, output, and investments in care) of three interventions for gender equality: the direct provision of public care services that increase women's paid employment; the provision of cash allowances that increase women's take-up of market-provided or private care services; and an increase in women's participation in paid labor.

2. MODELING A GENDERED LABOR FORCE

We recast the BVT (2011) model of care and the macroeconomy in order to shift the focus away from the functional distribution of income (that is, the distribution of profits between labor/wage shares and capital/profit shares) to move toward more explicit measures of gender equality in the labor market. The model begins with its representation of gender in the paid labor force.

First, we assume a constant size of the population consisting of women and men, and normalize it to one: $N = 1$. The interpretation is that households reproduce at the replacement rate.[3] We then turn to characterizing the labor market, which is integrated at the aggregate level for women and men. This is a departure from BVT (2011), which assumed completely segregated labor markets, with men employed in the capital goods sector producing capital good complements for care, and women's market work

[3] This assumption is made for the sake of simplicity: we intend to return to it in future iterations of the model when we consider the feedback effects of changes in fertility.

providing substitutes for nonmarket care time. That the labor market is gender-integrated at the aggregate level is consistent with gender segregation within sectors or occupations, substantiating to an important extent the gender wage gap.

Consistent with this aggregate perspective on the labor market, the economy produces a single private good using capital and labor, one that serves as both the capital good and a complement to nonmarket care time. With the subscript F denoting "female" and the subscript M denoting "male," total paid employment in the absence of nonmarket care would be $L = L_F + L_M$.[4] Denote women's-to-men's employment ratio by $L_F/L_M \equiv \phi \in [0,1]$, which we will also refer to as women's relative employment.

Assume further that women spend their time either employed in work for market production or in nonmarket care activities and—as a first approximation—have no leisure. To keep the framework as simple as possible, we assume that men do not engage in care activities in the household. While all women engage in nonmarket care provisioning (a point we return to below), let $c \in (0,1)$ denote the fraction of time spent in nonmarket care activities by employed women. This could be determined by social norms about gender roles or what constitutes sufficient care, or even the efficiency of care given the technology of its production (e.g. community coordination could raise returns to scale – within limits, of course, lowering the fraction of time women in the labor market spend on care).

We also assume that market substitutes for care are available for employed women. Let $\sigma \in (0,1)$ be the fraction of care time that is available through market substitutes, a policy parameter in the model. In choice models, this variable would be endogenous and sensitive to prices. Here, we use it as one of the two possible public policy levers available to decrease the time that women in the labor force spend on unpaid care provisioning: 1) a reduction in nonmarket care time (c) through directly providing public services like publicly-provided preschool or elder care; or 2) an increase in σ through, for instance, a subsidy or tax credit to purchase market substitutes for care. An important distinction between the two interventions is that the latter involves mediation through the market and the private sector while the former is primarily public. Given these possibilities, the "effective" time spent in market production by women is $L'_F = L_F[1 - c(1 - \sigma)]$.

[4] Providing care is work, regardless of whether it is paid or not. For ease of discussion, going forward we use the terms "employment" and "labor force" to refer to paid work and workers, and the term "care time" to refer to unpaid care time. Paid market substitutes for care will get their own nomenclature in the model.

We can then write total employment in the economy in terms of men in the labor force, the female-to-male employment ratio, and the time spent by women in care activities as follows: $L = L_M + \frac{L_F(1-c(1-\sigma))}{L_M} \times L_M = L_M\{1+\phi[1-c(1-\sigma)]\}$. When the labor force is equally split between men and women ($\phi = 1$), men's employment increases in the time that women spend in care-related activities: $L_M = L/[(2-c(1-\sigma)]$. For any value of the female-to-male employment ratio less than one, men's employment can be found from $L_M = \frac{L}{1+\phi[1-c(1-\sigma)]}$.

Next, consider the wage payments in the economy. The total wage bill is $W = w_M L_M + w_F L'_F = w_M L_M + w_F \frac{L_F[1-c(1-\sigma)]}{L_M} L_M = [w_M + w_F\phi[1-c(1-\sigma)]]L_M$. Assume that women earn a fraction $\gamma \in [0,1]$ of men's wages, so that $w_F = \gamma w_M$. Therefore, $1/\gamma > 1$ is the gender wage premium, and $\gamma = 1$ implies equal pay for equal work (EPFEW). The implication of the above for the total wage bill is given in equation (1).

$$W = \left(\frac{1+\gamma\phi[1-c(1-\sigma)]}{1+\phi[1-c(1-\sigma)]}\right) w_M L \qquad (1)$$

With $\gamma = 1$ (EPFEW) the effect of nonmarket care time washes out from the total wage bill: the numerator and denominator of the fraction in equation (1) are equal, all workers receive the same wage, and the relative gender composition of employment is inconsequential for the wage bill. Conversely, as long as there is gender-based wage inequality ($\gamma < 1$), the total wage bill is affected by the extent of such wage disparities even when $c = 0$ or $\sigma = 1$, that is no matter the care obligations for women. These care obligations do come into play, however, to the extent that they limit women's (lower cost) participation in the paid labor market and thereby raise overall labor costs for employers.

3. PRODUCTION AND INCOME SHARES

As is typical in structuralist economics, we assume a Leontief technology: $Y = min\{uK, AL\}$ where K stands for capital stock, L stands for labor, u denotes the rate of utilization of installed capacity (one can think of this as the level of production or output), and A stands for labor productivity, assumed to be constant for simplicity.[5] Labor demand is then $L = uK$, and with output price P, the wage share WS is denoted by equation (2) below.

[5] Endogenous labor productivity and the way it relates with care provision is a major feature of BVT (2011). In this paper, we focus on the role of care in overall investment.

$$WS = \frac{w_M}{AP}\left[\frac{1+\gamma\phi[1-c(1-\sigma)]}{1+\phi[1-c(1-\sigma)]}\right] \tag{2}$$

Let men's real wage adjusted by productivity be denoted by $w_M/AP \equiv \omega$. This will be a shift variable in what follows. First, note that a reduction in the gender wage gap has a positive effect on the wage share (and therefore a negative effect on the profit share) for a given female-to-male employment ratio, as shown in equation (3), indicating a positive relationship between gender wage and class equality. In other words, gender wage equality goes hand-in-hand with strengthening labor incomes overall.

$$\frac{\partial WS}{\partial \gamma} = \omega\frac{\phi[1-c(1-\sigma)]}{1+\phi[1-c(1-\sigma)]} > 0 \tag{3}$$

On the other hand, an increase in women's relative employment ϕ lowers the wage share for a given extent of the gender wage gap as in equation (4).

$$\frac{\partial WS}{\partial \phi} = \omega\frac{(\gamma-1)[1-c(1-\sigma)]}{\{1+\phi[1-c(1-\sigma)]\}^2} \leq 0, = 0 \; if \; \gamma = 1 \tag{4}$$

The intuition for this result has to do with supply effects, as the gender wage gap means that a higher share of lower-paid workers in the labor force (i.e. women) will also lower the overall wage share. The contrasting effects of the gender wage gap and women's relative employment on the wage share show the complexities of interpreting the economy-wide or class effects of different measures of gender equality. It is also important to differentiate these sorts of gender/class effects from those on household income inequality. Increasing women's labor force participation can either increase or decrease measures of household income inequality like the Gini coefficient, depending on where in the household income distribution such increased participation emerges. If mostly women from lower-income households increase their participation, declines in the wage share will accompany increases in household income inequality as lower-income households increase the number of members engaged in paid work. The fact that such improvements are based on shifting women's work from the unpaid to the paid sector is an element often lost when discussions of income equality abstract from the intersections between gender and class. A final note on equation (4), for $\gamma = 1$ (EPFEW) the wage share is independent of the composition of employment: $\partial WS/\partial\phi = 0$ when $\gamma = 1$.

We can now evaluate the effect of the two policy variables c and σ on the wage share. First, differentiate with respect to nonmarket care time to obtain equation (5) below:

$$\frac{\partial WS}{\partial c} = \omega \frac{\phi(1-\gamma)(1-\sigma)}{\{1+\phi[1-c(1-\sigma)]\}^2} \geq 0, = 0 \; if \; \gamma = 1 \quad (5)$$

An increase in the time spent by women in nonmarket care activities increases the total wage share, so long as there is a gender wage gap: for $\gamma = 1, \partial WS/\partial c = 0$. The intuition is the following: as women's nonmarket care time increases, the composition of the labor force shifts in favor of men, who receive higher wages. Thus, the wage share rises.[6] This feature reflects an important gender/class dynamic associated with the traditional sexual division of labor where women are tasked with nonmarket care and men focus on paid work; when gender wage inequality is a feature of the labor market, increasing women's nonmarket care time is positively associated with higher wage shares and better class positions for labor, and class interests coincide with maintaining the traditional gender division of labor.

Next, consider the effect of increasing market substitutes for nonmarket care in equation (6).

$$\frac{\partial WS}{\partial \sigma} = \omega \frac{(\gamma - 1)\phi c}{\{1+\phi[1-c(1-\sigma)]\}^2} \leq 0, = 0 \; if \; \gamma = 1 \quad (6)$$

The interpretation is similar to that above. An increase in market substitutes for care increases women's effective employment: since they earn lower wages than men, the wage share falls. In the EPFEW case, conversely, there is no effect of σ on the wage share, so these effects are contingent on the existence of gender wage inequality. And in line with the results above on nonmarket care time, subsidizing the market provisioning of care also goes against labor's class interest by compressing the wage share, again potentially providing an economic foundation for labor's resistance to changes in the traditional gender division of labor. On the other hand, increasing market subsidies for care can increase the profit share, underscoring the interest of capitalists in breaking down the traditional gender division of labor, at least to the extent that it increases women's participation in the paid labor market.

To simplify the exposition, and in line with both Bhaduri and Marglin (1990) and BVT (2011), we will focus on the profit share π as opposed to the wage share, which will depend on all of the underlying variables but with opposite signs from those on the wage

[6] As will become clearer below, one reason for this result has to do with the fact that the relative employment variable ϕ is not endogenously reacting to distribution in this version of the model.

share. We can then write $\pi(\gamma,\phi,c,\sigma) = 1 - WS(\gamma,\phi,c,\sigma)$ with partial derivatives $\pi_\gamma < 0$, $\pi_\phi > 0$, $\pi_c < 0$, $\pi_\sigma > 0$.

While building on previous work, this way of modeling the labor market as integrated – that women and men work in overlapping sectors – focuses the analysis on the importance of the gender composition of employment overall, gender wage equality, and nonmarket care time. In what follows, we treat nonmarket care time as determined by factors outside the model, but responsive to policy interventions that provide direct public substitutes for it, or the availability or affordability of market substitutes for women's time. There is still a choice to be made with regards to which of the two remaining determinants of the wage share to focus on as endogenous to the model, gender wage equality as measured by the term γ or women's relative employment ϕ. In keeping with the structuralist and post-Keynesian literature's emphasis on distribution and economic activity (i.e. the utilization rate), in this article, we opt to treat gender wage equality as endogenous to the model and women's relative employment as an exogenous shift variable. The latter setup stands in contrast to standard behavioral models where women's market labor supply responds simply and somewhat seamlessly to changes in wages, and is more in line with circumstances where factors like social norms, care constraints, bargaining in the household, and the gender-specific structure of labor demand moderate the responsiveness of women's employment to changes in wages, particularly at the aggregate level. This will also allow us to consider the circumstances under which raising women's labor force participation, one of the dominant narratives in global policy discussions around gender, is a win-win prospect for both gender equality and economic development and growth.

4. INVESTMENT AND SAVINGS

Following Bhaduri and Marglin (1990), assume that only capitalist households save, and write the accumulation rate allowed by savings (Harrod's warranted rate) as in equation (7).

$$g^S = g^S(\pi, u) = s\,\frac{\Pi}{K} = s\pi(\gamma,\phi,c,\sigma)u \qquad (7)$$

As usual, total savings is increasing in profit share and utilization. Thus equation (7) is basically the typical Cambridge equation according to which the growth rate of capital stock allowed by savings is equal to the (capitalist) saving rate times the profit rate πu, in turn, equal to total profits (Π) divided by capital stock (*K*). Next, consider private sector demand for investment in new capital stock or physical investment, again scaled by current capital. We assume the linear specification in equation (8), where: $\theta > 0$ is autonomous physical investment (animal spirits in Keynesian terms); $\eta > 0$ captures the sensitivity of investment demand to profitability; and $\alpha > 0$ captures the usual accelerator effect, where firms invest in creating new capacity when the utilization of existing capacity increases.

$$g^I = g^I(\pi, u) = \theta + \eta\pi(\gamma, \phi, c, \sigma) + \alpha u \tag{8}$$

As in BVT (2011), we also consider the effect of investment in human capacities as part of the overall investment process. There is a separate investment term, also scaled by total capital stock, that describes the demand for investment in human capacities as a function of "caring spirits" (κ), income distribution, and effective demand. Caring spirits measure the tendency, whether determined by social norms, individual motivation, or public preferences as reflected in the structure of the social welfare state, to provide care (or support for care) for one's self and others in ways that add to current aggregate demand and future productivity. It is autonomous in the sense that it is independent of prevailing market conditions, i.e. women's relative employment, the class distribution of income, or the level of economic activity as reflected in capacity utilization.

Differently from BVT (2011), however, we assume a direct effect of nonmarket care time on investment in human capacities which, with a little imagination, can be thought of as a way of capturing an investment in labor productivity from the demand side. First, all women, whether engaged in paid employment or not, also provide care. Consequently, the total amount of time spent in the production of human capacities not only depends on the time spent in care activities by employed women L_F, but also on the time spent in care by women who are not part of the paid labor force. Letting the total female population be denoted by F, and the share of time spent in care by women who are not in the labor force be d, the total care time by women who do not work for pay is $d(F - L_F) = d\, L_F \left(\frac{F}{L_F} - 1\right) = dL_F(f - 1)$, where $f > 1$ is the inverse of the ratio of women in the labor force as a share of their total population. (It is likely that $d > c$, the share of time employed spend in care, but it need not be.) Adding up, we find total care as investment in human capacities as follows: $c(1 - \sigma)L_F + c\sigma L_F + dL_F(f - 1) = L_F[c + d(f - 1)]$, with the first term capturing direct care time provided by employed women, the second term the market substitutes for care that they use, and the last term the care time provided by women outside the paid labor market.

Given the ratio of women's relative to men's employment ϕ, the determination of men's employment figured above ($L = L_M\{1 + \phi[1 - c(1 - \sigma)]\}$, and the fact that the Leontief technology implies that total labor demand L be equal to effective physical capital stock uK divided by labor productivity A, we can normalize by K/A to make the units consistent with those above, and write total care time used in the production of human capacities in the economy as follows.

$$\chi(\phi, c, \sigma, d, f)u = \phi \frac{[c + d(f - 1)]}{1 + \phi[1 - c(1 - \sigma)]} u$$

Partial derivatives are $\chi_\phi > 0,\ \chi_c > 0,\ \chi_\sigma < 0, \chi_d > 0,\ \chi_f > 0$. For $\chi_\phi > 0$, as the ratio of women's to men's employment increases, so does the aggregate time that employed women spend on care. For $\chi_c > 0$, an increase in the share of time women in the paid labor force spend on nonmarket care raises its production; $\chi_\sigma < 0$ reflects how an increase in the use of market substitutes lowers the nonmarket care time that employed women directly supply. Both $\chi_d > 0$ and $\chi_f > 0$ reflect the positive impact of increases in care time from women outside of the paid labor market, with the former partial measuring the impact of an increase in the share of time spent on care and the latter on the share of women outside of paid employment. Notice that the total effect of care time in the production of human capacities increases in the utilization rate, which makes human capacity production akin to investment in the model.

In addition to the caring spirits parameter κ and the care time used in the production of human capacities $\chi(\ldots)$, as in BVT (2011), the profit share has a negative effect $(-\beta)$ on g^c. The reason has to do with the class-based organization of society: only wage-earning households engage in the production of human capacities. As income distribution tilts in favor of profits, household demand for human capacities-creating investment falls. We thus have total investment in human capacities g^c as in equation (9), where the parameters κ, β, and the function $\chi(\ldots)$ are assumed to be positive.

$$g^c = \kappa + \chi(\phi, c, \sigma, d, f)u - \beta\pi(\gamma, \phi, c, \sigma) \tag{9}$$

The total demand for investment in the economy will equal the sum of the demand for investment in capital stock and the demand for investment in human capacities, as reflected in equation (10).

$$g^d = (\theta + \kappa) + [\alpha + \chi(\phi, c, \sigma, d, f)]u + (\eta - \beta)\pi(\gamma, \phi, c, \sigma) \tag{10}$$

The first term captures the autonomous components of total investment demand: animal spirits and caring spirits. The second term is the sum of the accelerator effect and the effect of care time on total investment, both scaled by the rate of utilization. The third term captures the net effect of income distribution on total investment demand, and it depends on the relative strength of the demand for investment in physical capital (η) as opposed to demand for investment in human capacities (-β).

5. GOODS MARKET EQUILIBRIUM (The IS Schedule)

The short-run goods market equilibrium in equation (11) $g^d = g^s$ solves for the equilibrium rate of capacity utilization in terms of the gender wage equality measure γ, women's market employment relative to men's, ϕ, and the determinants of care time, c, d, σ, f. This is the Investment-Savings (IS) schedule, or the demand side in the model.

$$u^* = \frac{(\theta + \kappa) + (\eta - \beta)\pi(\gamma, \phi, c, \sigma)}{s\pi(\gamma, \phi, c, \sigma) - [\alpha + \chi(\phi, c, \sigma, d, f)]} \tag{11}$$

First, note that the so-called Keynesian stability condition—which is a sufficient condition for a positive denominator in the above expression—needs now to take into account the effect of improving market conditions on the demand for investment in human capacities $\chi(\dots)$: for a positive denominator to arise, savings out of profits $s\pi(\gamma, \phi, c, \sigma)$ must be more responsive to utilization than both investment in physical capital and investment in human capacities – the sum $\alpha + \chi(\dots)$.[7]

Second, investment in human capacities now has an effect on whether the equilibrium utilization rate is *profit-led* or *wage-led*. To gain intuition, consider first a change in the profit share, as defined above, as a whole. Differentiating, we find:

$$u_\pi^* = \frac{\partial u^*}{\partial \pi} = \frac{(\beta - \eta)\big(\alpha + \chi(\phi, c, \sigma, d, f)\big) - s(\theta + \kappa)}{\{s\pi(\gamma, \phi, c, \sigma) - [\alpha + \chi(\phi, c, \sigma, d, f)]\}^2} \tag{12}$$

Since $-s(\theta + \kappa)$ is unambiguously negative, the sign of the above expression depends on the relative strength of the response of physical capital investment (η) as opposed to

[7] Though we do not specify it here, another source of savings is that which is related to human capacities and represents an additional path for thought and research on the question. An early consideration of this point is in (Erturk and Cagatay 1995).

human capacity investment (β) to the profit share. A sufficient condition for wage-led demand in this model (that is, $u_\pi^* < 0$) is then $\eta > \beta$, which implies that the positive response of investment in physical capital to the profit share be stronger than the negative effect of the latter on investment in human capacities. If instead $\beta > \eta$, then demand can still be wage-led, provided that $\frac{\beta-\eta}{\theta+\kappa} < \frac{s}{\alpha+\chi(\dots)}$. Notice that the ratio on the right-hand side of this inequality is larger than one if the Keynesian Stability Condition holds, with the implication that demand is more likely to be wage-led the stronger the caring (or animal) spirits in the investment function.

The profit share, however, is not an exogenous variable: it depends on gender wage equality, the female/male employment ratio, nonmarket care time, and the availability of market substitutes for care. Thus, we look at the effects of these determinants in turn. First, considering the effect of a more egalitarian gender wage distribution (an increase in γ) on utilization, we have that:

$$u_\gamma^* = \frac{\partial u^*}{\partial \gamma} = u_\pi^* \, \pi_\gamma \tag{13}$$

Since an increase in gender wage equality always lowers the profit share ($\pi_\gamma < 0$), the ultimate effect of more or less gender wage equality on demand will be mediated by whether demand is wage-led or profit-led. If demand is wage-led, it will also be gender-egalitarian. If on the other hand demand is profit-led, a reduction in the gender pay gap will reduce aggregate demand everything else equal. As also touched on above, even when the negative effects of higher profitability on the production of human capacities dominate the positive effects on investment – that is when β is greater than η, making for a positive first-term numerator – the strength of animal or caring spirits ($\theta + \kappa$) can still outweigh the negative impact of profit shares on human capacities investment. Thus, we see the possibility for either an increase or decrease in equilibrium utilization in response to an increase in gender wage equality, depending on the relative strength of caring spirits and the relative responsiveness of capital and human investment to the profit share. In economies characterized by strong caring spirits, the effect of gender wage equality on capacity utilization is likely to be positive. We term these types of economies "care-led" to emphasize both the importance of care in driving economic outcomes, as well as to differentiate these conditions from traditional understandings of wage-led. The opposite case is termed "inequality-led" to emphasize the importance of the profit share in driving investment demand. Another possible nomenclature for the care-led case is gender wage equality-led, to emphasize more specifically the positive relationship between gender wage equality and capacity utilization. But this abstracts from the role of care in driving these relationships.

We now turn to shifts of the IS curve. Consider the effect of an increase in the female-to-male employment ratio:

$$u_{\phi}^{*} = \frac{\partial u^{*}}{\partial \phi} = u_{\pi}^{*}\pi_{\phi} \tag{14}$$

which highlights the opposite kind of channels at play with respect to an increase in women's relative employment. Since the profit share increases in women's relative employment (for a given value of the gender pay gap), an increase in women's employment relative to men will produce an outward shift of the IS curve if demand is *inequality-led*, and an inward shift if demand is care-led. Importantly, if $\beta > \eta$ and capacity utilization is care-led, the increase in women's labor force participation will have a negative effect on utilization. The reason is the following: utilization responds positively to the wage share when economies are care-led, but the wage share decreases following an increase in ϕ, since the share of workers earning lower wages (i.e. women) in total employment has increased. This conclusion is important, in that it captures the potentially negative consequences of gender wage inequality on aggregate demand, a mechanism that is partly driven by the negative impact of gender wage inequality on investments in human capacities. Note that the persistence of gender wage inequality is the key challenge for care-led economies, for instance those with generous social welfare states or that rely on domestic demand. However, these dynamics capture only the demand side, and not the end of the story: we must consider the supply side in order to be able to gauge the equilibrium effect of an increase in women's employment.

Next, consider the effect of changes in nonmarket care time:

$$u_{c}^{*} = \frac{\partial u^{*}}{\partial c} = u_{\pi}^{*}\pi_{c} \tag{15}$$

which, once again, differs according to whether demand is inequality- or care-led. The effect of an increase in nonmarket care time on the profit share is negative (it increases the total wage bill as it pushes more men, who earn higher wages, into employment). Thus, the IS curve will shift inward following an increase in nonmarket care time if demand is inequality-led, while it will shift out if demand is care-led. Focusing on the latter case of care-led demand, part of the story is one of simple labor force composition, i.e. fewer (relatively lower-paid) women are in the labor force, so the wage share increases. But it is also because care time *c* goes directly into investment demand. One of the results is that the stronger the care-related elements of the economy, the steeper the slope, the smaller the impact of a change in care time on capacity utilization (at a given level of gender wage equality).

Finally, consider the effect of changes in nonmarket substitutes for care.

$$u_\sigma^* = \frac{\partial\, u^*}{\partial \sigma} = u_\pi^* \pi_\sigma \tag{16}$$

Starting with the impact on the profit share, π_σ, an increase in market substitutes for care increase women's effective employment, which lowers the wage share and increases the profit share (again, at a given level of gender wage equality). With inequality-led demand, the net impact is positive, and the increase in market substitutes for care are consistent with higher levels of capacity utilization. Care-led demand gives the opposite shift outcome: women's higher effective employment lowers the wage share and consequently cuts into capacity utilization. The stronger the caring spirits, the steeper the curve, the less pronounced these negative effects.

6. THE SUPPLY SIDE

To complete the model, we now turn to specifying the supply side or the producer's equilibrium (PE), where firms add a markup to unit labor costs, and through the determination of prices and profits, we also arrive at the distribution of income between capitalists or firm owners and workers. Contrary to BVT (2011), where labor productivity as produced by the household sector partly determined profitability, we take a simpler approach to the supply side in order to emphasize demand-side investment and the consequences for gender wage equality.

To begin firms charge a markup over unit labor costs. We assume that the overall markup is endogenous, and it depends on the level of economic activity as captured by the rate of utilization. An older argument is the one made by Rotemberg and Woodford (1991) that markups are strongly countercyclical. However, more recent evidence (De Loecker et al., 2020) suggests that more important than the cyclical component of the markup is its trend component, which is increasing and shows little fluctuation. This trend parallels the secular increase in the capital-income ratio documented extensively in Piketty (2014) and others (see Petach and Tavani, 2020 for a discussion). In our framework, the correlation between rising markups and rising capital-income ratio can be modeled through a negative dependence of the markup on the rate of utilization, which is the inverse of the capital-income ratio. For simplicity, assume $1 + markup = \mathrm{M}(1 - \mu u), \mathrm{M} > 1, \mu > 0$. Given equation (1) for the total wage bill and the corresponding definition of the profit share, the price-setting equation for this economy can be written as in equation (17).

$$1 = M(1 - \mu u)[1 - \pi(\gamma, \phi, c, \sigma)] \tag{17}$$

Let $h(u)$ be the inverse of the total markup factor, with $h_u > 0$. Equation (17) identifies a function linking women's relative employment, gender wage equality, nonmarket care time, and nonmarket substitutes for care through their effects on the profit share with aggregate demand. Simplifying (17) we have an implicit function representing the PE schedule or supply side of the model in equation (18).

$$1 - \pi(\gamma, \phi, \gamma, \sigma) = h(u) \tag{18}$$

As already mentioned, at this point a choice must be made on whether to focus on gender wage equality γ or the gender composition of employment ϕ as the main endogenous variable of interest. Consistent with the demand side, we focus on gender wage equality as endogenous and treat ϕ as a shift variable together with nonmarket care time and the availability of market subsidies for care. This comes primarily from the fact that the supply side in this model arises out of the mechanisms of price determination: hence the focus on wages. In BVT (2011), the PE or supply side is ultimately fashioned in terms that reflect that the distribution of the time and money costs of social reproduction between women, men, and capital. In turn, this distribution is based on the consequences for labor productivity and thus prices that result from interaction among product and labor markets, and the household or nonmarket production sector. One of the key determinants of the supply side in BVT (2011) is the gender wage gap: the higher it is, the more gender unequal the distribution of the costs of social reproduction. Though there is not an explicit household sector in this side of the model, one can take the role of gender wage equality in determining the supply side as drawing on those original concepts.

In order to sign the slope of the PE schedule, totally differentiate (18) with respect to the gender equality variable γ and utilization to see that:

$$\frac{d\gamma}{du} = -\frac{h_u}{\pi_\gamma} > 0 \tag{19}$$

This result establishes that the distributive curve in this model is always *upward sloping*: an increase in utilization is associated with an increase in gender wage equality. At this stage of the analysis, this is the first sharp conclusion we can draw from this way of modeling the interaction between the labor market and price-setting behavior by firms. Higher capacity utilization is associated with a lower markup. Given women's care time provisioning and the gender composition of employment, lower profit shares are linked with higher wages for women.

We now turn to signing the effect of shift variables on the PE schedule. Differentiating with respect to ϕ, factoring and simplifying, we find that:

$$\frac{d\gamma}{d\phi} = -\frac{\pi_\phi}{\pi_\gamma} > 0 \tag{20}$$

meaning that for any value of utilization an increase in women's relative employment produces an increase in gender wage equality, or in other words that the PE curve shifts up left. Another way of considering the shift: As women's relative employment increases, so does the profit share. Holding gender wage equality constant, this higher profit share is consistent with a lower level of capacity utilization.

Next, looking at the effect of an increase in care time on the supply side of the model in equation (21), we find it is negative.

$$\frac{d\gamma}{dc} = -\frac{\pi_c}{\pi_\gamma} < 0 \tag{21}$$

An increase in nonmarket care time lowers women's effective employment, and as more expensive men take up jobs, the profit share declines. The lower profit share is consistent with higher capacity utilization, given the gender wage gap, so the PE curve shifts down to the right. Alternatively, holding capacity utilization constant, the lower profit share brought about by the increase in women's care time is counterbalanced by the positive impact of a decline in gender wage equality on the profit share, again characterizing a PE curve shift down and to the right.

The final exercise is to sign the effect of an increase in market substitutes for care σ on gender wage equality γ. We find, as in equation (22), that an increase in market substitutes for care is associated with an increase in gender wage equality. Holding capacity utilization constant, the increase in market substitutes for care raises women's effective employment, also raising the profit share. This increase in the profit share is then counterbalanced by an increase in gender wage equality, which lowers the profit share. Looked at another way by holding gender wage equality constant, the increase in women's effective employment due to the increased use of market substitutes for care increase the profit share as before, but the latter manifests as a lower level of capacity utilization. In both scenarios, the increase in market substitutes for care shift the PE curve back and to the left.

$$\frac{d\gamma}{d\sigma} = -\frac{\pi_\sigma}{\pi_\gamma} > 0 \tag{22}$$

7. SOME POLICY SCENARIOS

Putting together the demand and supply sides of the model, we can evaluate the impact of a variety of policy scenarios. In this section, we take up three that are common in policy discussions on how to advance gender equality. The first two relate to policy-induced changes in care time and include a reduction in women's nonmarket care time and an increase in the availability and use of market substitutes for care. The third models the consequences of an increase in women's relative employment. As emphasized throughout the article, the key measures of impact will be the relative consequences for output and gender wage equality. In each policy scenario, we consider the two contrasting cases of inequality-led and care-led demand, paired with the upward-sloping PE schedule derived above.[8]

Reduction in nonmarket care time $(\downarrow \boldsymbol{c})$

An increase in direct public provisioning of care services reduces the share of nonmarket care time that women working for pay provide themselves, *c* (with the extent of that response dependent on local norms and circumstances). Starting with inequality-led demand, where there is a negative association between gender wage equality and output or capacity utilization, the left side of Figure 1 illustrates the results when the demand effect dominates the supply effect (i.e. the IS curve shifts more than the PE curve). First, the PE curve shifts up and back: As care time declines, women's effective employment

[8] A number of different circumstances can result in a downward-sloping PE schedule. In the case of this model, for instance, the markup being a positive function of capacity utilization would suffice. In BVT (2011), the focus on the supply side was on the distribution of the costs of social reproduction between women, men, the state, and capital. An upward-sloping PE curve coincided with societies characterized by either more traditional gender divisions of labor (with men providing finance and women providing time for care) and gender-egalitarian cases. The steeper the slope, the closer to the traditional gender division of labor. In this paper, the dynamics of care are situated primarily in the investment function on the demand side.

increases, increasing the profit share, which, given a particular level of gender wage equality, is now consistent with a lower level of capacity utilization. The IS curve will shift out because as care time declines and creates more effective paid labor time for women, the wage share declines, which is associated with higher investment and demand in the inequality-led case. The negative consequences for investments in human capacities are outweighed by the positive impact on investments in physical capital by firms. Equilibrium will thus shift from point *E* to *E′*, a "win-win" scenario in that both gender wage equality and output increase. This policy implication is important: government action that reduces the nonmarket care responsibilities of women working for pay, for instance through the provision of universal child or elder care, can have a positive effect on both economic activity and gender wage equality, even when demand is inequality-led. The stronger the inequality-led regime, the steeper the IS curve, the stronger the win-win effect in the sense of more gender equality and output.

If instead, the supply shift predominates, as illustrated in the right side of figure 1, public policies aimed at reducing women's care responsibilities by providing direct replacement services encounter a trade-off between gender wage equality and economic efficiency as reflected in the level of capacity utilization. In this case, the increase in gender wage equality presses on capacity utilization, resulting in a sort of "equity-efficiency" tradeoff. Under what circumstances might the supply effect dominate the demand effect? The more responsive the markup to capacity utilization or the greater the increase in the profit share as women increase their participation in paid work, the more likely the PE shift will dominate the IS shift.

Consider next a policy-determined reduction in nonmarket care time in the case of *care-led* demand, where gender wage equality is positively associated with capacity utilization because of the positive impacts it has on the wage share and consequent investments in human capacities. Recall that the interactive mechanism is one where a decline in nonmarket care time shifts the IS curve back and up because the consequent increase in women's employment raises profit shares, which lowers the demand for investment in human capacities and capacity utilization in the care-led case. As before, the PE curve also shifts up and back as women's higher employment raises the profit share. The left side of figure 2 shows the result when the IS shift dominates the PE shift, with the result that gender wage equality increases along with capacity utilization, the win-win scenario. On the right side of figure 2, where the PE shift dominates, as nonmarket care time declines and women increase their market labor force participation, the equilibrium result is lower capacity utilization, but higher gender wage equality. As to which scenario prevails, the stronger the autonomous aspects of investments in human capacities (the steeper the IS curve), or the more that public provisioning of care services raises the relative demand for women's market labor, or the stronger the association between earnings and investment in human capacities, the more likely the IS shift dominates as in the left side of figure 2 – the win-win scenario with higher capacity utilization and gender wage equality.

Increasing market substitutes for nonmarket care time ($\uparrow \boldsymbol{\sigma}$)

An increase in the use of market substitutes for care, for instance by providing cash allowances to families with care needs, plays out similarly to the decline in nonmarket care time in both the inequality- and care-led cases as illustrated in figures 1 and 2. Shifts in the PE and IS schedules stem from the expansion in women's effective paid employment that are a consequence of the increased provision and use of market substitutes for care. In the inequality-led case, the IS curve shifts out, and the PE curve shifts back and up as in figure 1; in the care-led case the PE shift is the same, and the IS curve shifts back and up as in figure 2. The relative magnitudes of the IS versus the PE shifts determine whether the result is a win-win or an equity-efficiency tradeoff. The stronger the impact of the change in women's effective employment on demand relative to supply, the more likely the win-win outcome in either case. This is also true the steeper the IS curve – that is, the more pronounced the inequality- or care-led regime.

An important difference between this case and the decline in women's nonmarket care time discussed above involves the mode of provisioning and the consequences for overall investments in human capacities. An exogenous decline in nonmarket care time that comes from direct public provisioning, as that which underlies the decline in c above, may be more (or less) effective at producing care than the increasing use of market substitutes, σ, even if these are publicly financed. In general, feminist studies of care policy in a variety of countries identify a number of advantages to direct public provisioning: public sector care jobs are better than private or informal sector work (higher-paid, more secure), with better outcomes for the quality of care and care consumers; it raises recognition of the value of care while challenging its traditional association with women in the family, promising greater transformation of gender roles; and it increases choice for unpaid carers seeking employment (Razavi 2011). These dynamics suggest that substitutability with nonmarket care may be higher with a decline in c spurred by an increase in direct public provisioning than an increase in σ that reflects the greater takeup of market substitutes, better-maintaining investments in human capacities, and making a larger shift in the IS curve more likely, the win-win scenario.

An increase in women's relative employment ($\uparrow \boldsymbol{\phi}$)

Starting with the case of inequality-led demand, following an increase in women's employment relative to men's employment the IS curve shifts up and right because of the consequent decline in the wage share, lowering production costs and boosting physical capital investment. On the supply side, the PE curve shifts up and left because the rise in the profit share is consistent with a lower level of capacity utilization. Thus, gender wage equality will always improve following an increase in the share of women in employment in the inequality-led case. As in the prior cases, the ultimate effect on economic activity, however, depends on whether the supply shift or the demand shift dominates. If the supply shift dominates, there is a tradeoff between gender equity and efficiency, again in line with the right side of figure 1. If it is the demand shift that dominates as on the left side of figure 1, efficiency and gender equity will both increase. As before, even when demand is inequality-led, there are opportunities for win-win outcomes. However, gains in market production are being driven by enhanced investments in physical capital, not investment in human capacities.

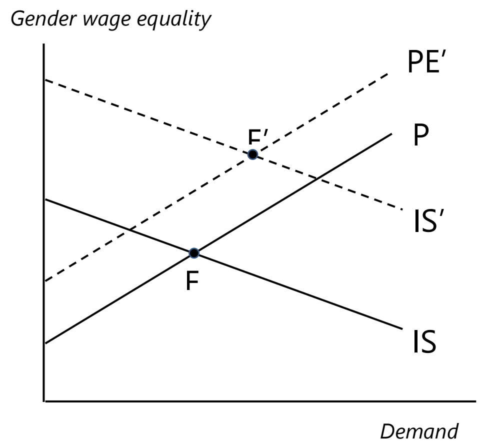
If demand is care-led, the IS shifts up and left following an increase in women's relative employment, because women's higher relative employment decreases the wage share, which cuts into investment spending, especially on human capacities. Combined with the shift in the PE curve, the result is that gender wage equality always improves; the effect on economic activity and investments in human capacities depends on the relative strength of the demand as opposed to the supply shift (figure 2). If the supply effect dominates, a more egalitarian wage distribution will be associated with lower economic activity. These circumstances might prevail, for instance, the more responsive is the markup relationship to changes in capacity utilization on the supply side. Still, the stronger the care-led regime, the more likely that the win-win outcome will prevail, with gains for both market production and investments in human capacities.

8. CONCLUDING DISCUSSION

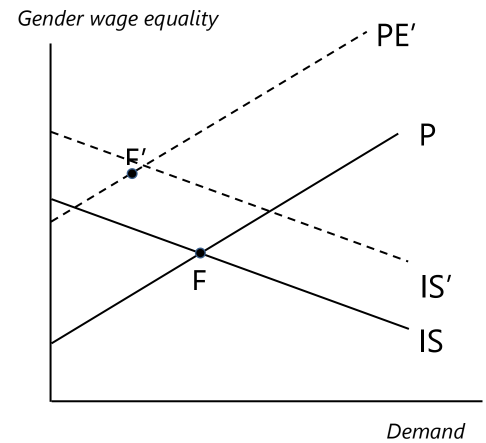
Taken together, the policy interventions aimed at enhancing gender equality reviewed above point to a continuum of aggregate demand regimes. Towards the extremes of this continuum are the stronger/steeper versions of care-led and inequality-led demand. The closer an economy is to one of these extremes, the more likely that gender equality policies associated with higher wages for women are also associated with higher output, the win-win outcome. The underlying mechanisms driving these overlapping outcomes are quite different, however, with different implications for investments in care. The pairing of higher gender wage equality and output in the care-led case reflects how higher wages for women are transformed into higher labor shares of income and investments in human capacities. By contrast, in the inequality-led case, this pairing reflects how women's increased employment boosts profits shares and physical investment demand. At the same time, though gender wage equality has increased, labor's share of income declines. The divergent outcomes for labor shares manifest in differing investments in care, though gender wage equality improves in both cases.

These results are clear at the extremes of the inequality- and care-led continuum. But what about intermediate cases – those with weaker inequality- or care-led aggregate demand regimes? Our model indicates that these sorts of economies are more likely to face tradeoffs between gender wage equality and market production and, eventually, growth and social reproduction. In other work we make empirical estimates of the original BVT (2011) model, using the principal component analysis to estimate a global time series of social reproduction or care regimes. Although this article's model centers more on the connections between gender wage equality and investments in care on the demand side, the structure of the BVT (2011) estimates are very much in line with these mechanisms. The results indicate that over the past 25 years, the majority of countries are moving more towards more inequality-led demand regimes (Braunstein et al. 2020). This poses a significant challenge to capturing the potential positive complementarities among gender equality, market production, and investments in care. When demand regimes are weaker (as happens when economies transition from care- to inequality-led), the equity-efficiency tradeoff is more likely. And in strong inequality-led regimes, though the relationship between gender equality and capacity utilization is positive, this connection is transmitted through higher profits and physical investment. This undermines investments in care and suppresses the wage share. Documented declines in the labor share of income across the globe are consistent with this projection (UNCTAD 2017). Amid increasing concerns about both care and inequality, we have demonstrated how accounting for the causal connections among gender, class, and care are essential for modeling the macroeconomics of production and distribution.

Figure 1. Inequality-led demand and a decline in nonmarket care time *(or an increase in market care services or women's relative employment)*

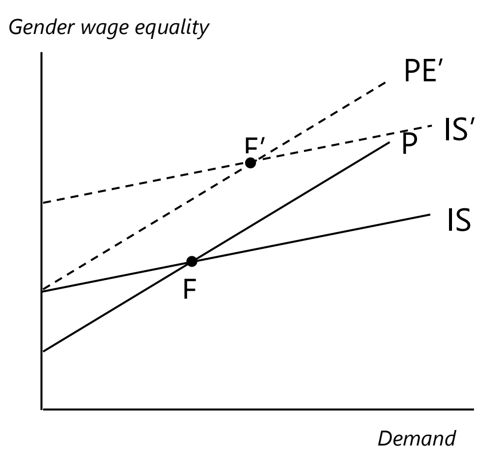


Win-win scenario

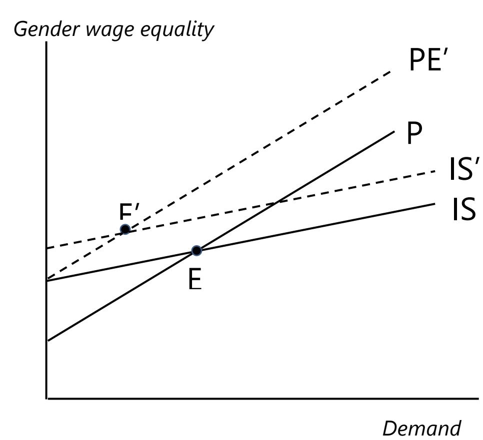


Equity-efficiency tradeoff

Figure 2. Care-led demand and a decline in nonmarket care time *(or an increase in market care services or women's relative employment)*



Win-win scenario



Equity-efficiency tradeoff

REFERENCES

Agénor, Pierre-Richard. 2017. "A Computable Overlapping Generations Model for Gender and Growth Policy Analysis." *Macroeconomic Dynamics* 21(1): 11-54.

Bhaduri, Amit, and Stephen Marglin. 1990. "Unemployment and the real wage: the economic basis for contesting political ideologies." C*ambridge Journal of Economics* 14(4): 375-393.

Blecker, Robert, and Seguino, Stephanie. 2002. "Macroeconomic Effects of Reducing Gender Wage Inequality in an Export-Oriented, Semi-industrialized Economy." *Review of Development Economics* 6(1): 103-119.

Braunstein, Elissa. 2014. *Economic Growth and Social Reproduction: Gender Inequality as Cause and Consequence*. UN Women Discussion Paper.

Braunstein, Elissa, Rashid Bouhia and Stephanie Seguino. 2020. "Social Reproduction, Gender Equality and Economic Growth." *Cambridge Journal of Economics* 44(1): 129-155.

Braunstein, Elissa, Stephanie Seguino and Levi Altringer. 2019. "Estimating the Role of Social Reproduction in Economic Growth." CWE-GAM Working Paper No. 19-02. DOI: 10.17606/rv6p-6f66

Braunstein, Elissa, Irene Van Staveren and Daniele Tavani. 2011. "Embedding care and unpaid work in macroeconomic modeling: A structuralist approach." *Feminist Economics* 17(4): 5-31.

Cuberes, David and Marc Teigneir. 2016. "Aggregate Effects of Gender Gaps in the Labor Market: A Quantitative Estimate." *Journal of Human Capital* 10(1):

Cuberes, David. and Marc Teignier. 2014. "Gender Inequality and Economic Growth: A Critical Review." *Journal of International Development* 26(2): 260-276.

De Loecker, J., Eeckout, J., Unger, G., 2020. "The Rise of Market Power and the Macroeconomic Implications," *Quarterly Journal of Economics* in press. DOI: 10.1093/qje/qjz041.

Ertürk, Korkut and Nilufer Cagatay. 1995. ''Macroeconomic Consequences of Cyclical and Secular Changes in Feminization: an Experiment at Gendered Macromodelling,'' *World Development* 23(11): 1969 – 1977.

Kabeer, Naila. 2016. "Gender Equality, Economic Growth, and Women's Agency: the 'Endless Variety' and 'Monotonous Similarity' of Patriarchal Constraints." Feminist Economics 22(1): 295-321.

Klasen, Stephen and Francesca Lamanna. "The Impact of Gender Inequality in Education and Employment on Economic Growth: New Evidence for a Panel of Countries." *Feminist Economics* 15, no. 3 (2009): 91-132.

Lagerlöf, Nils. 2003. "Gender equality and long run growth." *Journal of Economic Growth* 8: 403–26.

Onaran, Ozlem. 2016. "The Role of Gender Equality in an Equality-Led Sustainable Development Strategy," in Hannah Bargawi, Giovanni Cozzi and Susan Himmelweit (eds.) *Economics and Austerity in Europe: Gendered impacts and sustainable alternatives*. London and New York: Routledge, pp. 40-57.

Petach, Luke and Daniele Tavani. 2020. "Income shares, secular stagnation and long-run distribution of wealth." *Metroeconomica* 71(1): 235-255.

Piketty, Thomas. 2014. *Capital in the Twenty-First Century*. Boston, MA: Harvard University Press.

Razavi, Shahra. 2011. "Rethinking Care in a Development Context: An Introduction." *Development and Change* 42(4): 873-903.

Rotemberg, Julio J and Michael Woodford. 1991. "Markups and the Business Cycle," in Oliver Jean Blanchard and Stanley Fischer (eds.) *NBER Macroeconomics Annual 1991*, pp. 63-140.

Seguino, Stephanie. 2020. "Engendering Macroeconomic Theory and Policy." *Feminist Economics* 26(2): 27-61.

Seguino, Stephanie. 2010. "Gender, Distribution, and Balance of Payments Constrained Growth in Developing Countries." *Review of Political Economy* 22(3): 373-404.

Seguino, Stephanie. 2000. "Accounting for Gender in Asian Economic Growth." *Feminist Economics* 6(3): 27-58.

United Nations Conference on Trade and Development (UNCTAD). 2017. *Trade and Development Report 2017 – Beyond Austerity: Towards a global green new deal*. New York: United Nations.