Gender, Distribution, and Balance-of-Payments-Constrained Growth in Developing Countries

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I. Introduction

The Post-Keynesian literature has filled an important lacuna in the field of macroeconomic theory in its exploration of the relationship between income distribution and growth. The early attention to this issue by Kalecki and Steindl, and then a later generation of economists such as Taylor, Dutt, and Blecker in the 1980s and 1990s was prescient, given the sharp increase of income and well-being inequality in many countries and between countries.

That work focused on the class distribution of income. In recent years, a number of scholars have investigated the relationship between the gender distribution of income, macroeconomic outcomes, and economic growth. That work has relied on innovative approaches, using CGE simulation methods as well as Kaleckian macro models to examine the effect of gender inequality—measured primarily as gender wage inequality—on output and short-run growth in semi-industrialized economies (SIEs).

A key feature of all economies that results in a distinct gender distribution effect on output is the seemingly universal tendency towards gendered job segregation (Anker 1998). Employment patterns in SIEs, for example, exhibit discernible gender job segmentation. In the industrial sector, women are sequestered in tradables industries, primarily producing labor-intensive price- and income-elastic low-cost manufactured goods (Seguino 2000a). Conversely, male employment is concentrated in non-tradables industries or capital-intensive export industries. In agricultural economies, gendered job segregation takes a different form: women perform the bulk of labor in subsistence production to provide for the family’s food needs, while men dominate in cash crop and extractive commodity export production. Most of the formal models to date have only considered the case of SIEs. That research indicates
that gender wage inequality produces a positive effect on output, via the stimulus to
investment and exports that outweighs any demand-inhibiting effect on saving or imports.
The importance of this work is to underscore the relevance of the gender distribution of
income on macroeconomic outcomes, removing gender from the microeconomic shadows
and bringing this category into the macroeconomic spotlight.

This work in addition links the gender distribution of income to concerns raised in
balance of payments constrained growth (BPCG) models (see McCombie and Thirlwall
1999, among others). In many SIEs, the pattern of recent employment trends can be
characterized as “the feminization of foreign exchange earnings.” That is, women’s labor—
and their low wages, due to labor market discrimination—has been a key factor in relaxing
the balance-of-payments constraint to growth.³

In seeming contradiction to this work, another important thread of feminist research
has argued that gender equality is a stimulus to long-run growth (e.g., Blumberg 1988). This
research is founded on an analysis of the impact of gender equality on the well-being of
children, and thus the productivity of the future labor supply. Intrahousehold resource
allocation has been found to be more equitable as female incomes rise relative to men’s, with
significant positive effects on children’s well-being (Hoddinott and Haddad 1995; Haddad,
Hoddinott, and Alderman 1997; Doss 2005).⁴ The implications of that research are that
there are positive externalities to gender equality. Policies that can have positive
macroeconomic effects.

This work was spurred by concerns about the gender effects of structural adjustment
programs (SAPs) in the 1980s. A good deal of empirical evidence found women absorbed
the social costs of these programs that included cuts in public expenditures, austerity
measures that slowed growth, and privatization (Bakker 1994; Benería and Roldán 1987;
Benería and Feldman 1992; Gadwin 1991, Elson 1995). To take one example of this cost-shifting, cuts in public expenditures on health care led to declines in health services, including the closing of rural clinics and cuts in the length of stays and services provided in urban hospitals. Care of the sick nevertheless had to be provided, and due to rigid gender norms, it is women who cooked the meals and brought sick relatives to hospitals, or provided care in the home to compensate for cuts in public health expenditures. This unpaid “invisible labor” however circumscribes the ability of women to generate income through paid activities. There is also evidence that families have responded to the increased unpaid labor burden by marshalling the labor of girl children to help care for the family, with negative effects on female educational attainment. Where such practices are widespread, this bodes ill for long-run growth prospects. Direct output effects have also been noted. For example, some studies have shown that women in rural Africa miss entire planting seasons because of increased care burdens due to public expenditure cuts (citation).

Macroeconomic policies in the form of SAPs thus shifted costs from the paid to the unpaid economy. Elson (1995) has argued that mainstream economists who ignore the role of caring labor implicitly assume an infinitely elastic capacity on the part of women to produce human resources. To the extent that women’s ability to provide unpaid labor is not infinitely elastic, such policies may produce negative productivity effects on the future labor supply.

A recent spate of research suggests a positive role for gender equality in influencing the rate of per capita growth (Hill and King 1995; Dollar and Gatti 1999; Klasen 2002; Knowles, Lorgelly, and Owen 2002; Lagerlöf 2003). This can be explained by the fact that gender equality (assuming it does not come about as a result of the deterioration of men’s well-being) not only improves women’s absolute level of well-being but also their bargaining
power to leverage household resources and control fertility (with women generally preferring fewer children than men). As a result, increases in women’s well-being (usually measured as greater gender equality in educational attainment or health outcomes)—can lead to reduced fertility and enhance women’s ability to increase expenditures of household income on children’s health, nutrition, and education. Further, redistribution of educational investments to women results in allocative efficiency (shifting resources from under-qualified males to more qualified females), raising productivity and thus growth. This then is another pathway by which increases in gender equality can lead to improvements in the quality of the labor supply, currently and in the future, and thus have an impact on the rate of growth. This would imply that macroeconomic policies that harm women redound negatively on their ability to provide caring labor, and thus will produce negative long-run growth effects.

These contradictory conclusions on the role of gender—that gender inequality is both a stimulus and a drag on growth—beg for an explanation and reconciliation. Clearly, one cause of divergent conclusions has to do with the time frame. Kaleckian models, such as that by Braunstein (2000) and Blecker and Seguino (2002), focus primarily on the short- and medium-run, claiming that gender inequality is a stimulus to growth. Those arguing for a positive role for gender equality rely on a longer-run framework, although virtually all of these approach the issue from a Solow-type supply-side modeling framework. They assume full-employment, thus eliding any short-run disturbances due to demand-side problems, and ignore the possibility of balance-of-payments constraints.

Differential results may also be a function of the fact that the role of gender inequality in stimulating output and growth differs according to the structure of an economy and the types and degree of gender job segregation that exists. Most neoclassical research fails to identify these as causal factors, and indeed, in empirical analyses, rely on panel data
sets that group all developing economies together, regardless of economic structure. The divergent findings are also related to the fact that the measures of gender inequality used in these models differ. In the research that finds a negative effect of gender equality on growth, the wage gap is the measure of inequality. In contrast, research that finds a positive role for gender equality in affecting long-run growth generally relies on capabilities measures such as gender gaps in literacy and education.

This paper is a first step at reconciling the short- and long-run effects of gender inequality. I also address the issue of how economic structure matters, by comparing the case of SIEs with that of low-income agriculturally-dependent economies (LIAEs). To do this, I first present an examination of the short-run macroeconomic equilibrium condition, coupled with a discussion of the empirical literature that identifies how gender affects the various components of aggregate demand. In the subsequent section, I develop a very simple long-run growth model that integrates the impact of aggregate demand and gender, the latter addressing balance-of-payments (BP) constraints as well as the impact of gender equality on the quality of the supply.

To anticipate the results, the critical issue in determining the effect of gender on short- and long-run growth is the sectoral nature of job segregation, coupled with the structure of the economy. Gender inequality reduces the BP constraint in SIEs but exacerbates it in LIAEs, both in the short- and long-run. The pivotal point to make about these analyses is that distribution matters, but not only the class distribution. The gender distribution of resources and income has macroeconomic effects. As the analysis of SIEs here suggests, however, efforts to promote greater gender equality can run into macroeconomic roadblocks. This underscores the need for policies aimed at promoting both
II. Short-Run Effects of Gender Equality

What follows is a brief summary of gender research that highlights the pathways by which the gender distribution of income may affect macroeconomic conditions. Although gender inequality is universal, the social formations that give rise to differential gender access to resources and opportunities (and thus influences gendered bargaining power) differ across countries. Thus while gendered job segregation is everywhere apparent, the types of jobs into which women and men are slotted differ by country, and especially by economic structure. My discussion, which focuses on developing economies, therefore, will distinguish between the role of gender in SIEs and LIAEs. This discussion draws heavily from the feminist research of the past twenty years, as well as Blecker and Seguino (2002), one of only a few demand-constrained short-run models that incorporates the role of gender inequality. I present here some of the results of that analysis, but the reader is referred to that paper for the fully developed model.

It is useful to organize this discussion around the condition for macroeconomic equilibrium in an open economy or:

\[ I + P_x X = S + eP_z^* Z \]  

(1)

where \( I \) is investment (in domestic currency terms), \( P_x \) is the price of export goods, \( X \) is the volume of exports, \( S \) is aggregate saving, \( e \) is the nominal exchange rate, \( P_z^* \) is the foreign price of imports, and \( Z \) is the volume of imports. For simplicity, we assume a balanced budget.

Wage inequality is used as the gender inequality measure, and is based on the implicit assumption that men’s wage serves as a benchmark for the baseline scenario. Women’s low
wages are largely attributable to their limited bargaining power in labor markets, resulting in a high degree of wage discrimination. Our strategy will be to sign the variables in (1) with respect to a reduction of gender wage inequality via a rise in the female wage. The rise in the female wage is induced by a policy shift such as higher minimum wages, anti-wage discrimination legislation and enforcement, or some other means that raises women’s bargaining power vis-à-vis employers.

**SIES and Gender Inequality in the Short-Run**

Several stylized characteristics of SIEs are salient. First, markets tend to be oligopolistic so that pricing can be modeled as a mark-up over prime unit costs. Second, although these economies produce manufactured goods, in their efforts to raise productivity and move up the industrial ladder they rely heavily on imported intermediate inputs and capital goods, making imports price inelastic. As a result of import dependence, these countries face balance-of-payments-constraints on growth. That is, exports play an important role not only in stimulating current demand, but also in providing the foreign exchange for technological imports that will accelerate growth in the future. We can also assume, as most Kaleckian models do, that savings out of profits occurs at a higher rate than saving out of wages. The gap may not be large in SIEs, however, since most firms rely on debt financing rather than internal financing, for a variety of reasons.

Now, considering the role of gender and turning to the first term on the left in (1), the investment function can be written in implicit form as, assuming a two-sector model with complete job segregation (women employed exclusively in the export sector and men in non-tradables):

\[ I = I(r_d, r_x, u, i) \]  

(2)
where \( r_d \) and \( r_s \) are the profit shares, respectively in the domestic (or non-tradables) sector and export sector, \( u \) is capacity utilization used as a proxy for aggregate demand, and \( i \) is the interest rate. Women in SIEs tend to be concentrated in “mobile” export industries—those that are more labor-intensive and have fewer training or other sunk costs (Seguino 2006b, 2007). The implication is that the effect of a rise in female wages on investment (that is, \( I_{x_t} r_s w_f \)) is likely to be negative, and larger than in male non-tradable industries (this would hold true, even in economies where some men are employed in capital-intensive or commodity-based export industries). As a result, a higher female wage (holding male wages constant, which implies not only an improvement in women’s position relative to men, but also relative to capitalists) can cause a very large and negative “profitability” effect. As a result, the response of \( I \) with respect to a change in female wages, \( W F \), is negative \( (I_{W_f} < 0) \). 

There is some evidence that gender wage inequality in SIEs is a stimulus to export demand, because female wages are positively related to export prices. This can be seen in the following price equation for exports and export demand function, again assuming export industries employ only women.

\[
P_X = (1 + \tau)[W_F b + eP_z * z]
\]  

(3)

where \( P_X \) is the domestic price of exports, \( \tau \) is the mark-up rate over unit costs in the export sector, \( W_F \) is the female wage, \( b_x \) is the labor coefficient in the export sector, and \( z \) is the import coefficient. Export demand is:

\[
X = A \left[ \frac{eP_X}{P_X} \right]^\gamma D^\varepsilon
\]  

(4)
where \( A \) is a constant, \( P_x^* \) is the foreign currency of competing export products from other countries, \( \psi \) is the price elasticity of demand for exports, \( D \) is the level of world income, and \( \varepsilon \) is the (foreign) income elasticity of demand. Note that lower female wages have an analogous effect on export demand as a currency devaluation. It is also from clear from (4) that higher female wages negatively affect export demand and therefore aggregate demand. Given the negative effect of female wages on both investment and exports, higher female wages reduce injections.

Now considering the effect of gender on leakages, turn first to saving on the right-hand side of (1). There has been very little research to date on the impact of gender inequality on aggregate saving. Two papers that do address this issue focus on SIEs. Floro and Seguino (2003) investigate why women might choose to save at different rates than men using two approaches—an individual saving behavior model of non-pooled income households and a Nash bargaining model for pooled-income households. The first of these highlights the possibility of gender differences in saving, due to gender-differentiated income risks. The second explores how a shift in the distribution of income between women and men could affect intrahousehold bargaining and thus household saving rates.

Seguino and Floro (2003) estimate an aggregate saving function, controlling for a number of standard variables and employing a measure of relative female/male wages. The results suggest that a higher share of wage income (that is, an intraclass redistribution of income) going to women would contribute to a higher aggregate saving rate in SIEs. Based on this admittedly limited evidence of gender differences in saving propensities, we can write a simple saving function, which is sensitive to both the class and gender distribution of income:

\[
S = S(r, W_F, u) \tag{5}
\]
where $S$ is aggregate saving, $r$ is the economy-wide profit share of income, and $S > 0$ under the assumption that capitalists save a higher proportion of their income than workers.

More research is needed to explore the linkages between gender and aggregate saving. It is likely, for example, that in economies with widespread safety nets or in which women have more access to social insurance (because they hold a larger share of formal sector jobs), gender differences in saving propensities may be quite small. For the moment, for SIEs, we can sign the derivative of saving with respect to female wages in (1) and (5) as positive, or $S_{w_f} > 0$, but the empirical evidence required to sign this derivative in other types of economies does not yet exist.

There is also a dearth of empirical evidence on the effect of the gender distribution of income on import demand. One might think that if consumption patterns differ by gender, then a redistribution to women will affect import demand. A number of years ago Dutt (1984) argued that imports may be sensitive to the class distribution of income if the wealthy spend a large share of their income on luxury imports. In the case of gender, there is a great deal of evidence to suggest that men spend a larger share of their income on luxury goods than women (Agarwal 1997; Blumberg 1988; Dwyer and Bruce 1988; Haddad, Hoddinott, and Alderman 1997). This evidence is surprisingly consistent across economies of all kinds of structure and levels of development. Whether men’s consumption propensity for luxury goods is also more import-intensive is not clear. It may be so, however, as those luxury goods increasingly comprise electronics such as cell phones as well as cars, in addition to the more typical gambling, cigarettes, alcohol, and sex expenditures. This would give rise to an import function of the following form:

$$Z = B \left[ \frac{eP_Z^*}{P_Z} \right]^{\phi \omega} \left[ \frac{W_M}{W_F} \right]^{\omega} Y^\phi$$

(6)
where $B$ is a constant, $P_x$ is the price of import-competing goods, $\eta$ is the price elasticity of imports, $\omega$ is the elasticity of imports with respect to the gender distribution of income, proxied by the male to female wage ratio, and $\sigma$ is the income elasticity of import demand. With the limited data we have, however, we have no sound grounds on which to assign a positive or negative sign to the derivative of imports with respect to the female wage in SIEs, and so can assume for simplicity that $Z_{w_f} = 0$.

Based on this discussion, we can sign the derivatives of the variables in (1) with respect to the female wage, and obtain:

$$I + P_x X = S + eP_z^* Z.$$  \hfill (1')

Except under extreme conditions, it would appear very likely that higher female wages will be stagnationist, with leakages exceeding injections or $I + X < S + Z$, as a result of higher female wages.

Further, it is quite clear that greater gender wage equality, via an increase in female wages, worsens the balance of payments, where the BP equilibrium is written as

$$P_x X + F(i) = eP_z^* Z$$  \hfill (6)

and $F > 0$ measure capital inflows in domestic currency and is positively related to the interest rate. With higher female wages, exports decline and there is little or no effect on imports. As a consequence, the trade balance worsens. Depending on a variety of factors, including the expected rate of export growth and other macroeconomic variables, the trade imbalance may not be sustainable over the medium-term, and can lead to pressures to raise interest rates in order to attract capital inflows to rectify BP disequilibrium. But a higher
interest rate negatively affects investment, contributing to a decline in aggregate demand, utilization, output and employment.

Empirical work on the relationship between gender wage equality and growth in SIEs supports this conclusion. The figure below (from Seguino 2000a) shows the relationship between gender wage equality and growth in Asian economies for the period 1975-95. A similar inverse relationship between gender wage equality and growth exists when the sample is expanded to include a set of 21 SIEs.

Figure 1. GDP Growth and the Female/Male Mfg. Wage Ratio, 1975-95

LIAEs and Gender Equality

LIAEs are characterized by small manufacturing sectors, with agriculture a large share of value-added in GDP. Exports tend to be of extractive commodities and agricultural
cash crops such as coffee and cocoa, which are price- and income-inelastic, and with increased output putting downward pressure on prices and the terms of trade. For the purposes of this analysis, I emphasize the example of Sub-Saharan Africa (SSA). In many, though not all, SSA economies, men specialize in cash crop production and in non-tradables production, while women are in the informal sector as petty traders and are the main providers of the family’s food supply. Further, while imports of capital goods are rigid, consumption goods—in particular, food—are a larger share of imports and the price elasticity of import demand is thus greater than in SIEs.

Using (1) to organize our discussion of macroeconomic effects of gender inequality, there is little direct evidence on the role of gender in influencing investment in SSA. Based on employment patterns, we might infer that higher female wages would have a negligible effect on investment. Indeed, in many SSA countries, foreign direct investment is in capital-intensive industries (e.g., telecommunications and infrastructure), which is male-dominated and is in any case less negatively affected by wage increases than in labor-intensive export sectors. For simplicity, we may therefore assume $I_{w_f} \approx 0$.

Gender effects in exports are more complex to analyze. While men largely produce commodity exports, there is a growing non-traditional agricultural export (NTAE) sector of crops such as specialty fruits and vegetables (e.g., snow peas, baby broccoli) and cut flowers. In many countries (e.g., Uganda, Tanzania), women make up as much as 90 per cent of the workforce in large-scale enterprises. Nevertheless, the share of NTAEs in exports continues to be quite small. As such, the expected sign on the derivative of exports with respect to female wages in (1) is $X_{w_f} < 0$ but the size of the derivative is likely to be small—and certainly much smaller than in SIEs. Higher female wages are likely to have a negligible effect on injections, as a result.
With regard to leakages, again using SSA as an example, there has been little empirical work on the effect of gender on aggregate saving. One study, however, has found evidence to suggest that women may have a higher propensity to consume than men, such that a redistribution to women in the form of higher female wages may stimulate consumption and thus lead to a decline in aggregate saving. In that study using Kenyan household-level data, Kiringai (2004) found that female-headed households have the highest spending multipliers, with expenditures concentrated on food production.

Gender equality may also spur food production, reducing reliance on food imports. This conjecture is buttressed by numerous studies on SSA that find that women have substantial difficulty in gaining access to credit and agricultural inputs. For example, one study found that yields on Kenyan farms could increase by 20% if access to inputs were made more available to women. Similarly, in Burkina Faso, shifting resources from men's to women’s crops could increase output 10-20%, and in Zambia by 15% (Saito 1992; Udry, et al 1995).

Doss (2001, 2006) has found further that gender differences in adoption of new technologies are due to women’s lack of complementary resources. Greater equality could stimulate the adoption of new technologies, raising economy-wide productivity growth. I return to this point in the next section, but want to highlight here the nexus between inequality and food production, which has implications for the import bill.19

Women’s weaker bargaining power in the household also affects their ability to control decisions about time use, with some evidence indicating that men can coerce women to provide labor on male cash crops with the resulting income increasing mens’ control in the household.20 Insofar as this limits time women can spend on their crops, it has a negative effect on children’s well-being, but also on aggregate food production and again, imports. A
redistribution to women that increases their bargaining power (this may be in the form of wages, or greater investment in women’s education, or differential access to credit, for example), can raise productivity and stimulate production of domestically-consumed goods, reducing the import bill, and improving the balance of payments. Proxying for gender equality in male/female bargaining power by female wages, and referring to (6), higher female wages by stimulating food output, reduces the import bill, implying \( Z_{w_f} < 0 \).

Analyzing (1) for the effects of a higher female wage in LIAEs, and signing the variables, we would expect the following signs on partial derivatives with respect to female wages:

\[
\frac{I + X}{-} > \frac{S}{-} + \frac{Z}{-} .
\]

(1’)

In LIAEs, it appears quite plausible that a redistribution to women will stimulate aggregate demand, output, and employment in the short run. This will occur so long as \( X_{w_f} < S_{w_f} + Z_{w_f} \), and this is not unrealistic since the negative effect of higher female wages on exports is likely to be very small. Focusing on the balance-of-payments implications of a gender redistribution, as (6) implies, a redistribution to women in SSA may improve not only the trade balance, but in so doing, may reduce the pressure on central banks to raise interest rates in order to attract capital, with falling interest rates stimulating investment and output.

Figure 2 provides some data consistent with the possibility of a demand-side stimulus of gender equality. The gender equality data is based on an index constructed from several gender measures (wage data are too sparse for SSA to use for an exercise such as this), including gender data on differences in access to credit and land ownership. With a 0 indicative of perfect equality and 1 perfect inequality, we can see that per capita GDP is
higher in those countries with greater gender equality. This of course tells us nothing about growth rates in the recent period or much about the details of short-run macro dynamics, but it does suggest the plausibility of the analysis provided here that gender equality can be a stimulus to output and growth in LIAEs.

### III. Gender and Long-Run Growth

Few scholars have addressed the theoretical implications of a gender redistribution of resources and income for long-run growth in formal macro models. Feminist theorists have, however, done an impressive amount of research that identifies the pathways by which gender matters for growth. Perhaps the most significant contribution of this literature is to link gender equality with productivity growth, via the effect on the quality of the future labor supply. Elson (1995) and others have illuminated the fact that human resources have been treated in mainstream models as “non-produced factors of production” like natural
resources. But in fact, humans require caring or reproductive labor, largely provided by women. Women’s status and the gender distribution of bargaining power and resources therefore will impact on the production of the future labor supply, affecting its quality. Men and women negotiate power in the household, and women’s paid labor is an important factor influencing their bargaining power. It is not surprising that female labor force participation is the subject of much negotiation with their participation rate influenced by the degree of gender equality.

Despite these insights from the gender research of the last twenty years, most empirical models of gender and growth are reduced forms that largely are adapted from neoclassical and endogenous growth models (Klasen 2002; Dollar and Gatti 1999; Seguino 2000a, 2000b). For the most part, they emphasize the supply-side and ignore any demand-side or balance-of-payments constraints to growth (Seguino 2000a, 2000b is an exception, incorporating a role for BPCG). Further, among the few empirical models that have been published to date, the analyses rely on differing measures of gender equality, and not surprisingly as a result, arrive at divergent conclusions as to the relationship between gender equality and growth.

Dollar and Gatti (1999), for example, emphasize the positive synergy between gender equality in secondary educational attainment and per capita income. It is noteworthy that this beneficial effect does not kick in until a certain overall level of education has been reached. Below that level, the relationship is not significant. The authors suggested that this is because places where secondary education are not widespread also tend to be poor, agrarian economies where economic returns to education are likely to be restricted to a small formal sector. Klasen (2002) uses a similar approach, regressing GDP growth on gender gaps in education, and a set of conditioning variables and obtains comparable results.
Seguino (2000b), however, uses a data set restricted to SIEs and employs the education-adjusted gender wage gap as the measure of gender inequality. She finds that inequality is a stimulus to growth even in the longer run, due to the effect of low female wages on the balance-of-payments-constraint with low female wages fuelling exports, generating the foreign exchange to purchase technology-intensive imports that raise productivity.

While these results might seem contradictory, it is not difficult to reconcile Klasen (2002) and Dollar and Gatti (1999) with Seguino (2000a, 2000b). Insofar as more education for women raises their productivity, profits rise so long as wages do not. Substantial social and economic pressures hold down female wage growth, including the mobility of the firms that employ them (Seguino 2006b, 2007). Thus, increases in education without compensation in the form of higher wages, may in fact be a stimulus to growth, since the net effect is a stimulus to profits and/or a decline in export prices. What is missing from these analyses, however, is a role for demand. I attempt to address that lacuna here with a very simple growth model that incorporates demand-side effects of gender distribution of income.

A Simple Growth Model with Endogenous Productivity Growth

Here I build a simple growth model, integrating the role that gender plays. Using a simple reduced form Solow growth equation, growth is determined by the rate labor supply growth and productivity growth, or

\[ y = \lambda + \beta \]  

where \( y \) is the growth rate of output, \( \lambda \) is the growth rate of the labor force (in quantity terms), and \( \beta \) is productivity growth (induced by technical progress). As many have noted,
this supply-side growth-accounting approach elides the interesting and pressing questions as to what factors influence the size of the labor force and the rate of productivity growth.

Feminists and Post-Keynesians more generally, however, have had a good deal to say about the determinants of these variables. Recent contributions to the gender literature have explored factors that influence the size of the labor force. Women’s fertility can act as a constraint on labor force participation, and thus has a negative effect on the growth rate of the labor force. Fertility in turn is argued to be influenced by the degree of gender equality and thus women’s power to control their own fertility with evidence indicating that women, on average, desire fewer children than men.

Gender norms and stereotypes also influence the rate of labor force participation by women (Kabeer 2003). Some research suggests that women’s ability to participate in paid labor is circumscribed by masculinity norms whereby men restrict women’s access to work as a way to maintain control in the family and as a way to signal social status (Drèze and Sen 1995; Fleck 1988). An example of this in SSA (although such practices pervade household relations in many parts of the world) regards the Ariaal, a nomadic tribe in northern Kenya. Ariaal women produce milk and sell surpluses in local markets. But men determine where the tribe will establish itself, and research indicates that men will often insist on staying some distance from markets to limit their wives’ access to the market and thus income for fear that the additional income might undermine male control in the household. It is plausible that greater gender equality (perhaps higher wages that raise the opportunity cost to the household of excluding women from paid work) leads to a rise in labor force participation rates. We can thus assume that \( \lambda_{w_f} > 0 \).

With regard to productivity growth, efforts by new growth theorists to endogenize the rate of productivity growth have been noteworthy although these approaches still do not
adopt a role for demand. And yet, many scholars of Asian economic growth would argue that the rapid rates of growth in those economies were in part the result of “learning by doing” (Amsden 1989). Productivity growth is also fuelled by increases in the quality of the labor supply (human capital) that is complementary to technological investments.

Incorporating these insights, and taking the approach then of a Kaldorian technical progress function, the rate of productivity growth can be expressed as:

$$\beta = \phi_o + \phi_i g + \theta' H$$

where $\phi_o$ is autonomous (or unexplained) technical progress, $g$ is the rate of growth of the capital stock, and $H$ is a vector of inputs that increase the efficiency of human capital (with $\theta'$ a vector of coefficients on those inputs). A variety of factors can induce increases in $H$, including, for instance, government expenditures on health and education. As outlined previously, gender equality can also be expected to have a positive effect on $H$. Women are more likely to invest in income on health, nutrition and education, which improves children’s well-being. Women’s empowerment has been found to improve the educational attainment of girl children, for many complex reasons. Declines in fertility, infant mortality, and malnutrition are induced by improvements in women’s status.

Thus an increase in income under women’s control can induce higher $H$, such that $H_{w_i} > 0$. For simplicity and to maintain our focus on gender wage inequality (ignoring the role of government spending), we can rewrite (8) as

$$\beta = \phi_o + \phi_i g + \phi_1 H.$$  \hspace{1cm} (8')

The growth rate of the capital stock in implicit form is:

$$g = g(r,u,i)$$

\hspace{1cm} (9)
where $g$ is the growth rate of the capital stock and $r$ is the economy-wide profit share of income.

Incorporating the gender equality effect on the size of the labor supply and substituting (8') and (9) into (7), we have:

$$ y = \lambda(w_f) + \phi_0 + \phi_1 g(r, u, i) + \phi_2 H(w_f). \quad (7') $$

We can use (7') to evaluate the effect of gender equality on long-run growth. With regard to semi-industrialized economies discussed in Section II, recall that higher female wages have a negative effect on the profit share of income (and thus the economy-wide profit share) and on output, and a positive effect on the interest rate (via the negative effect on the trade balance). Differentiating (7') with respect to $y$ and the female wage, with respective signs shown below the variables

$$ \frac{dy}{dw_f} = \left[ \lambda_{w_f} + \phi_1 \left( g_{w_f} r_{w_f} + g_{w_f} u_{w_f} + g_{w_f} i_{w_f} \right) + \phi_2 H_{w_f} \right]. $$

(+)  
(-)  
(-)  
(-)  
(+)  

For SIEs, if the negative effect on the growth rate of the capital stock outweighs the benefits of greater labor force participation and the improvements to the quality of the labor supply (the first and last terms on the right hand side), then gender equality will have a negative effect on long-run growth. That is, demand-side and BPCG effects would be binding. For gender equality to be a stimulus to growth, $\phi_1 g_{w_f} < \lambda_{w_f} + \phi_2 H_{w_f}$. We really have little empirical evidence to be able to evaluate the size of these derivatives, although in the case of the East Asian economies, given the large share of investment in GDP (around 40%), it would seem very difficult for gender equality’s effects on human capital and the size of the labor force to outweigh the negative effects on the growth of the capital stock.
In LIAEs, the benefits of gender equality are more certain. Using the fact from Section II that gender equality reduces imports, relaxes pressure to raise interest rates and stimulates consumption and therefore utilization, then after differentiating (7') with respect to $y$ and $W_F$ and noting the expected signs, we obtain:

$$\frac{dy}{dw_F} = \left[ \lambda_{w_F} + \phi_1 \left( g_{r_F} + g_{u_{w_F}} + g_{i_{w_F}} \right) + \phi_2 H_{w_F} \right].$$

Here $\frac{dy}{dw_F} > 0$ almost certainly, since female wages have little effect on investment. This result is consistent with the claims of Klasen (2002) and others, but here there is also an explicit role not only for aggregate demand, but also for wages (recall that Klasen relies only on measures of gender inequality in education to obtain his results), with consequent effects for the growth rate of the capital stock and the labor force.

IV. Conclusion

This paper identifies the pathways by which gender equality can affect short- and long-run macroeconomic outcomes. A more detailed elaboration of the short- and long-run models is necessary to more fully evaluate the effects of gender equality on growth. Of interest, even at this preliminary stage, is how the role of gender changes, based on the structure of the economy, with implications for long-run growth.

I would like to emphasize that this work is at a preliminary stage in a number of respects. The empirical research on the role of gender, while growing rapidly, nevertheless has significant gaps that make it difficult to draw conclusions about the effects of gender wage equality on various macroeconomic variables, particularly imports. In addition, the role of government and the budget deficit is of great importance in some regions, including
Africa. A model that incorporated government spending and constraints due to limits on public sector borrowing would add a good deal of realism to this model for LIAEs. Further, given that food prices are a major factor in pushing inflation in SSA, a modeling approach that incorporated price effects of increased food supply on inflation, with implications for central bank policy, would be of great interest.

I would like to identify one further caveat. While the results for SIEs suggest inequality is a stimulus to growth, this does not imply that ignoring inequality—or taking steps to reduce it—is undesirable macroeconomic policy. Rather, this suggests the incompatibility of export-led growth with gender equality where women are segregated into labor-intensive export sector employment. Numerous others have noted the limitations of the export-led growth strategy (Bello 1991; Palley 2002a; Blecker 2003) but here, we underscore the gender limitations of such a strategy. Seguino and Grown (2006a) take this issue up, and outline a set of macroeconomic policies that would be required to make growth compatible with gender equality for middle-income countries that are trying to move up the industrial ladder.
REFERENCES


1 A significant share of male and female employment is in the services sector, but in many cases, this is residual employment, and wages in the dynamic manufacturing sector have a strong influence on wages in other sectors.

2 This is a stylized fact, with some variation. For example, in a number of Sub-Saharan economies, women are now producing non-traditional export crops. Still, revenues from these comprise a relatively small share of total export crop earnings.

3 It should be noted that there have been critiques of BPCG models, including by post-Keynesians. For example, Palley (2002b) argues that the world economy is ultimately closed, and therefore, cannot be the engine of growth for the world economy has a whole. While that is the case, BPCG is salient for developing open economies, which must rely on imported technology to raise productivity growth. A second critique is that supply and demand growth must be balanced in the longer run, with the result that productivity growth must be consistent with demand growth (as determined by the rate of growth of export demand).

4 Other factors may improve women’s bargaining power, in addition to income. For example, women’s rights to land ownership are also linked to improvements in their bargaining power, with beneficial effects on production decisions, farm output, and family well-being (Deere and Leone 2002).

5 For an interesting discussion of the social costs of labor and problems of cost shifting, see Prasch (2005).

6 Elson (1995) has also argued persuasively that structural adjustment policies, intended to alter the production mix from the public to private sector, and from non-tradables to tradables, has been unsuccessful in many cases, because labor is not easily transferable from one activity to another, due to rigid gender norms about employment.

7 For more on understanding why the measure of inequality matters, see Seguino (2005).

8 There has in fact been very little research on how gender affects macroeconomic outcomes in industrialized economies. The exceptionally insightful work of a number of economists such as Diane Elson (1991, 1995) and Nancy Folbre (1986, 1994) on the importance of reproductive labor and time and resource expenditures on children’s well-being as a form of investment in public goods provides, however, some of the foundational empirical work that can be used to inform macro models of such economies.

9 In Blecker and Seguino (2002), investment goods are both produced domestically and imported, a useful complication, but one that I drop here in order to simplify the results, with no great disservice to the comparative static results.
Other salient measures of gender inequality mentioned previously, are educational and health gaps. However, these are more akin to stock variables, and change only very slowly. They are thus not good measures to capture gender equality in short-run models. Country studies that assess the portion of gender wage differentials due to discrimination are too numerous to be exhaustively inventoried here. For some examples, see Birdsall and Behrman (1991), Behrman and Zhang (1995), Horton (1996), and Psacharopoulos and Tzannatos (1992). The latter two studies find that the bulk of gender wage differentials (55 percent in Asia and 75 percent in Latin America) are explained by factors other than human capital differences.

A number of Post-Keynesians have found small or negligible effects of interest rates on investment (e.g., Fazzari, Hubbard, and Petersen 1988) but most of these empirical studies have been of developed economies where equity markets are well developed. In SIEs and LIAEs, a much larger share of investment is debt-financed (Wade and Veneroso 1998).

See also Braunstein (2000) for an interesting Kaleckian model that focuses primarily on the relationship between gender wage inequality and foreign direct investment.

This is of course a strong and unrealistic assumption. In semi-industrialized economies, the evidence shows overwhelmingly, however, that women make up the largest share of export workers in labor-intensive industries such as data processing (informatics in the Caribbean), textiles, garments, footwear, and electronics (Standing 1989, 1999). Women also find employment in other sectors of the economy, primarily in service work and jobs in the public sector. In agricultural economies, particularly in Sub-Saharan Africa, the situation is quite different, with women engaged in subsistence production that is also import competing, while men tend to specialize in commodity export production. Manufacturing sectors are much smaller in those countries. Based on these stylized facts, a more complex and detailed model might include a weighted average export price of the form:

\[ P_X = \alpha(1+\tau)[W_F b_f + eP_z + z] + (1-\alpha)((1+\xi)[W_M b_m + eP_z + z] \]

where \( P_X \) is the domestic price of exports, \( \alpha \) is the share of exports produced in female-dominated industries, \( \tau \) is the mark-up rate over unit costs, \( b_f \) and \( b_m \) are labor coefficients in the female and males sectors respectively, and \( z \) is the import coefficient. The mark-up in male dominated export industries is \( \xi \).

The labor coefficient is the inverse of labor productivity. Here, labor productivity is assumed to be exogenous, but in the next section, economy-wide productivity growth is endogenized. Efficiency wage effects, however, are not considered in this paper. It would be useful to extend both short-run model by endogenizing both female and male labor productivity, to explore the macroeconomic impact of efficiency wage effects. There is little empirical work that considers gender differences in efficiency wage effects, but in previous work, I have argued that higher female wages in South Korea had a less negative effect on export growth than in other SIEs. This may have been due to the fact
that higher wages there produced strong efficiency wage effects that were made possible by the limited mobility of firms. That is, firm immobility permitted positive productivity effects to emerge as female wages rose, whereas in a context of mobile capital, firm threats to relocate hold wages down, or if wages do rise, firms relocate before productivity effects can be observed (Seguino 2000c, 2007).

16 Note that allowing for separate male and female export sectors would result in different demand and import elasticities for export by sector.

17 For an interesting Keynesian modeling approach that focuses on the effects of feminization of the labor force, however, see Erturk and Cagatay (1995). They examine how secular and cyclical changes in the degree of feminization of the labor force and the intensity of female unpaid domestic labor influence the behavior of the macroeconomy. They argue that an increase in the feminization of the labor force is likely to have a positive effect on investment, and that the savings rate would be positively related to the intensity of female unpaid domestic labor. They use this model to investigate under what conditions an adjusting economy would experience an economic recovery in the market sector by shifting costs onto the reproductive sector. On the basis of their analysis, they conclude that this is likely to succeed when the impact of feminization of the labor force on investment is stronger than the impact of the intensity of female unpaid domestic labor on savings. This, they argue, is more likely to be the case in high and high-middle income countries.

18 While there are no systematic data on SSA, studies of Rotating Savings and Credit Associations (ROSCAs), where women are majority of participants, are purported to increase household savings (Anderson and Baland 2001). This may also stimulate women’s investments in on-farm production activities, however, so it is not clear that this would result in a negative demand-side effect.

19 Over the last 30 years, population growth has exceeded the growth of agricultural production, with the result that in a number of SSA countries, food as a share of imports is relatively constant or rising, and lies between 12-20% for most SSA countries.

20 For a formal model of a gender-segregated agricultural economy, see Darity (1995).

21 The data are from Morrisson and Jütting (2005).

22 Several scholars have explored the effect of the level of economic activity and per capita income on female labor force participation, beginning with Boserup (1970), who argues for a “feminization U.” That is, she argues that women’s share of the labor force declines during the early stages of development but in more mature economies, that share rises again. Cagatay and Olzer (1995) find that female labor force participation declines during downturns with women serving as a buffer labor stock, and increases during upturns. See also Erturk and Darity (2000). Other researchers focused on the impact of structural adjustment programs find that women engage in “distress” sales of labor during economic hard times. In either case, this suggests that $\lambda$ may be endogenous under some conditions. I
have not developed that point in this paper, but it is a useful extension that would be important to pursue.