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Development and Gender-Linked Economic Inequality in the Era of Globalization

ABSTRACT This paper focuses on the relations between development and gender disparities in labor market outcomes in the era of globalization. Within a cross-national comparative framework, the article examines the relations between development and globalization and three aspects of gender-linked disparities (women's labor force participation, gender occupational differentiation, and gender pay gap) at two time points: 1990 and 2015. The data reveal patterns in the relationship between development, globalization, and each dimension of gender inequality. First, development but not globalization tends to increase women's labor force participation. Second, development is likely to reduce gender occupational segregation. But the effect is indirect; it is transmitted via the increased number of economically active women. Third, less gender occupational segregation does not necessarily mean greater occupational equality; high female labor force participation is likely to reduce women's likelihood of employment in high-status professional and managerial occupations. Fourth, gender occupational inequality appears to be one of the sources of a country's gender pay gap; the pay disparity between men and women tends to be greater in countries where gender occupational inequality is high. A model that summarizes the complex relations among development, globalization, and the various dimensions of gender-linked economic activity and inequality is proposed and discussed.   KEYWORDS globalization, economic development, labor market inequality, gender inequality, occupational segregation

Social scientists have traditionally argued that, "in the long run," economic development increases social equality and decreases economic disparities. According to the traditional view, development is associated with a series of social and economic processes that lead to greater economic equality. These processes include industrialization, technological progress, scientific growth, educational expansion, mass communication, urbanization, geographical mobility, and especially the transformation of the occupational structure from manual jobs to professional and service occupations. In addition, modern and developed economies are likely to adopt universalistic criteria in allocating workers to occupational positions and in rewarding them. That is, developed economies are more likely to reward workers according to skills and productivity, regardless of gender (or other ascribed characteristics). Greater demand for rational allocation of individuals to positions in the labor market is especially consequential for women's opportunities because it leads to greater gender equality.

Theoretical expectations regarding the relations between development and economic inequality in general, and between development and gender-linked economic disparities in particular, were formulated in light of social changes associated with the process of

industrialization. It is not clear, however, whether and to what extent the ties between development and gender-linked economic disparities in the era of globalization are similar to those observed in previous decades. It is reasonable to expect that in an era of globalization (when nations are tied together in one global labor market, competitiveness in the market is increasing, and the welfare state is expanding) patterns of gender-linked disparities would change. Generally speaking, it is expected that the relative status of women in the labor market would continue to improve with development and with greater integration of nations into the world economy and that economic disparities between men and women would narrow due to the competitive nature of the global market (Chow 2003; Forsythe, Korzeniewicz, and Durrant 2000; Gray, Kittilson, and Sandholtz 2006; Meyer 2003; Moghadam 1999; Potrafke and Ursprung 2012).

In this paper I examine the relations between development and gender-linked economic disparities in 1990 and 2015, two times which can be viewed as bounding an era of globalization. I examine cross-national variations in the relations between development, globalization, and three aspects of gender-linked disparities: women's labor force participation, gender occupational differentiation, and earnings gaps between men and women. I expect the impact of development on gender disparities to vary across the three dimensions, because each dimension represents a different form of inequality.

DATA AND VARIABLES

Data on the labor force activity and economic outcomes of men and women by country in 1990 and 2015 were gathered from several sources, but mostly from the World Bank and the International Labour Organization.[1]

The analysis is limited to countries with at least 3 million people for which data for GDP per capita (as an indicator of level of economic development; hereafter GDP) and level of globalization (hereafter GLOB) were also available. GDP per capita has long been considered a valid indicator of economic development and as such was repeatedly utilized as a predictor of female labor force participation and of gender economic inequality.[2] Researchers often transform the GDP distribution into logarithms to correct for skewness of distribution, and by doing so they devalue the extreme cases at the top end of the distribution. I decided not to use the logarithm because the logarithmic distribution of GDP is highly correlated with the index of globalization ($r = .86$). The high correlation between the two variables produces severe problems of multicollinearity in estimating the net impact of both (log) GDP and GLOB on the dependent variable in regression equations.

Indexes of globalization were introduced to the literature only recently (e.g., Dreher 2006; Gygli, Haelg, and Sturm 2018; Heshmati 2006; Potrafke 2010; Potrafke and Ursprung 2012; Sapkota 2010). In the present analysis, as a predictor of gender differences in labor market activity and labor market outcomes I employ the KOF globalization index, constructed and used by Dreher (2006, Table 2) and later updated by Gygli, Haelg, and Sturm (2018).[3] Ranging from 0 (minimal globalization) to 100 (maximal globalization), it is a time-weighted aggregate of three dimensions of globalization—economic, social, and political—for every country in the world. Economic globalization includes such factors as total exports, and amount of international debt. Social globalization includes factors such as

international phone traffic and number of McDonald's restaurants. Political globalization includes, for example, the number of international embassies. Every dimension was further divided into de jure and de facto. While de jure dimensions take into account country policies facilitating globalization, such as the number of international airports, de facto dimensions measure activities and flows related to globalization, such as migration. Using factor analysis, the index was weighed differentially between dimensions and over time (Gygli, Haelg and Sturm 2018).

Data on female labor force participation, available for 85 countries, were used to compute two indicators for women's scope of economic activity. The first indicator is female labor force participation (FLFP), women's share of the economically active labor force relative to men; the second is rate of participation among women (FRATE). The two indicators are highly associated, with correlation $r = .83$. But whereas the former captures participation of women relative to men, the latter pertains to the participation of women independent of men's participation and is therefore less relevant for the present paper, which focuses on gender-linked inequality.

Data on occupational distributions of the two genders are from the International Labour Organization (2017). The data are available only for five major occupational categories across 42 countries. These data are used to compute gender occupational segregation (SEGR) and gender occupational inequality (ODPTM). SEGR is an estimate of the difference in occupational distributions between men and women in each country.[4] ODPTM is an estimate of the odds of women (relative to men) for employment in high-status professional, technical, and managerial occupations. Reliable data on earnings disparity between men and women (the gap between men and women as a percentage of men's earnings, PAYGAP) are available for only one point in time (around 2015), and for only 30 countries.[5]

DEVELOPMENT AND INEQUALITY: GENERAL THEORETICAL PERSPECTIVES

Setting aside gender for a moment, it is important to note that the expected relations between development and socioeconomic inequality do not necessarily take a linear form. In fact, Marx (1957) did not predict a positive association between development and equality. On the contrary, he saw a world ravaged by extreme socioeconomic inequality brought forth by rapid industrialization, through the expulsion of farm workers from their lands and the emergence of a regime of private ownership of the means of production. He argued that inequality is the necessary result of an industrialized capitalist society.

A century later, however, prominent scholars of social stratification presented a different view. For example, Kuznets (1955) and Treiman (1970) suggested that the relation between inequality and development was a U-shaped "long swing," with inequality rising and intensifying in the early stages of industrialization but declining afterward. More specifically, they argued that the major capitalist economies saw an increase in inequality during the first years of the industrial revolution, but a slow decrease through the end of the nineteenth century and the beginning of the twentieth. In fact, both Kuznets and Treiman contended that throughout the twentieth century capitalist developed economies had seen a steady decline in various forms of economic inequality. That is, in the long haul economic development promotes greater equality in the distribution of economic rewards.

Notwithstanding the role played by development, social scientists suggested that the time that industrialization began is a key factor in understanding the relationship between development and inequality (Black 1966; Chenery and Taylor 1968; Singelmann 1978a, 1978b). For example, researchers operating within the world-system theoretical paradigm argued that the relations between development and inequality in less developed economies (where industrialization started late) are sharply different from the relations in highly industrialized countries. More specifically, they argued that due to the international division of labor and the asymmetric power relations between poor-peripheral countries and core-capitalist economies (with poor-peripheral countries being politically and economically dependent on the rich core-capitalist economies), foreign investments had suppressed and distorted the evolutionary process of development in the developing nations (Cardoso and Faletto 1979; Chirot 1977; Portes 1976).

This view was supported by a large body of research revealing that development associated with foreign investments in poor countries leads to rising income inequality (Chase-Dunn 1975; Evans and Timberlake 1980; Fiala 1983; Rubinson 1976), overurbanization (Kentor 1981), and disproportional rise in various segments of the service and informal sectors of the economy (Evans and Timberlake 1980; Fiala 1983; Kentor 1981; Semyonov and Lewin-Epstein 1986). Indeed, students of world system and dependency have underscored the roles of the international division of labor and external forces such as foreign investment in patterns of inequality in less developed countries in their initial stages of development.

In the neoliberal era, however, the discussion has shifted from the role of industrial transformation and foreign intervention to the ways globalization (i.e., integration into the global labor market) may affect the tie between development and inequality. Globalization is characterized by the free flow of technology, knowledge, information, trade, capital, and labor across borders (Dreher 2006; Heshmati 2006). The last is especially meaningful for the present discussion (Massey et al. 1998). International migration in the era of globalization became bifurcated, with low-skilled workers and high-skilled professionals taking different jobs in the global market (Massey et al. 1998; Sassen 2001). That is, an ever-increasing number of workers, whether men or women, whether high-skilled or low-skilled, are searching for better economic opportunities and higher economic returns on human-capital attributes in the global market.

Specifically, labor migrants from poor countries are attracted to the rich economies to fill menial, low-skilled, low-paying jobs that the local population is reluctant to take. Although labor migrants become a source of cheap labor in the host country, their earnings are considerably higher than the potential earnings in the home country (Gorodzeisky and Semyonov 2014). Much of what they earn is remitted back home (Massey and Parrado 1994; Semyonov and Gorodzeisky 2004, 2005, 2008), and as such constitutes a substantial portion of the poorer country's GDP. Unlike the labor migrants, highly skilled professional experts are recruited from all across the globe by the emerging lucrative high-tech industries (most located in the major global economic centers of the rich countries). Due to the intense competition over skills and knowledge, highly skilled professionals are paid top salaries in globalized economies.

Consequently, economic disparities between highly paid workers (at the top of the income distribution) and poorly paid workers (at the bottom of the income distribution) are widening. At the same time, disparities between households with labor migrants and households without labor migrants in the poor countries are also widening (due to the remittances sent by labor migrants back to family members). Indeed, globalization affects inequality in complex ways, and social scientists are still debating whether, to what extent, and in what ways inequality, whether between or within nations, is shaped by globalization (Dreher 2006; Dreher and Gaston 2008; Heshmati 2006; Massey et al. 1998; Mills 2008; Sapkota 2010).

Curiously, although the literature on the impact of globalization on inequality has grown and became substantial, very few studies have focused on the impact of globalization on gender-linked economic inequalities (for notable exceptions see Forsythe et al. 2000; Gray, Kittilson, and Sandholtz 2006; Meyer 2003; Oostendorp 2009; Potrafke and Ursprung 2012). Thus, in what follows, I intend to contribute to the literature by examining the ties between economic development and gender-linked economic inequalities in the era of globalization. I focus on the relations between development, globalization, and three aspects of gender-linked disparities: labor force participation, occupational attainment, and earnings outcomes. The data presented here pertain to two time-points: 1990 (representing the last decades of the previous century) and 2015 (representing the turn of the new millennium).

WOMEN'S LABOR FORCE PARTICIPATION: THEORY AND PREVIOUS RESEARCH

Researchers have traditionally argued that rising women's labor force participation is initially a consequence of industrialization (Collver and Langlois 1962; Semyonov 1980; Wilensky 1968). They contend that industrialization brings women to the workplace through changes in the occupational structure, coupled with expanding educational opportunities, declining fertility, and the changing function of the family (from a production unit to a consumer unit). Industrial development, technological growth, and scientific progress, coupled with educational expansion (linked with the development of modern economies), seem to generate both a greater rational allocation of skills and talent to occupational positions (regardless of gender) and a greater supply of and demand for female laborers (Oppenheimer 1973; Semyonov 1980).

The increased demand for female workers in the economic arena was attributed, first and foremost, to the transformation of industrial and occupational structures associated with industrialization. That is, with increased technological development and productivity the decline of the primary (agriculture) and secondary (manufacturing) sectors is accompanied by growth in trade, finance, transportation, and professional, social, and personal services. Eventually, the tertiary sector becomes the largest sector of the economy of the "post-industrial society" (Bell 1973). That is, the post-industrial society is predominantly composed of service, professional, and semi-professional occupations and a variety of jobs that are based on knowledge instead of on physical skills.

Indeed, the process of industrial transformation, and especially the emergence of the "post-industrial" economy, produced a greater demand for employees in white-collar and "pink collar" (service, clerical, sales, semi-professional, professional, and managerial) occupations

(Singelmann and Browning 1980); many of these occupations are, in fact, "female-demanding" or "female-typed" occupations (Oppenheimer 1973). On this issue Singelmann (1978b:12) indicated that "most services require little physical strength and this should remove a further barrier to the equal employment of women." Furthermore, professional and semi-professional employment is based, first and foremost, on acquired knowledge. Therefore, with the expansion of educational opportunities for women, increasing numbers of women began taking jobs in professional and semi-professional occupations. Likewise, the rise of service industries and white-collar, clerical, professional, and semi-professional occupations provides greater demand, hence, more job opportunities for women (Oppenheimer 1973; Semyonov and Scott 1983). The introduction of welfare-state policies and the expansion of the public sector in advanced and rich societies also created new job opportunities, especially for women (Esping-Andersen 1990; Gornick 1999; Mandel and Semyonov 2005, 2006).

Although social scientists generally acknowledge that development and female labor force participation are positively associated (except possibly at the early stages of development), a substantial number of researchers found that the relationship between female labor force participation and development is not monotonic and can be best described as U-shaped (Boserup 1970, Çağatay and Özler 1995; Durand 1975; Goldin 1995; Pample and Tanaka 1986; Tam 2011). That is, participation is high at very low levels of economic development; it then tends to decline in low to mid-levels of development; but beyond the mid-level, participation tends to increase monotonically with level of development.

The world-system paradigm shifts the focus from internal characteristics of the social system to external factors in the process of development. According to this view, the introduction of modern technologies, advanced equipment, and capital-intensive techniques into the economies of less developed countries has led to rapid reduction in the size of the labor force employed in agriculture and to disproportional growth of the manufacturing and service sectors. The rapid changes in the industrial structure of less developed countries, in turn, had differential consequences for employment opportunities, being more beneficial (or less harmful) for men than for women, for two reasons. First, many more women than men had to stay or take low-paying jobs in the agricultural sector (Boserup 1970, 1990; Young 1982). Second, women in poor economies became a target of economic exploitation by employers interested in low-cost, reliable, disciplined, and replaceable labor (Cho and Koo 1983; Marshall 1985; Robert 1983, Semyonov and Shenhav 1988).

Whereas theories of development emphasize the impact of both demand and supply on female labor force participation, the dependency perspective focuses mostly on the demand for female workers brought by structural changes in the economy. According to the world-systems dependency paradigm, rising female labor force participation in developing countries can be mostly understood as resulting from the decline in agricultural employment and the rise of competitive capitalism, as also evident in employers seeking women as cheap laborers. Indeed, the two approaches seem to address different questions. The development perspective is mostly concerned with the social conditions that promote female labor force participation, while the dependency approach is mostly

concerned with economic exploitation as a major reason for the recruitment of women into the economically active labor force.

The very few studies that focused on the impact of globalization on gender inequality have found globalization to exert a positive impact on female status in society and on gender equality (e.g., Forsythe, Korzeniewicz, and Durrant 2000; Gray, Kittilson, and Sandholtz 2006; Meyer 2003). For example, Meyer (2003) demonstrated that integration into the world economy tends to reduce gender occupational segregation and inequality. Gray and his colleagues (2006) argued that interconnectedness and increasing cross-national exchange lead to improvement in women's economic status and greater equality. Forsythe, Korzeniewicz, and Durrant (2000) concluded that toward the end of the century women's relative general status (as measured by the Gender Development Index) had been improving with economic development and globalization. Potrafke and Ursprung (2012) relied on a "social institutions and gender index" as a proxy of gender equality and women's relative status in society to study the impact of globalization on gender inequality. They detected positive, significant, and robust associations between a globalization index and gender equality. Based on these findings, they concluded that globalization strengthens institutions that promote and foster gender equality through empowerment. They expressed "optimism regarding the effects of globalization in the development process. Through institutions, in the longer term, globalization is predicted to increase gender equality" (409). In what follows I test this optimistic view by examining the impact of development and globalization on various aspects of gender-linked inequality.

FEMALE LABOR FORCE PARTICIPATION: FINDINGS

Across 85 countries, women's average share of the economically active labor force was 38.6% (SD = 9.4) in 1990 and 42.4% in 2015 (SD = 8.1) (Figure 1). Likewise, the average participation rate of women (across countries) increased from 50% in 1990 to 54% in 2015 (Figure 2). Women's share of the country's economically active labor force is highest in Rwanda, Togo, and Nepal and lowest in Saudi Arabia, Iran, and Algeria. In the United States, the Netherlands, and Hungary it falls in between. Participation of women in the economically active labor force increased in almost all countries between 1990 and 2015 (some exceptions are Egypt, India, Thailand and Bangladesh). Considering that this number was about 30% in 1970 (Semyonov 1980), it appears to have been steadily increasing globally over the last five decades.

The findings presented in Table 1 pertain to whether and to what extent cross-national variation in female labor force participation in the era of globalization is systematically associated with development beyond and over the trend of rising participation. To answer this question I estimated a series of regression equations predicting FLFP and FRATE, respectively. In equations 1 and 1a FLFP and FRATE, respectively, are taken as a function of GDP (as a proxy of development), controlling for the trend of increasing participation (by using YEAR, a variable that distinguishes between the 1990 and 2015 time points, as a control variable). In equations 2 and 2a GDP is replaced by GLOB. In equations 3 and 3a GDP and GLOB (plus YEAR as a control variable) are introduced into the model as two predictors of FLFP and FRATE, respectively.
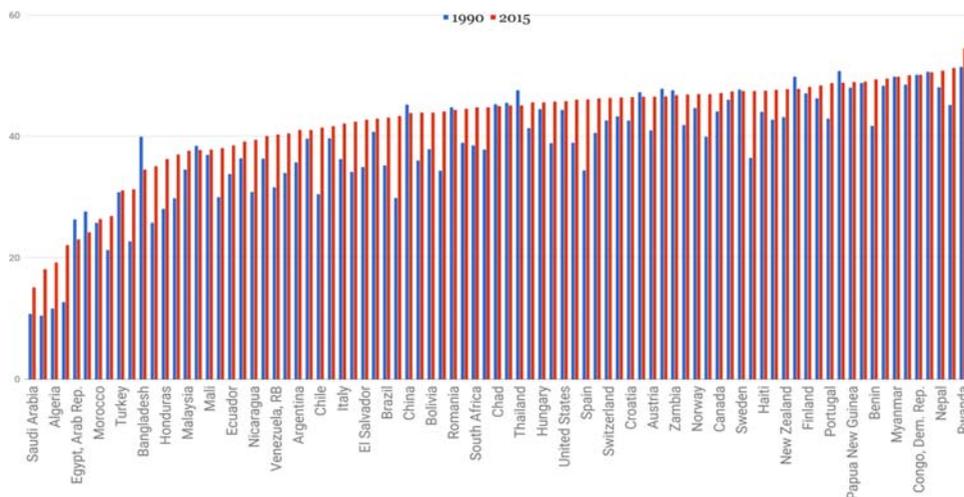
FIGURE 1. Female percentage of the labor force in 85 countries, 1990 and 2015
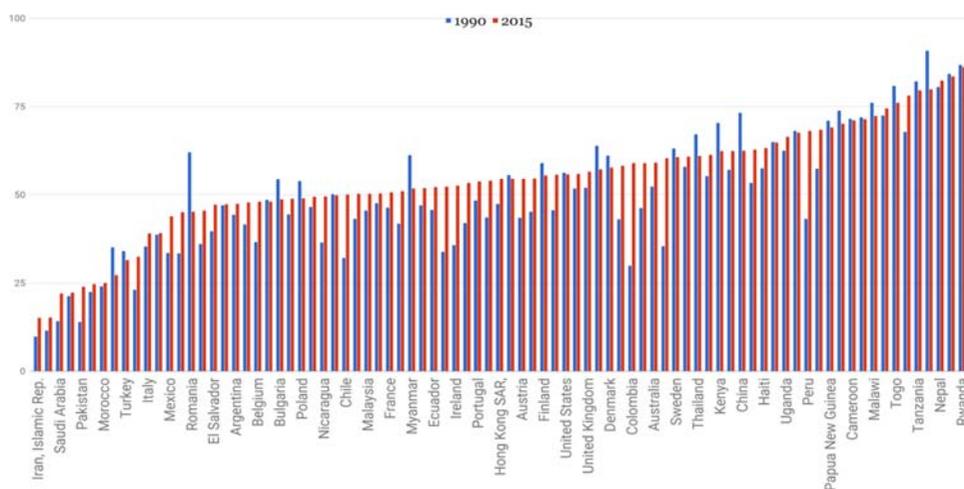

FIGURE 2. Rate of women's participation in the labor force in 85 countries, 1990 and 2015

Between 1990 and 2015 women's share of the economically active labor force significantly increased, as shown by the positive and significant coefficient for YEAR in all three equations. The results also firmly support the thesis that net of the trend, development provides women with opportunities to become economically active, as indicated by the positive effect of GDP on FLFP as well as on FRATE in equations 1, 1a, 3, and 3a. The higher a country's GDP, the larger is women's share of that country's economically active labor force. The results of equation 2 (where GDP is replaced by GLOB) do not support the thesis that globalization increases FLFP.[6] This observation is reaffirmed by equations 3 and 3a, where both GDP and GLOB are included as simultaneous predictors of FLFP. Whereas the impact of GDP on FLFP remains positive and significant, the effect of GLOB on FLFP or on FRATE is negative, suggesting that net of the trend and net of level of economic development globalization reduced participation of women in the economically active labor force.

TABLE 1. Coefficients of Regression (*t*-values) Predicting Female Labor Force Participation (FLFP, Share of Women in the Economically Active Labor Force) and Rate of Participation in the Labor Force among Women (FRATE) in 87 Countries in 1990 and 2015

| | Equation 1 | Equation 2 | Equation 3 | Equation 1a | Equation 2a | Equation 3a |
	FLFP	FLFP	FLFP	FRATE	FRATE	FRATE
GDP × 10^5	8.84* (2.25)	–	20.56** (3.16)	–3.10 (–0.41)[b]	–	41.43** (3.53)
Globalization	–	0.02 (0.46)[a]	–0.16* (–2.25)	–	–0.24** (–3.08)	–0.60** (–4.73)
Year (2015 = 1)	3.33* (2.46)	3.49* (2.29)	5.24** (3.31)	4.20 (1.64)[c]	7.96** (2.87)	11.49** (4.01)
Constant	37.69**	37.61**	44.08**	50.36** (26.02)	61.60**	74.65**
R^2	0.073	0.05	0.101	0.016	0.068	0.133
N	170	170	170	170	170	170

*p < 0.05; **p < 0.01
[a]VIF = 1.27; [b]VIF = 1.03; [c]VIF = 1.03

This in turn suggests that development, but not globalization per se, is likely to increase the labor force participation of women.

GENDER-LINKED OCCUPATIONAL DIFFERENTIATION: EXPECTATIONS

Participation of women in the economically active labor force does not necessarily mean greater equality. Women's work participation is only one dimension of equal opportunity. Even when more women are recruited into the economically active labor force, they can still be disproportionately recruited into poorly paid female-typed occupations. Although gender-linked occupational segregation has been declining over time in capitalist advanced societies (Blau, Brummund, and Liu 2013; Cotter, Hermsen, and Vanneman 2004; England 2006, 2010; Jackson 2006; Mandel and Semyonov 2014), gender segregation, with men and women concentrated in different occupational categories, is still substantial in many countries (Bielby and Baron 1986; Chang 2004; Charles 1992).

Two alternative theoretical explanations can be advanced to account for the trend in occupational differentiation by gender. The first is rooted in the long-held thesis of modernization's tendency toward universality in the division of labor. According to this view, one can expect the relationships among industrialization, specialization of labor, and gender to decrease over time and with economic development. That is, modern advanced economies are more efficient and more likely to operate according to universalistic criteria and, therefore, to assign individuals to positions in the labor market by skills, regardless of their gender.

However, under a different theoretical premise one can reach the opposite expectation regarding the relations between development and gender occupational differentiation. Under the premise that occupations are sex-typed and that gender becomes a major criterion in allocating individuals to positions and jobs, one can expect gender-based occupational segregation to increase with economic development (and over time). The logic is that when more women are recruited to labor markets that are segmented and organized by sex-typed occupations, a disproportional number of them will be channeled to female-typed occupations, so gender occupational segregation and gender occupational inequality are likely to increase over time with development.

GENDER OCCUPATIONAL SEGREGATION: FINDINGS

To test the two alternative expectations, I computed, first, an index of dissimilarity (over five major occupational categories) by country (for the 42 countries for which full data were available). The index captures the extent to which men and women are differentially distributed across occupational categories (regardless of the relative status order of the occupations). Put differently, the index indicates the proportion of either men or women that would have to change occupational categories to bring about equal occupational distributions.[7]

The mean values of the index of dissimilarity suggest that segregation declined slightly, from 0.18 (SD = 0.06) in 1990 to 0.15 (SD = 0.05) in 2015. In other words, on average, in 1990 18% of either men or women of a country's labor force would have had to change to a different major occupational category to achieve equal occupational distribution of the two genders. In 2015 the proportion had declined to 15%.

Figure 3 displays rates of occupational segregation (index of dissimilarity across five major occupational categories) by country in 1990 and in 2015. Segregation is most extreme in Algeria, Egypt, and Pakistan (0.34, 0.29, and 0.27, respectively) and lowest in Portugal, Greece, and Thailand (0.09, 0.09, and 0.10, respectively).

In the analysis that follows I examine whether and to what extent a country's level of gender occupational segregation (SEGR) is associated with country's level of development (GDP), globalization level (GLOB), and female labor force participation (FLFP). Four regression equations are estimated (Table 2). In equations 1, 2, and 3 GDP, GLOB, and FLFP, respectively, plus YEAR (as a control for the trend of declining segregation), are used as predictors of SEGR. In equation 4 all four variables are included as predictors of SEGR to estimate their combined effect.
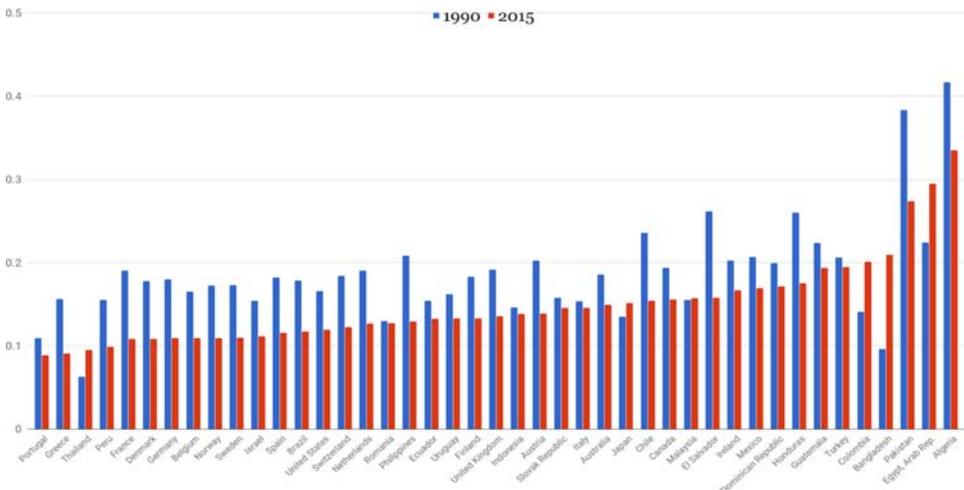
FIGURE 3. Gender occupational segregation in 42 countries, 1990 and 2015

TABLE 2. Coefficients of Regression (*t*-values) Predicting Gender Occupational Segregation in 42 Countries in 1990 and 2015

	Equation 1	Equation 2	Equation 3	Equation 4
GDP per capita × 10^7	−8.78** (−2.87)	–	–	4.17 (1.46)[c]
GLOB × 10^3	–	−1.44** (−3.39)	–	0.74 (1.76)[d]
FLFP × 10^3	–	–	−6.15** (−13.06)	−7.64** (−13.44)
Year (2015 = 1)	−0.03* (−2.40)	−0.01 (−1.05)[a]	−0.01 (−1.71)[b]	−0.02** (−2.81)
Constant	0.20**	0.27**	0.41**	0.43**
R^2	0.183	0.212	0.710	0.761
N	84	84	84	84

*$p < 0.05$; **$p < 0.01$
[a]VIF = 1.34; [b]VIF = 1.07; [c]VIF = 3.02; [d]VIF = 4.28
GLOB = globalization index; FLFP = female labor force participation.

Equation 1 reveals that segregation tends to decline both over time and with level of economic development; the effects of both variables on SEGR are negative and significant. Similar findings are observed in equation 2 for GLOB, with globalization reducing segregation. Equation 3 suggests that gender occupational segregation tends to be lower in places with more economically active women, from the significant negative effect of FLFP on SEGR. This conclusion receives further and stronger confirmation in equation 4 (which includes all predictors of SEGR), where only FLFP retains its negative-significant effect on SEGR. Therefore, the impact of development and globalization on SEGR can be attributed to the shared variance between GDP, GLOB, and FLFP. Apparently, in the era of globalization, economic development produces conditions that enhance women's opportunities to join the labor market, and the influx of women into a country's labor market in turn reduces occupational segregation between the sexes.

GENDER OCCUPATIONAL INEQUALITY: FINDINGS

SEGR does not necessarily capture occupational inequality, because the index does not address the location of the two genders on the hierarchical ladder of occupations, whether ordered by status, prestige, or rewards. Likewise, the values of the index of dissimilarity are affected by the occupational structure of the country (see the discussion by Semyonov and Jones [1999] of various measures of occupational differentiation and inequality). Thus, for an indicator of gender occupational inequality, I computed odds-ratios (of women to men) to capture the likelihood of women (relative to men) of being employed in professional, technical, and managerial (PTM) occupations (versus other occupations) for each country, net of the occupational structure and the gender composition of the labor force (Figure 4). The relative odds (ODPTM) give us an indicator of gender occupational equality. According to the computation scheme adopted here, higher ODPTM means more gender occupational equality.[8]

FIGURE 4. Women's relative odds of professional, technical, and managerial employment (occupational inequality) in 42 countries, 1990 and 2015

On average, across the countries, ODPTM was 1.44 (SD = 0.99) in 1990 and 1.32 (SD = 0.57) in 2015. Apparently, in an average country, women's net odds of employment in the PTM occupational category are slightly higher than those of men.[9] These odds were quite stable between 1990 and 2015, declining only slightly. They were highest in Algeria and the Dominican Republic (4.46 and 1.93, respectively, in 2015) and lowest in Pakistan and Japan (both 0.71 in 2015). To what extent cross-country variations in ODPTM are related to GDP, GLOB, and FLFP is the focus of Table 3.

In equations 1, 2, and 3 ODPTM is taken as a function of GDP, GLOB, and FLFP, respectively (while controlling for YEAR). In equation 4 all predictors are used, to estimate the net effect of each. The results are strikingly different from those for SEGR (Table 2). First, YEAR does not have a significant effect on ODPTM in any of the equations, indicating stability in ODPTM with time. Second, all three variables, GDP, GLOB, and FLFP, are likely to reduce ODPTM (from the respective coefficients in equations 1, 2 and 3). However, when all variables are included, in equation 4, only FLFP has a significant effect.

Apparently, in the era of globalization, economic development is likely to increase female labor force participation. However, the higher share of women in the economy (associated with development) is likely to reduce allocation of women to the PTM occupations. Indeed, at the same time that development reduces gender segregation, it also reduces women's likelihood (relative to men) of employment in high-status occupations. That is, gender occupational inequality has not been eliminated in the global era. On the contrary, occupational sex-typing still prevails, as it influences the organization of the global labor market.

GENDER PAY GAP: FINDINGS

The growing body of research on gender economic inequality has uniformly observed that women earn less than comparable men across both space and time. Yet, the size of the disparity varies considerably across countries, and over time (Blau and Kahn 2000, 2006;

TABLE 3. Coefficients of Regression (*t*-values) Predicting Female Relative Odds for Employment in Professional, Technical, and Managerial Occupations as an Indicator of Occupational Inequality in 42 countries in 1990 and 2015

	Equation 1	Equation 2	Equation 3	Equation 4
GDP per capita × 10^6	−9.68* (−2.15)	–	–	3.60 (0.52)[d]
GLOB × 10^2	–	−1.66** (−2.68)	–	−0.24 (−0.23)[e]
FLFP × 10^2	–	–	−4.99** (−4.79)	−5.25** (−3.80)
Year (2015 = 1)	−0.02 (−0.11)[a]	0.16 (0.81)[b]	0.09 (0.58)[c]	0.11 (0.57)[f]
Constant	1.60**	2.38**	3.27**	3.44**
R^2	0.059	0.086	0.224	0.23
N	84	84	84	84

*$p < 0.05$; **$p < 0.01$
[a] VIF = 1.06; [b] VIF = 1.34; [c] VIF = 1.07; [d] VIF = 3.02; [e] VIF = 4.28; [f] VIF = 1.50
GLOB = globalization index; FLFP = female labor force participation.

Gornick 1999; Mandel and Semyonov 2005, 2006, 2014; Orloff 2002; Rosenfeld and Kalleberg 1990). The female earnings disadvantage can be partly attributed to occupational inequality (overrepresentation of women in low-paying female-type occupations and underrepresentation in lucrative jobs) and partly to economic discrimination (England 1992; Jacobs 1989; Mandel and Semyonov 2005, 2014; Tomaskovic-Devey 1993; England et al. 1988). In the analysis that follows I examine whether cross-national variation in the size of the gender earnings gap is systematically associated with development and globalization, as well as with other societal characteristics associated with development and globalization, such as female labor force participation and gender occupational inequality.

The globalization literature leads to two conflicting expectations regarding the impact of development on the gender pay gap (see Oostendorp 2009 for the conflicting expectations). On the one hand, according to neoclassical economic theory, a more competitive market and higher demand for female workers would lead to narrowing of the gender pay gap. On the other hand, a greater supply of female workers in specific segments of the economy would lead to widening of the pay gap. To the best of my knowledge, only one study (Oostendorp 2009) has examined whether gender pay gaps are associated with development and globalization. The study focused on gender pay gaps in occupations in highly developed countries. It provided some support for the expectation that development and globalization lead to narrowing of the gender wage gap, at least in the richer countries.

Given the scarcity of reliable data, I was able to assemble data on the size of the gender pay gap for only 32 countries (and only for 2015). PAYGAP is the difference between men's and women's mean or median earnings, as a percentage of men's earnings.[10] In 2015 the average was 14% (SD = 5.71), with the gap being smallest in Belgium (3.3%), Romania, Italy, and Denmark and largest in Korea (37.2%), followed by Japan, Israel, and Chile (Figure 5).

Table 4 presents regression equations predicting PAYGAP. Equations 1 to 3 use GDP, GLOB, and ODPTM, respectively, as single predictors of the pay gap. In equation 4 all independent variables are introduced. Although some caution should be exercised due to the
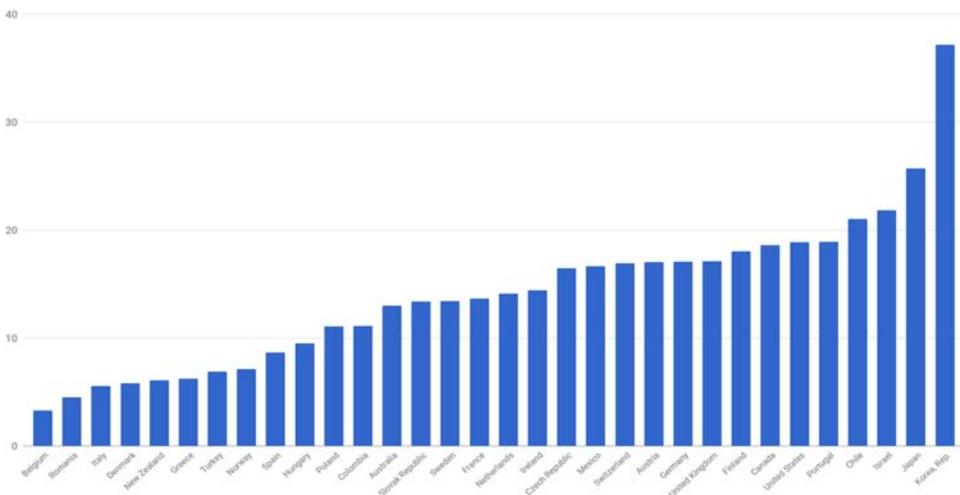

FIGURE 5. Gender pay gap (as a percentage of men's pay) in 32 countries, 2015

TABLE 4. Coefficients of Regression (*t*-values) Predicting Pay Gap between Men and Women in 30 Countries in 2015

	Equation 1	Equation 2	Equation 3	Equation 4
GDP per capita × 10^5	1.77 (0.33)	–	–	−6.41 (−0.94)[a]
GLOB	–	−0.03 (−0.21)	–	−0.52* (−2.43)
ODPTM	–	–	−6.60 (−1.85)	−14.10** (−3.32)
Constant	12.90**	16.07	21.82**	28.28
R^2	0.004	0.002	0.109	0.357
N	30	30	30	30

*p < 0.05; **p < 0.01
[a]VIF = 2.05
GLOB = globalization index; ODPTM = female relative odds for employment in professional, technical, and managerial occupations.

small number of countries included in the analysis, the data do not indicate a significant effect of GDP on PAYGAP. However, net of the level of economic development, globalization seems to reduce the gender pay gap. The effect of GLOB on PAYGAP is negative and statistically significant. This is true of ODPTM as well (see the negative coefficient of ODPTM in equations 3 and 4). Apparently, occupational gender inequality is a major source of the gender pay gap.

This finding is consistent with the long-standing argument that part of the women's earnings disadvantage is a result of gender occupational inequality (regardless of the country's level of economic development or globalization). We can thus conclude that lower gender occupational inequality is likely to lead to smaller gender earnings disparities. The effects of economic development on gender earnings gaps should be understood as indirect at best.

SUMMARY AND CONCLUSIONS

Whereas the literature on the relations between development and gender-linked economic disparities has grown and become substantial over the years, very few studies have examined the relations between development and gender disparities in the era of globalization. In other words, most previous studies on the issue focused on the impact of industrialization on patterns of gender inequality in labor market activities and outcomes; very few dealt with the impact of development on gender disparities in the global market. Consequently, we know little about the relation between development and gender disparity in the era of globalization.

The analysis presented here is an attempt to bridge this gap in the literature by focusing on the effect of development and globalization on three dimensions of women's labor market activity: participation, occupational attainment and inequality, and pay gap. The analysis is based on data collected across a large number of nations in 1990 and 2015 (straddling a period I consider the peak of the global era). The data reveal differential patterns for the relationship between development and each dimension of gender disparity, leading to the following principal conclusions.

First, women's share of the economically active labor force has been steadily rising over time and is still dependent on the level of economic development (much more so than on globalization). The higher a country's GDP, the greater are women's labor force participation and their share of the labor force. Apparently, economic development creates conditions that raise female participation in the economically active labor force, net of level of globalization. But the association between globalization and women's share of the economically active labor force is curvilinear (U-shaped).

Second, gender occupational segregation has been declining over time; but it is not associated directly with development, or with globalization. It is associated with women's share of the labor force. That is, gender occupational segregation tends to be less prevalent in places with many economically active women. Apparently, economic development produces conditions that enhance women's opportunities to join the economically active labor force, and in turn, that influx of women into the country's labor market is likely to increase the dispersion of men and women across (major) occupational categories.

Third, although greater participation of women in the economically active labor force is likely to reduce gender occupational segregation (across major categories), it also appears to slightly increase gender occupational inequality. The higher the proportion of economically active women, the lower their likelihood of joining high-status professional occupations. Thus, the effect of development on gender occupational inequality seems to be indirect; in places where women join the economically active labor force in large proportions (due to economic development), their relative odds for employment in professional, technical, and managerial jobs tend to decrease.

Fourth, in all countries, women's earnings are lower than men's, regardless of level of economic development. Net of level of economic development, globalization appears to narrow gender pay gaps. The data also suggest that countries' gender occupational inequality accounts for cross-national variations in the size of women's earnings disadvantage. The lower the relative odds of women for employment in lucrative high-status occupations, the wider the pay gap between men and women. Apparently, gender-linked occupational inequality is still one of the major sources of the gender pay disparities in the global market.

The complex relations between development and gender disparities in labor market activities in the era of globalization that were observed in the present research can be summarized and visualized as shown in Figure 6. Although level of globalization is strongly associated with development (globalization is more pronounced in economically developed countries), development influences women's labor force participation (with development providing conditions that enhance women's participation in the economy). The relations between globalization and female labor force participation are U-shaped. Development, in turn, is likely to reduce gender occupational segregation. But this influence is indirect; it is transmitted via the greater number of women becoming economically active. Lower rates of gender occupational segregation do not necessarily mean greater occupational equality. In fact, labor markets with a higher proportion of women also have a lower likelihood for women of employment in lucrative, high-status professional and managerial occupations. Gender occupational inequality, in turn, appears to be one of the sources of a country's gender pay gap. The lower the relative representation of women in high-status occupations, the
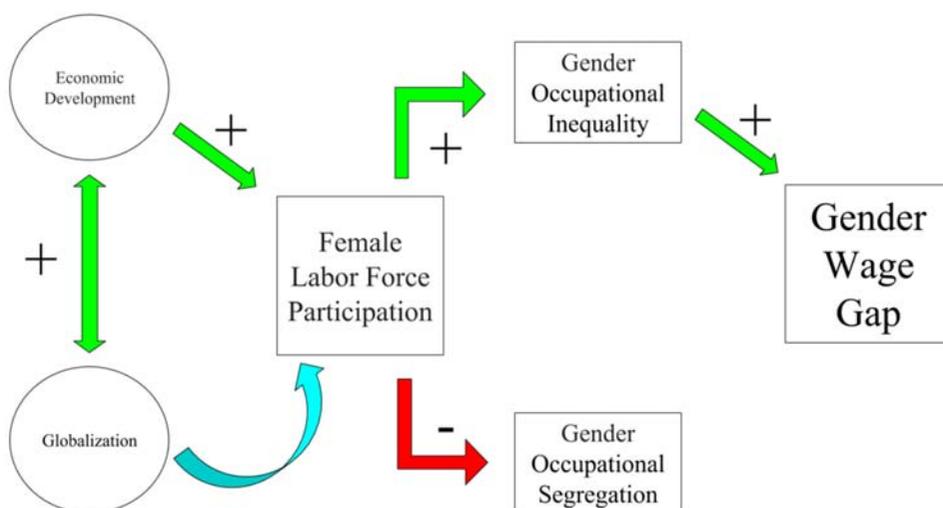
FIGURE 6. Proposed model for interrelations between development, globalization, and female labor market activity and outcomes

larger the pay disparity between men and women; or, put differently, the greater the relative representation of women in the country's high-status occupations, the smaller is women's relative earnings disadvantage.

In light of the complex relations between development and each aspect of gender economic inequality and especially the differential impact of development on the three dimensions of gender-linked disparities, it is my hope that researchers in the field will continue looking systematically into the complex interrelations between development, labor force participation, and gender disparities in labor market activities. ■

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NOTES

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1. Data on female labor force participation, occupational distribution by gender, and earnings gap were collected circa 1990 and 2015.

2. Data for GDP per capita and female percentage of total labor force are from the World Bank (2017). GDP circa 1985 is used as a predictor of gender economic inequality in 1990, and GDP in 2010 is used as a predictor of gender economic inequality in 2015.

3. The summary index of globalization for 1985 and the summary index for 2010 are used, respectively, as predictors of gender labor market inequality in 1990 and 2015.

4. SEGR (computed for only five major categories) should be viewed as a conservative estimate of gender occupational segregation. The larger the number of occupational categories, the larger is the expected value of SEGR. For example, in 2015 the index for five categories in the US is 0.12, but for approximately 400 categories it reaches 0.5.

5. The data on gender pay gap are from the OECD (2017). Gender wage gap is defined by the OECD as the difference between the median earnings of men and women, relative to median earnings of men. Data for Cyprus and Romania are from Eurostat (2017), and were defined as the difference between the average gross hourly earnings of male paid employees and of female paid employees, as a percentage of the former.

6. GLOB and GDP are positively correlated, with $r = .74$, but additional analysis reveals that the relationships between GLOB and FLFP or FRATE are U-shaped. The equations are available from the author on request.

7. The index of dissimilarity is calculated as $D = \dfrac{\sum_{j=1}^{5} |F_j - M_j|}{2}$ where M and F are the respective frequency of men and women in occupational category j. Due to data limitations, D in this study is computed across only five major occupational categories and is rather conservative. The more detailed the categories, the larger the expected value of the index.

8. The cross-product odds ratio $\dfrac{(f_{11} \cdot f_{22})}{(f_{12} \cdot f_{21})}$ provides a unique estimate of the odds of females ($i = 1$) relative to males ($i = 2$) belonging to professional-managerial occupations ($j = 1$) as opposed to other occupations ($j = 2$).

9. The association between ODPTM and SEGR is $r = .57$. This implies that in places where gender segregation is high, women's relative odds for employment in PTM occupations tend to be also high. This may be because many of the professional and semi-professional occupations are 'female-type' occupations.

10. In two countries (Cyprus and Romania) the earnings gap was computed using mean earnings. In all other countries median earnings was used.