The labor force trajectories of immigrant women: Intersecting personal characteristics and migration dynamics

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Abstract

While research on immigrant women's labor market incorporation has increased in recent years, systematic comparisons of employment trajectories by national origin and over time remain rare, and the literature remains dominated by the male experience. Especially lacking are studies that take both individual factors and larger migration dynamics into account, limiting our understanding of women's contributions to the economic well-being of immigrant families, and of the process of incorporation more broadly. Using U.S. Census and ACS data from 1990 to 2016, we construct synthetic cohorts by national origin, period, and age at arrival to track their labor force participation over time. We construct a typology of national origin trajectories and then model them adjusting for individual characteristics and gendered dynamics of migration flows, namely the sex ratio, share of women arriving single, and share of men arriving with a college education. Results indicate that immigrant women tend to gradually join the workforce over time, though with significant variation in starting levels and growth rates. Cohorts from Mexico, Central America, and South America exhibited a delayed pattern of incorporation (though Mexican women start at lower levels than others), while women from India, Korea and other Asian countries followed an accelerated incorporation trajectory from very low starting rates. Those from Europe, Africa, China, Vietnam, and Canada showed gradual incorporation while Filipinas and Caribbeans exhibited continuous, intensive employment. We show that historically produced gendered dynamics of migration flows explain a substantial share of national origin variation in workforce incorporation.

Key words: Employment trajectories, female labor market participation, gender dynamics, immigrant women, assimilation typology, labor market incorporation.

Two of the most impactful demographic trends of the past half century have been the resurgence of international migration and the increase in women's labor force participation (LFP). Between 1960 and 2015, the number of immigrants in the United States rose from a mere 9.7 to 40 million, with an equally dramatic diversification in migrants' national origins (Migration Policy Institute 2020). At the same time, the share of women entering the labor force grew dramatically, even among those who were married and had young children. Despite the fact that nearly half of U.S. immigrants are women (Kofman 2004; Sassen 2000), our understanding of their process of labor market incorporation lags behind that of immigrant men. This relative lack of attention masks immigrant women's economic contributions within families, belies the extent to which male-centered assimilation frameworks are applicable to women, and undermines our understanding of an important dimension of social change associated with migration.

Women's employment is arguably the main marker of changing gender roles and female independence, making LFP a central outcome for understanding women's migration experience. Immigrant women hail from diverse countries and gender contexts; the extent to which they enter the workforce is a dimension of assimilation that does not apply to men (Blau et al. 2011; Donato et al. 2014; Fuller 2015). Prior research has documented considerable variation in immigrant women's LFP according to personal characteristics. However, large national origin differences remain even net of compositional differences in these characteristics (Boyd 1991; Donato et al. 2014; Read and Cohen 2007). Despite of its importance, research that explores how women's LFP evolves with time in the United States remains rare, and many of the debates surrounding how to assess change among immigrant men, and the methodological advances that resulted, have yet to be applied to immigrant women's labor market experiences.

We expand on prior literature in two ways. First, we examine LFP over the life course, following trajectories of synthetic immigrant cohorts as they accumulate U.S. experience. The empirical analysis also separates LFP shortly after arrival from growth in the medium and long term. Second, we expand on comparative frameworks recognizing the salience of cohort migration dynamics to national origin variation in incorporation. In particular, we argue for the importance of country-level differences in the interaction between gender, work, and migration. Specifically, this implies paying attention to differences in selectivity in terms of human capital and family characteristics as well as gendered dynamics of migrant flows, namely the sex ratio at arrival, the share of women arriving single, and the% of co-national men arriving with a college education, since these factors capture historically produced country-level differences in women's economic position at migration and their relation to migrant men.

Data for the analysis are drawn from the 1990 and 2000 Censuses and the American Community Survey corresponding to the periods between 2006-2010 and 2012-2016 (Ruggles et al., 2017). To construct LFP trajectories, we create synthetic immigrant cohorts for the 14 largest national groups according to age at migration and period of arrival. Where sample sizes are too small for national origin analyses, we consider regional groups. For the sake of parsimony, we refer to both as "national" origin throughout.

We focus on national origin differences in LFP around the time of arrival (starting points) and as women become longer settled in the United States (slopes). We first apply group-based trajectory models (GBTM) (Jones and Nagin 2013) to identify patterns of incorporation, and construct a five-group typology of women's LFP trajectories. They include, 1- *gradual incorporation from moderate starting levels* (Europe, Africa, China, Vietnam, and Canada); 2- *low entry-level delayed incorporation* (Mexico); 3- *moderate entry-level delayed incorporation*

(Central America, South America, Cuba); 4- *low entry level-accelerated incorporation* (India, Korea, Other Asia); and 5- *continuous intensive LFP* (Caribbean and Philippines). Following our theoretical framework, we use linear probability models to analyze differences in employment at arrival and cohort trajectories over time according to personal characteristics and gendered dynamics of migration flows. Results document the salience of women's LFP for the economic well-being of immigrant families, and highlight specific dimensions undergirding national origin variation.

Theoretical background

The converging roles of men and women, particularly in the realm of remunerated work, is among the most impressive social and economic advances of the second half of the twentieth century (Goldin 2014). By the late 1980s the LFP rate for U.S. born women aged 25 to 54 surpassed 70%, dramatically narrowing the gap with men. For the 1990-2016 period, among the native born prime-age population, LFP rates were 77% for black and white women, 74% for Hispanic women, and 83% among Asian women (Ruggles et al. 2017).

A large body of research also documents important socio-demographic variation in women's paid employment. Women's LFP shows a clear age pattern, increasing rapidly at young ages with educational completion and declining at older ages, peaking around 50 (Schoeni 1998). Similarly, women's likelihood of LFP increases with educational attainment, which raises the opportunity cost of not working. Family responsibilities, particularly young children, tend to conflict with employment outside the household. However, women's LFP in the United States is high across the age and education spectrum, and there is evidence that the constraints imposed by family obligations, while significant, have decreased over time (Goldin 2014).

The extent to which immigrant women approximate the levels (and predictors) of LFP observed among natives is thus an indicator of both their relative economic position and their gender roles, with national origin variation reflecting differences in adaptation (Adserà and Ferrer 2014; Donato et al. 2014). However, our understanding of the process of immigrant labor market incorporation is limited by the disproportionate focus on men's experiences. Immigrant women are commonly constructed as secondary migrants driven by family, rather than economic, considerations (Adserà and Ferrer 2014). The general expectation has been that immigrant women would enter the labor force to supplement family incomes in times of need, but withdraw from employment as their husbands achieved economic stability. As a result, theoretical and empirical examinations of immigrant women's labor market incorporation lag seriously behind those of men (Baker and Benjamin 1997; Donato et al. 2014).

Recent scholarship has begun to overcome the shortcomings of male-centered models of migration and incorporation. Numerous studies highlight that migration flows have always included significant representation of women, especially adult single women, and that in some cases migrant flows are highly feminized (Kofman 2004; Sassen 2002). Migration is increasingly constructed as a family- or household-level decision with women's expected earnings central to the calculation to migrate (Donato et al. 2014). These perspectives recognize that the main drivers of women's migration, family reunification and the search for employment opportunities, are not mutually exclusive. Although for some groups men might be the main impetus for migration, the framing of immigrant women as secondary workers no longer fits contemporary immigrant stocks (Adserà and Ferrer 2014; Kofman 2004).

Nonetheless, there is considerable variation in immigrant women's employment. Overall, immigrant women constitute a vulnerable segment of the workforce, being disadvantaged by

their gender and migration status (Boyd 1991; Donato et al. 2014; Parrado and Flippen 2005). On average, they exhibit lower employment rates than immigrant men and native-born women (Donato et al. 2014). However, immigrant women's LFP varies tremendously by national origin. Women from the Caribbean and Philippines exhibit participation rates above 80%, considerably higher than native-born American women. In contrast, women from Mexico, India, and Korea exhibit LFP rates below 60% (Read and Cohen, 2007; Ruggles et al., 2017).

Socio-demographic and family characteristics (along with English language ability) also shape LFP among immigrant women, and account for a sizeable share of national origin variation in LFP (Schoeni 1998). Women arrive from countries at different stages of economic development, with differential access to schooling. Those differences affect the socio-demographic composition of immigrants (Borjas 2015; Schoeni 1998). Forces of selectivity in both sending and receiving areas also powerfully shape the composition of immigrant populations. In particular, ethnic stratification in the U.S. labor market implies that many migration flows respond to demand in specific sectors of the economy, which produce differential patterns of selectivity by skill and gender across countries of origin (Kofman 2004; Sassen 2000). This non-random selectivity could further contribute to variation in immigrant women's LFP.

Indeed, prior studies have documented the importance of individual characteristics for understanding immigrant women's employment. In a cross-sectional study, Schoeni (1998) found that variation in labor supply among immigrant women was mostly explained by group differences in educational and language skills. Groups with higher levels of human capital, such as those from Europe, Canada, the Philippines, China, and the Caribbean, exhibit concomitantly high employment rates. In contrast, immigrant women from Mexico, who have lower levels of

education and English language proficiency, have corresponding low LFP (Flippen 2016; Hondagneu-Sotelo 2011). The picture is less clear for other groups, such as women from India and South Korea, who are highly educated but exhibit relatively low levels of LFP (Read and Cohen 2007; Shin 2005). Likewise, selection mechanisms also produce differences in average family characteristics across groups. The pattern is affected both by immigrant women's family status at arrival and the likelihood of assuming family responsibilities once in the United States. Immigrant women are more likely to be married and have preschool aged children than the general population, though the pattern varies by national origin (American Immigration Council 2017; Donato et al. 2014; England et al. 2004). However, the prior literature shows that national origin variation in LFP remains pronounced even after accounting for differences across groups in length of U.S. residence, levels of human capital, and family characteristics (Donato et al. 2014; Read and Cohen 2007; Schoeni 1998).

Gendered migration and immigrant women's LFP trajectories

While recent research has expanded our understanding of immigrant women's LFP, the literature relies heavily on cross-sectional approaches, limiting our ability to capture labor force trajectories over time. As a result, much of the politically salient discussion around issues of immigrant economic incorporation and convergence with natives over time has not been extended to women. In particular, cross-sectional analyses comparing the age-earning profiles of immigrant and native men tended to find rapid convergence in wages with time in the United States (Baker and Benjamin 1997; Chiswick 1978). As evidence of assimilation, though, cross-sectional analyses were criticized for failing to account for differences across immigrant cohorts in earnings capacity. A recent study that followed the trajectories of synthetic arrival immigrant

cohorts in multiple cross-sectional periods of observation provided a more pessimistic account of immigrant assimilation; earnings convergence was evident among immigrants arriving before 1980, but not among more recent groups (Borjas 2015). However, other scholars have argued that both birth and immigration cohorts can shape wage trajectories; using a double cohort approach challenged pessimistic views, finding considerable convergence in economic attainment once birth and migration cohorts were considered (Myers and Lee 1998; Park and Myers 2010). It is striking that this decades-long debate over immigrant men's labor market incorporation, and attendant methodological advances, have not yet been systematically applied to immigrant women (Adserà and Ferrer 2014).

Moreover, the link between socio-demographic, family, and employment characteristics is complex, and can vary over the life-course (Lu et al. 2017). A relatively neglected dimension in analyses of immigrant labor market incorporation, especially among women, is that migration itself alters women's employment in a manner not applicable to the general population (Baker and Benjamin 1997; Blau et al. 2011; Lu et al. 2017). It is thus important to conceptually and empirically separate LFP propensities at the time of arrival from those described with increased time in the host country (Fuller 2015; McManus and Johnson 2019). The extent to which women participate in the labor force immediately after arrival is a clear indication of economic or family motivations for migration and how they vary by national origin (Fuller and Martin 2012). Groups with high levels of LFP at arrival correspond to situations where women are the economic drivers of migration and more likely to be drawn into specific occupational niches (Fuller and Martin 2012; Kofman 2004; Sassen 2000). For these flows, we might expect little increase in LFP over time and the most salient question is the extent to which participation remains high. Alternatively, flows with relatively low LFP at arrival correspond to situations where women are

likely not the primary economic drivers of migration. For these flows, questions about the extent of growth of LFP over time are more salient, and are consistent with ongoing debates about the extent to which immigrants increasingly converge with native employment patterns over time.

Distinguishing arrival rates from trajectories could also affect the interpretation of the socio-demographic correlates of women's LFP. It is possible that these effects vary depending on whether we consider participation soon after U.S. arrival or trajectories over time (Fuller 2015; Fuller and Martin 2012). The age pattern of women's LFP, for instance, might not be directly applicable to immigrant women because they enter the United States at different ages. How age at arrival correlates with LFP is unclear. Following the age-graded patterns observed for the general population, we could expect lower rates among younger women that peak around middle age. On the other hand, as a disruptive event, migration could depress LFP for all women irrespective of age. Alternatively, if women migrate in search of economic opportunities, LFP could be high among immigrant women regardless of age. It is similarly unclear how age at migration might shape subsequent LFP trajectories, especially over the long run. It is possible that entering the United States at relatively older ages could depress LFP even many years after migration, while those who enter at younger ages could likewise differ from other women in enduring ways. The dynamic link between age at migration and employment trajectories might further account for national origin differences in LFP at any given point in time or over the life course.

Similar considerations apply to the other determinants of women's LFP, such as human capital and family responsibilities. Educational credentials are often not readily transferable across contexts (Fuller and Martin 2012; Sassen 2000). As such, there is potential for educational differences in LFP to be muted, especially at arrival. However, if highly educated women are

able to gain employment opportunities more quickly than less educated women, human capital disparities could grow with longer durations of U.S. residence. Likewise, it is possible that the impact of marriage on LFP might vary depending whether we consider levels at entry or over time (Lu et al. 2017). Finally, without distinguishing between entry conditions and trajectories it is unclear whether the cross-sectional disparities in LFP observed across national origin groups are created at arrival or by differential rates of change with time in the United States.

Group level processes

The larger literature on immigrant incorporation highlights the salience of group level characteristics, such as the size and resources of the receiving ethnic community, government policies, or group level discrimination, in explaining the differential progress of some groups over others (Fuller and Martin 2012; Portes and Zhou 1993). However, the dimensions highlighted in the prior literature for the most part do not have a gender component. We argue that understanding national origin difference in women's LFP requires paying attention to the gendered dynamics of migration flows (Parrado and Flippen 2005).

Our analysis incorporates three salient indicators of women's role in migration. The first is the gender composition of the flow. The ratio of male to female migrants at arrival is a direct indicator of the extent to which immigrant women might be following their male counterparts. The sex ratio is strongly connected with labor demand and immigrants' economic opportunities (Blau et al. 2011; Fuller and Martin 2012). When migration is responding to demand in male-dominated sectors, men tend to be overrepresented in the flow, such as the case of agriculture- and construction-driven Mexico-U.S. migration (Flippen and Parrado 2015). The converse is true where the demand is for female-dominated jobs, such as nursing and other health-care driven

migration from the Philippines and Caribbean (Sassen 2000, 2002). In male-dominated flows, women are more likely to be following partners or other male relatives, and the labor market that receives them is not necessarily conducive to remunerated work. Thus, analyzing differences in the sex ratio of the immigrant flow at arrival provides insight into how the gendered migration context shapes employment over and above individual level predictors.

Similarly, immigrant women's marital status at arrival is another indicator of their role in migration (Baker and Benjamin 1997; Parrado and Flippen 2005). In flows driven by family considerations, immigrant women tend to arrive married, which poses a constraint on employment (Donato et al. 2014; Read and Cohen 2007). Flows with an over-representation of married women may also indicate a receiving context that does not prioritize women's employment, making LFP less likely. On the other hand, flows with higher representation of single women, migrants enter a context surrounded by other co-ethnic women who are likely to be working, which could further encourage LFP (Hondagneu-Sotelo 2011). Because immigrant women tend to marry soon after arrival in contexts of male-dominated migration flows (Parrado and Flippen 2005), current marital status does a poor job of capturing the greater economic independence associated with higher rates of single women's migration. Separating the role of sex ratio from marital status at migration thus can provide additional insight into how historical dynamics of migration flows shape immigrant women's labor force incorporation.

The final indicator of gendered migration context considered here relates to the educational qualifications of the male flow. Specifically, we consider the proportion of co-national men with college education at arrival, as it may capture an important dimension of the contextual forces driving migration (Fuller and Martin 2012). Migrant flows comprised of highly educated men could affect immigrant women's LFP, especially since it might could women's pressure to

augment and diversify family income (Baker and Benjamin 1997; Read and Cohen 2007). Moreover, in highly educated and disproportionately male migration streams, many women enter as spouses of H1-B visa holders and are often themselves ineligible for employment. These patterns could be important contributors to national origin differences in women's LFP, particularly because the visas are unevenly distributed; India and China alone account for 84% of all H1-B visas (DHS, 2018). Likewise, as there are few mechanisms for legal entry among low-skill labor, many low-skill flows are disproportionately undocumented, which also undermines women's labor market incorporation (Flippen 2016). Over half of immigrants from Mexico and Central America lack legal authorization to work, relative to a much lower 11% and 12% among those from China and Vietnam, respectively, and roughly 20% among those from India, Korea, the Philippines, and many African countries (Rosenblum and Ruiz Soto, 2015).

Data, analytic strategy, and model specification

Data for the analysis come from the 5% samples of the 1990 and 2000 decennial U.S. Census, and the 5-year American Community Surveys from 2010 and 2016, corresponding to the periods between 2006-2010 and 2012-2016 (Ruggles et al. 2017). We restrict the sample to foreign-born women aged 16 to 54, not living in group quarters or enrolled in school, and who migrated to the United States between 1980 and 2009 between the ages of 15 and 44.

The dependent variable is LFP, measured with a dummy indicator that equals 1 if the woman was in the labor force at each survey and 0 otherwise. Following the official Census Bureau definition, women who are employed or unemployed and actively looking for work are considered as in the labor force.

Analytic Strategy: Double cohort approach

As discussed above, understanding women's LFP trajectories with cross-sectional data requires special considerations. Two dimensions are relevant. First, differences across periods of arrival can potentially bias findings, particularly if the economic conditions shaping LFP change over time. Thus, we distinguish between cohorts arriving from 1980 to 1989, 1990 to 1999, and 2000 to 2009. Second, as age at arrival is likely to shape LFP trajectories, we track cohorts along this dimension, distinguishing among women arriving between ages 15-19; 20-24; 25-29; 30-34; 35-39; and 40 and over. The period-of-arrival and age-at-arrival cohorts are constructed within national origin groups. We use immigrants' place of birth to classify groups into 14 mutually exclusive dummy variables for being born in Europe, Canada, Africa, Caribbean, Mexico, Cuba, Central America, South America, Philippines, Vietnam, China, Korea, India, and other Asian countries. Together the 14 nationalities, three period-of-arrival cohorts, and six age-at-arrival groupings result in 252 immigrant cohorts.

An illustration helps clarify how the specification tracks synthetic cohorts over time. A Mexican cohort arriving to the United States in 1995 at age 25 would have 6 years of U.S. residence at the time of the 2000 Census. This cohort would have 16 years of U.S. experience at the time of the 2010 ACS, and 22 years at the time of the 2016 ACS. While not longitudinal, since we do not track the same people over time, controlling for country, entry period, and age at arrival identifies the relationship between years since migration and the likelihood of women's LFP net of the role of country, age, and period of arrival.

Demographic, Human Capital, and Group Level Explanatory variables

The main explanatory variable used to capture immigrant women's LFP trajectories is years since migration. A continuous specification, however, cannot capture differences at time of

arrival from subsequent incorporation over time. To assess potential discontinuities, we introduce a linear spline that distinguishes between three periods of U.S. residence: arrival, medium, and longer term. They are captured by three variables. *Years 0-2* is the reference category, capturing employment during the first two years in the United States. *Years 3-10* is a continuous variable that captures LFP in the medium term. The variable is set to 0 for those with fewer than three years in the United States, and to eight for those with more than 10. For all others, it takes the value of their years since migration minus two. Finally, *Years 11+* captures long-term LFP trends; the variable equals 0 for those with less than 10 years in the United States, and for all others takes the value of years since migration minus 10. Thus, to assess the total effect of years since migration, the three variables are aggregated. The advantage of this specification relative to mutually exclusive dummy variables is that it allows us to distinguish how yearly growth varies in the medium and long term.

Human capital is measured by educational attainment and English proficiency. Education is captured by four mutually exclusive dummy variables indicating whether a woman completed less than high school, high school, some college, or a college degree or higher. English proficiency is measured with a dummy indicator taking the value of 1 for those who do not speak English well or at all, and 0 otherwise. Family structure indicators include dummy variables for marital status and the presence of pre-school age children (under five) in the household.

To assess how the role of national origin, age at arrival, and socio-demographic factors differs across the three periods of U.S. residence under consideration, the predictors are interacted with the splines. We use a linear probability model specified as:

$$\Pr(Y_i=1|X_i=x_i) = \beta_0 + \beta_1 p_i + \beta_2 n_i + \beta_3 a_i + \beta_4 s_i + \beta_5 e_i +$$

$$+ \beta_6 n_i * s_i + \beta_7 a_i * s_i + \beta_8 e_i * s_i + \sigma_i \quad (1)$$

where the probability of LFP for individual *i* (Y_i =1) is a function of the three mutually exclusive dummy variables *p* indexing period of arrival; the 14 mutually exclusive dummy variables *n* indexing nationalities; the six mutually exclusive dummy variables *a* indexing age at arrival; the three variables from the spline specification *s*; and the vector of socio-demographic covariates, *e*. National origin, age-at-migration, and socio-demographic characteristics are interacted with the spline indicator (n_i*s_i; a_i*s_i; and e_i*s_i, respectively), and σ_i is an error term.

Three indicators capture group-level gendered migration processes: the ratio of men to women, the share of women single, and the share of men who are college educated among immigrants with less than five years in the United States in each immigrant cohort. These variables show very little variation across cohorts within national origin groups. They are, thus, highly collinear with national origin dummies, precluding their joint estimation. Assessing their effects requires us to modify equation (1) as follows:

$$\Pr(Y_i=1|X_i=x_i) = \beta_0 + \beta_1 p_i + \beta_2 g_n + \beta_3 a_i + \beta_4 s_i + \beta_5 e_i +$$

$$+ \beta_6 g_n * s_i + \beta_7 a_i * s_i + \beta_8 e_i * s_i + \sigma_i \quad (2)$$

where g_n is a vector of our three migration-flow level indicators. We compute predicted values to assess the extent to which group-level processes help explain national origin variation in LFP. To account for the clustering of observations within period-of-arrival, age-at-arrival, and national origin cohorts we compute robust standard errors.

Results

Typology of immigrant women's LFP trajectories

Figure 1 graphs the fourteen national-origin LFP trajectories described by our synthetic immigrant cohorts. The Y-axis corresponds to the share of women in the labor force and the X-axis to women's age at census. The different patterned lines represent cohort trajectories by age

at arrival. Thus, the first point on the first curve represents the LFP rate of women aged 16 to 19 who arrived to the United States aged 15 to 19. The next point on that curve represents the LFP of the same cohort roughly five years later, when they were in their early 20s. Comparing the first point across lines measures differences in starting LFP across cohorts arriving at different ages. The curves described by the group reflect changes in LFP as women age over time in the United States.

[Fig. 1 about here]

We illustrate patterns using two national origin LFP extremes, Mexico and the Philippines. The trajectory of Mexican women, depicted in Panel B of Figure 1, shows relatively low levels of LFP at arrival, around 40%, that vary only modestly according to age at arrival. For instance, the LFP of those arriving in their early 20s is roughly 44% at arrival, compared to 52% among those arriving in their early 40s. Over time, LFP increases very slowly, particularly before age 35, coinciding with childrearing years, and peaks at the relatively late age of 45. The overall rate of LFP among Mexican immigrant women does not exceed 70% for any age-of-arrival group.

In contrast, women from the Philippines, depicted in Panel D, exhibit much higher levels of LFP at arrival, close to 70%, that also vary little by age at arrival. Unlike the Mexican case, LFP increases almost immediately after arrival; among women with 5 years in the United States, LFP reaches nearly 80%, again irrespective of age at arrival. Very high rates of LFP are maintained throughout the prime-age working years.

To help organize variation across groups, we employ group-based trajectory modeling (GBTM) to construct a typology of five distinctive classes of LFP trajectories among immigrant women. The application of group-based models allows us to cluster the trajectories described by

the 252 cohorts defined by period of arrival, age at arrival, and national origin. The model identifies latent patterns following LFP at entry and their evolution with years since migration across cohorts. Results from the model, along with a more detailed description of the method, are reported in Appendix Table 1, including the percent probability that a national group is in a given class. The average LFP trajectories described by the five classes are graphed in Appendix Figure 1. To further facilitate interpretation, Table 1 reports average LFP among women with 0-2, 3-10 and 11+ years in the United States by national origin, grouped according to the five classes.

[Table 1 about here]

As seen in Figure 1, the first class (A) is composed of cohorts following a pattern of *gradual incorporation from moderate starting rates*, a pattern observed among women from Europe, Africa, China, Vietnam, and Canada. These cohorts participate in the labor force at a rate of 60% at entry and their LFP gradually increases over time, reaching 80%. Appendix Table 1 shows that Africa and China are the two origins with nearly 100% probability of being in the *gradual* group. In both cases, women's LFP is roughly 50% at arrival and increases consistently over time, reaching nearly 80% after 10 years, a total growth of slightly over 25 percentage points (Table 1).

The second class (B) depicts a pattern of *delayed incorporation with slow growth and low initial participation*. Only 1 country is in this group, Mexico. Table 1 shows that the average LFP rate for Mexican women across all period- and ages at arrival is 44.6 and it increases to 56.9% after 10 years, a difference of only 12.3 percentage points. The third class (C) also exhibits a pattern of *delayed incorporation with low growth,* but *from moderate initial participation*. Central America, South America, and Cuba fall into this group; LFP is slightly

over 60% at entry and increases slowly with time, reaching around 75% after 10 years. According to Table 1, the group is best described by the Central American experience, where LFP is 61.5% at arrival and climbs only 9.4 percentage points (to 70.9%) after ten years in the United States. The fourth class (D) exhibits a pattern of *accelerated incorporation with relatively low initial participation* but rapid and large gains during the first ten years. For women from India, Korea, and the "other Asia" category, LFP is only roughly 40% at entry, but increases rapidly in the first five years to over 60%, growing more slowly after that. Table 1 indicates that India most closely follows this pattern, with only 36.5% LFP at arrival that increases dramatically to 69.2% after 10 years. The 32.6 percentage point difference between arrival and 10 years since migration is the largest growth for any national origin group. The final cluster (E) follows a trajectory of *continuous intensive LFP*, with high starting levels that increase further with time. Women from the Philippines and Caribbean exhibit LFP rates over 70% at entry, which climb to nearly 90% over time.

Explaining national origin differences in LFP trajectories

We next investigate the extent to which national origin differences are explained by socio-demographic and group-level characteristics. Table 2 reports the means for independent variables organized around the five LFP trajectories identified above. The predictors vary systematically across groups, though there is also variation within them. The lowest levels of education and English ability are registered among women with *delayed incorporation (from low* and *moderate starting points)*, especially Mexican and Central American women. Low human capital is also observed for Vietnamese women, whose pattern of incorporation falls in between *gradual* and *delayed* (Appendix Table 1). Within-group heterogeneity in human capital is particularly evident

among those with *continuous intensive LFP*; Filipina women have relatively high levels of education and English ability compared to Caribbean women. The groups with the highest levels of education are in the *accelerated incorporation from low starting points* group, especially Indian women.

[Table 2 about here]

While most immigrant women tend to be married there is considerable variation that correlates roughly with our LFP typology. The highest representation of married women and presence of young children is evidenced among the groups with *accelerated incorporation*, particularly Indian women. Similarly, high levels of marriage and presence of young children are observed among the groups with *gradual incorporation*. Family characteristics are also distinct across the *delayed low participation at arrival* and *delayed moderate participation at arrival* groups. Compared with women from Cuba, Central, and South America, Mexican women exhibit both relatively high marriage rates, and a much larger share with young children. Once again, the *continuous intensive* group is particularly heterogeneous, combining high rates of marriage among Filipinas with the lowest level of marriage among Caribbean women.

Finally, the gendered characteristics of immigrant flows at U.S. arrival also show considerable cross-national variation. Sex ratios greater than one indicate male-dominated immigrant flows. Men's overrepresentation is evidenced among Mexicans (1.47) and Central Americans (1.20), but it is also present among Africans (1.36) and Indians (1.30). Women's overrepresentation is pronounced among those from the Philippines (0.65), but also among Vietnamese (0.84) and Korean (0.84) migrants. The share arriving single is very low among Indian women (18%) and especially high among Caribbean women (46%). The share of co-ethnic immigrant men who are college educated at arrival is very low among Vietnamese (10%),

Mexican (5%), Central American (8%), and Caribbean (10%) women. It is very high among Indians (72%) and the Chinese (58%). It is important to note that these gendered migration dynamics differ in their degree of association with one another. The correlation is very weak between the sex ratio and women's share single at arrival (-0.004), and also low with the share of men arriving with college education (-0.127). However, the correlation between share of women single and share of men college educated is much stronger (-0.611). We keep this pattern in mind when interpreting our multivariate models.

We next assess the extent to which socio-demographic and migration flow characteristics explain variation across the five LFP trajectories. Table 3 reports coefficients from linear probability models predicting LFP, with robust standard errors. Columns 1-3 report results from a model including national origin, age at arrival, period of arrival, and their interaction with the splines of U.S. residency. Columns 4-6 report results from an expanded model that includes individual-level predictors and their interactions with the splines. Results are organized around the five-cluster typology with European women with 0-2 years of U.S. residence as the referent. The comparison of coefficients across models captures the extent to which national origin and age-at-arrival differences are accounted for by individual level controls.

[Table 3 about here]

We expect little difference both in the size and significance of the coefficients *within* the five groups and substantial variation *across* groups. Results corroborate the findings from growth curve models but also document some departures that do appear to cross the five-group typology. For reference, the LFP rate at arrival for European women is 57.3% (see also Table 1), increases steadily during the medium-term years (0.017 per year), and more slowly during the later years (0.004 per year), reaching 80% after 15 years. National origin coefficients in the *gradual*

incorporation group are very close to zero across all lengths of U.S. residence (Columns 1-3), indicating only minor departures from the European case.

Mexico, the sole country in the *delayed incorporation, low intercept* group, stands out as having low LFP at arrival and slow growth over time. Accounting for age at migration and period of arrival, Mexican women average a 14.1 percentage points lower LFP at arrival than European women. Subsequent growth is also much slower than among Europeans; every additional year from 3-10 after arrival increases the LFP of Mexican women by only 0. 2% (coefficients 0.017 + (-0.015) Column 2). It is only after 11 years of U.S. residence that LFP grows slightly faster among Mexicans than Europeans (0.007 vs. 0.004 in Column 3). For other Latino groups, who fell into the *delayed incorporation with moderate intercepts* category, the pattern is similar except for the higher LFP rate upon arrival (coefficients 0.032 and 0.051 for Central Americans and Cubans, respectively in Column 1). South Americans do not perfectly fit the pattern, likely as a result of within-group heterogeneity. The *accelerated incorporation with low initial levels* group is clearly distinct. Indian, Korean, and Other Asian women exhibit 17.4, 18.0, and 21.9 percentage points lower LFP than Europeans at arrival, respectively. However, LFP increases far more rapidly for this group in the medium term (0.012, 0.007, and 0.012 in Column 2, respectively), and continues to grow more quickly than among Europeans after 11 years of U.S. residence (Column 3). The *continuous intensive* group shows the opposite pattern. Caribbean and Filipina women have a sizable 12.5 and 12.8 percentage point LFP advantage at arrival compared to Europeans, respectively. The growth afterwards, however, is lower (-0.007 and -0.006 in Column 2 for medium- and longer-term, respectively).

Model 2, reported in Columns 4-6, adds individual-level controls. Results show that the reference - European women with high school education, who speak English, are unmarried,

have no children under five years of age, and migrated between ages 20-24 in the 1980s- have a LFP rate of 76.4% at arrival (Column 4), which increases slightly every year during the medium term (0.009 Column 5), and remains flat after 11 years in the United States (Column 6), reaching 84% after 15 years of U.S. residence. Consistent with results from Model 1, differences are negligible within the *gradual incorporation* group. There are no significant differences at arrival, only moderate variation in medium-term growth, and few differences in the long-term period. Chinese women show the largest departures from the European reference, yet even after 15 years in the United States they exhibit a predicted LFP rate of 88%, only 4 percentage points higher than Europeans. Thus overall, differences in socio-demographic composition within the *gradual* group do little to alter the similarities in their LPF trajectories.

In contrast, controlling for socio-demographic characteristics reduces LFP disparities between European and Mexican women considerably, especially at arrival, from -0.141 to -0.064 in Columns 1 and 4, respectively, and from -0.015 to -0.006 during the medium-term years (Columns 2 and 5, respectively). The gap after 15 years between comparable European and Mexican women is reduced from 19 percentage points in Model 1 to 11 percentage points in Model 2. The introduction of individual-level predictors does little to explain differences between European women and the *gradual incorporation from moderate starting points* group, however, though they do explain much of their observed lower trajectories during women's medium-term years in the United States (Column 2 vs. 5).

Accounting for individual characteristics also reduces the lower LFP among the *accelerated incorporation from low initial levels* group relative to Europeans by close to 25% (in Columns 1 vs. 3, 23% for India (1-(-0.133/-0.174); 26% for Korea, and 21% for other Asia). It also effectively reduces the gap in growth over the medium-term relative to European women

(Columns 2 vs. 5). Similar explanatory power is evident among the *continuous intensive LFP* group; the higher rate of LFP at arrival relative to Europeans is reduced from 0.125 to 0.083 and from 0.128 to 0.100 for Caribbean and Filipina women in Columns 1 and 4, respectively. Finally, controlling for socio-demographic characteristics explains virtually all the differences in LFP associated with age at arrival.

The bottom part of Table 3 reports coefficients for the socioeconomic predictors of LFP for the three splines of years since migration. Consistent with our expectations in several cases the effects do vary over time. For example, compared to women with a high school education, those with a college degree are more likely, and those lacking a high school diploma are less likely, to be in the labor force upon arrival. These educational disparities in LFP become even more pronounced with additional time in the United States, as the advantage of college educated women, and disadvantage of the least educated women, grow, and women with some college increase LFP more rapidly than those who did not advance beyond high school. Thus, while European women with less than high school education could expect a LFP rate of 73% after 10 years in the United States, a rate that is actually lower than at arrival, the rate would be 85% for those with some college. Moreover, accounting for human capital explains a sizeable share of the low levels of growth in LFP for less educated, *delayed incorporation*, groups. Lacking English proficiency exerts a steadier influence on LFP over time, having a large negative effect on LFP (-0.071 in Column 4) that does not seem to diminish with time in the United States.

Likewise, the impact of family obligations on immigrant women's LFP varies over time. Both being married and having children under five are associated with lower LFP at arrival (-0.170 and -0.200 in Column 4, respectively). However, there is some degree of attenuation in the penalty with time in the United States, both during medium- and long term; every year of U.S.

residence (after the initial two) the LFP of married women and women with young children grows by 0.4% and 0.8% in the medium term and 0.2% and 0.3% in later years, respectively.

National group level processes

Table 4 reports summary results for models incorporating the three group-level gendered migration dynamics, i.e. the sex ratio, and the share of women arriving single and men arriving college educated. The models also control for age at arrival, period of arrival, and individual socio-demographic characteristics (full models not reported but available upon request). We expect that group-level indicators will explain an additional part of the cross-national disparities observed in Figure 1. As described above, the correlation between gendered migration cohort characteristics and national origin precludes their joint inclusion in the model. Thus, the top panel of Table 4 reports results from models estimated including one group-level variable at a time (absent national origin) and then an integrated model, estimated with all three group-level variables. The integrated model should be interpreted with caution given the strong correlation between the share of women single at arrival and men arriving with a college education. Table 4 also reports the overall effect, i.e. without interactions with the splines (Column 1) and the interaction effects (Columns 2, 3, and 4).

[Table 4 about here]

Considering the overall effects over women's careers in the United States (Column 1), results document two salient group-level processes affecting LFP trajectories, namely the sex ratio and share of women single at arrival. They work in opposite directions. The sex ratio at arrival is negatively associated with immigrant women's LFP (-0.100) while the opposite is the case for the share of women arriving single (0.328). The effects reflect gendered patterns in the

U.S. immigrant labor market. A significant overrepresentation of men in the flow, like in the Mexican case, is an expression of male-centered labor demand. Men being underrepresented, as in the case of the Philippines, reflects market preferences for women's labor. Moreover, the effect is present at both entry and medium-term years (-0.077 and -0.009 in Columns 2 and 3). It is not until after 10 years of U.S. residence that we see a trend towards convergence in LFP.

Similar findings obtain from models estimating the impact of the share of women single at arrival, which is indicative of the extent to which the flow is driven by women's economic versus family considerations. Results show that immigrant flows with higher representation of unmarried women at arrival correspond with higher likelihood of LFP, even net of individual-level characteristics. Interestingly, the association is particularly strong at arrival (0.302 in Column 2), supporting the interpretation that women migrate in search of work within those flows. The association weakens, even reversing slightly, with longer durations of U.S. residence.

The contextual effect of the share of co-ethnic men arriving with a college degree varies by years since migration. While the overall effect is not significant, it is negatively associated with women's LFP at arrival (-0.137 in Column 2). The association reverses during the medium-term years (0.020 in Column 3) and becomes slightly negative again in later years. Flows with high representation of college educated men, like India, again reflect the gendered nature of immigrant labor demand. In these flows, women tend to follow their husbands' employment opportunities (which may also prevent them from working due to visa limitations), undermining LFP at arrival. However, since women in these flows also tend to be highly educated, the initial penalty dissipates rapidly during the medium term, and levels off over the longer term. The integrated model shows a similar pattern of effects, though the high correlation between the

share of women single and men with college education at arrival obscures their independent effects.

Predicted values help illustrate the role of migrant-flow level processes in shaping national origin variation in immigrant women's LFP. Net of individual controls, Mexican women have an overall 7.6% lower probability of LFP than European women. Filipina women, in contrast, have an overall 7% higher probability of LFP than European women. If Mexican and Filipina women had the three migrant cohort characteristics of European women, Mexican women would see their overall LFP increase by 2.6% while Filipina women would see a 4.2% reduction. Thus, roughly one-third and more than half of the national origin differences in LFP between these groups and European women can be explained by gendered dynamics of the migration flows.

Conclusions and Discussion

Immigrant women represent an important and growing share of the U.S. workforce, yet our understanding of the social forces shaping their labor market incorporation lags behind those of immigrant men. Particularly lacking are studies that systematically compare incorporation trajectories over time and across national origin groups. We address this gap drawing on data from 1990 to 2016 U.S. Census and American Community Survey to construct synthetic cohorts of immigrant women from the 14 the largest national origins. We then compare LFP trajectories across groups, distinguishing rates shortly after arrival from those during the medium- and longer-terms of U.S. residence, taking into account individual characteristics as well as gendered aspects of migration cohorts. We find that for most groups, immigrant women's LFP reaches levels comparable to, and in some instances higher than, those of native women (Adserà and

Ferrer 2014; Blau et al. 2011). Thus, immigrant women's remunerated work is a salient contribution not only to the wellbeing and economic incorporation of immigrant families, but also to the U.S. labor market more broadly, and thus warrants more systematic attention.

Tracking synthetic cohorts over time shows considerable heterogeneity in LFP patterns across national origin groups at arrival (intercepts) as well as growth over time (slopes). The analysis applied group-based trajectory modeling to identify five distinctive LFP trajectories: 1- *gradual incorporation from moderate starting rates*, which is typified by cohorts from Europe, Africa, China, Vietnam, and Canada; 2- *delayed incorporation with low initial participation*, exemplified by Mexico; 3- *delayed incorporation with moderate initial participation*, which includes Central America, South America, and Cuba; 4- *accelerated incorporation with low initial participation*, the group includes India, Korea, and other Asian countries; and 5- *continuous intensive LFP*, which includes the Philippines and Caribbean countries.

Consistent with prior studies, controlling for educational attainment, English language proficiency, and family responsibilities, explains a large portion of LFP disparities across groups. However, the effects of these individual-level characteristics vary depending on whether we focus on LFP at arrival or change with time in the United States. We show that socio-demographic characteristics explains nearly half of the lower LFP at arrival among the group with *delayed incorporation*, which includes Latin American countries, especially Mexico, relative to the *gradual incorporation* group, illustrated by the European experience. They also explain a similar proportion of the slower rate of growth in LFP among the *delayed incorporation* group. Conversely, for the group with *accelerated incorporation*, especially India, around 25% of the lower entry level LFP at arrival relative to Europeans is explained by individual characteristics. For the *accelerated* group, the initial constraint stems not from lower

education, but the much higher propensity for women to arrive married. Moreover, accounting for individual-level characteristics (particularly education) explains a large part of their more rapid growth in LFP over time. A different pattern is found for the group with *continuous intensive LFP*. For this group, socioeconomic controls reduced by 30% the higher LFP at arrival relative to Europeans, and eliminated their slower grow rate with time in the United States.

Thus, distinguishing between the impact of socio-demographic factors on starting and later growth rates provides insight into where different flows fall in the continuum between work and family motivations for migration. LFP during the early years of U.S. residence are a clear indicator of the search for economic opportunities as a central motivation behind women's migration, though it is important to acknowledge that even in cases with low LFP at entry, immigrant women become important economic contributors over time (Baker and Benjamin 1997; Fuller and Martin 2012). Thus, overall, the finding supports perspectives that do not categorically oppose work and family as motivating migration.

Taking a longer-term view, and considering LFP with different durations of U.S. residence, not only enhances our understanding of national origin variation in labor market outcomes, it also sheds light on their socio-demographic determinants. Contrary to our expectations, age at migration shows little association with LFP, especially after accounting for other socio-demographic characteristics. This suggests that age itself, rather than age at migration, is the main factor shaping immigrant women's LFP. Conversely, educational attainment shapes LFP differently across different periods of incorporation. While better educated women average higher LFP than their less educated counterparts, the differences are significantly smaller at arrival, and widen with longer durations of U.S. residence. In relation to the relatively constant LFP among native women, results imply that despite the initial penalty to

immigrants' LFP at arrival, those with more than a high school education tend to converge with natives over time, while the opposite is true of their less educated counterparts. These patterns highlight the difficulties faced by less educated immigrant flows, such as Mexicans, Central Americans, and some Asian groups, in finding work in the increasingly skill-oriented U.S. labor market.

While the challenges faced by less educated immigrant women grow over time, the opposite obtains for the constraints on immigrant women's LFP associated with family obligations. That is, being married and having children younger than age five in the household significantly reduce LFP at arrival. However, married women and those with young children seem better able to combine work and family over time, as their LFP increases at a faster rate than other women with longer periods of U.S. residence.

Finally, while variation in socio-demographic composition accounts for a large share of national origin differences in LFP, significant gaps remain. We show that group-level gendered migration processes, namely the sex ratio at arrival, share of women arriving single, and share of men arriving with a college education, can help explain an additional share of this LFP gap across groups. The link between these group-level characteristics and LFP varies across arrival and longer durations of U.S. residence. For example, the overrepresentation of men in migrant flows, such as the Mexican case, undermines immigrant women's LFP, while the opposite holds for flows dominated by women, such as the Philippines. It is only with very long U.S. durations, i.e. more than 11 years, that women in male-dominated migration streams begin to converge with those from more gender-balanced flows.

The share of immigrant women arriving single, in contrast, reflects the degree of female independence and labor demand driving migration decisions. Results show that higher

representations of single women in the flow are associated with higher LFP, even net of individual-level characteristics. This effect is primarily present at arrival, facilitating labor market entry during the early years in the United States, and dissipates with longer durations. The share of men arriving college educated is also an indicator of the labor demand driving national migration flows. While the effect on overall LFP was not significant, separating by period of U.S. residence shows that highly educated male flows, such as from India, are negatively associated with immigrant women's LFP at arrival. Despite their initial disadvantage, these flows show more rapid increases in LFP over time. Taken together, national origin differences in these three gendered dimensions of migration flows explain an important share of the gap in LFP that remains after controlling for individual-level characteristics (as much as 50% for groups such as Mexicans).

Several implications derive from the analysis. The first is that while immigrant women's labor market incorporation remains understudied relative to men, taking seriously the need to not only include women, but to take a gendered approach to studying immigrant incorporation, yields significant insights. While in some situations it is reasonable to apply male-centered models to women, like a double cohort specification, it is also important to develop gender-specific perspectives. We provide an initial attempt by incorporating the gendered dynamic of migration flows into our analysis. It is doubtful that those considerations can easily be extended to men, yet they are relevant for women's migration experiences.

Studies of immigrant incorporation continue to suffer from a lack of information on legal immigration status, including visa considerations. Failure to incorporate legal status is potentially an even more serious limitation for understanding immigrant women's economic position than it is for immigrant men. Particularly in male dominated flows, women's LFP might be restricted by

visa regulations. The literature on immigration highlights that, in many instances, immigrants find themselves in a position of liminal legality (Menjívar 2006), which could be central for understanding immigrant women's economic advancement. It is also likely that the LFP impact of unauthorized status varies between men and women.

Although there has been considerable attention to how characteristics of the context of reception, such as labor market structure or size of the co-ethnic community, shape immigrant incorporation, most research on the subject has not taken a gendered perspective. Future research should elaborate on context of reception conditions that might be particularly salient to immigrant women's economic incorporation. Such analysis will help us understand not only contextual variation in women's economic positions, but also how context might affect the differential position of immigrant women relative to immigrant men.

Appendix 1. Group-based trajectory modeling (GBTM)

GBTM is an application of probabilistic finite mixture modeling, which aims at identifying (rather than assuming) clusters that follow similar developmental trajectories. The model assumes that distribution of trajectories emerges from a finite mixture of unknown order (or number of groups). The optimal number of groups is ultimately determined by the researcher. We tested models of different group sizes, from 3 to 7. We followed accepted best practices to determine the number of groups using a combination of criteria, including the smallest Bayesian information criteria (BIC), parsimony in the number of groups that best fit the data, the size of the resulting groups, and the interpretability of the clusters (Jung and Wickrama 2008).

An advantage of GBTM is its flexibility in incorporating heterogeneity when modeling trajectories. Unlike sequence analysis, GBTM estimates the shape of latent group trajectories. Rather than assuming a single average growth trajectory, GBTM identifies multiple growth patterns, categorizing immigrant cohorts into a small number of clusters that exhibit statistically similar trajectories (Jones and Nagin 2013; Jung and Wickrama 2008). Rather than focusing on the relationship between variables, the main focus of GBTM is in discerning patterns in the distribution of the outcome variable Y_i conditional on time, expressed as:

$$P(Y_i|Time_i, j; \beta^j) = \prod_{t=0}^{T} p(y_{it}|time_{it}, j; \beta^j)$$

where Y_i is a random vector representing periodical observations of the outcome variable for (immigrant cohort *i*, and the vector $Time_i$ represents years since migration when unit *i*'s outcome was observed. The probability of Y_i is also dependent on the number of groups *j*, and the shape of each group trajectory, determined by the unknown parameter vector β^j. Each group trajectory is estimated assuming conditional independence, that is, each trajectory has its own parameters and

can be modeled with up to a fifth-order polynomial function of time. For a specific cohort *i*, $p(y_{it})$ is the probability distribution function of the outcome variable over *T* measurement periods, conditional on membership in group *j*, and the time *t* (years in the U.S.) at which the measure for cohort *i* was observed (Jones and Nagin 2013).

The model parameters are estimated using maximum likelihood. Among the alternative specifications, we chose a censored normal distribution (or Tobit model), which is adequate to model repeated measures over time, approximating a continuous distribution that may be censored at either end of the distribution. In our case, the distribution of the outcome variable, i.e. the LFP rate in each immigrant cohort over years in the U.S., was limited to values between 0 and 1. GBTM uses a multinomial modeling strategy to assign each immigrant cohort a probability of being in a cluster conditional on the number of groups and the shape of the group-specific trajectory, which we used to assess the probability of group membership by national origin.

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Table 1: Average LFP rate by country and time in the United States

	Years in the U.S.		
	0-2	**3-10**	**11+**
Gradual, moderate intercept			
1. Europe	57.3%	69.7%	76.1%
2. Africa	54.8%	72.9%	80.9%
3. China	51.7%	72.3%	77.8%
4. Vietnam	52.1%	68.7%	77.5%
5. Canada	59.9%	69.4%	75.5%
Delayed, low intercept			
6. Mexico	44.6%	47.8%	56.9%
Delayed, moderate intercept			
7. Central America	61.5%	63.9%	70.9%
8. SouthAmerica	57.2%	69.6%	74.9%
9. Cuba	61.6%	70.9%	71.9%
Accelerated, low intercept			
10. India	36.5%	57.1%	69.2%
11. Korea	36.7%	56.8%	65.3%
12. OtherAsia	32.7%	53.5%	64.4%
Continuous intensive, high intercept			
13. Caribbean	65.9%	79.0%	84.2%
14. Philippines	66.8%	80.7%	84.5%

Note: Immigrant women ages 16-54, who migrated from ages 15-44, not living in group quarters, not attending school.

Source : U.S. Census 1990, 2000; American Community Survey 2006-2010, 2012-2016.

Table 2. Descriptive Results for Demographic, human capital, family, and group level correlates of female labor force participation (FLFP)

		Demographic		Human Capital		Family			Group Level		
	N	Age at migration (mean)	Years in the U.S. (mean)	Years education (mean)	% English not well	Married (%)	Preschool children (%)	*N*	Sex Ratio (M/W)	% Women single	% Men w/ college
Gradual, moderate intercept											
Europe	111,152	27.5	11.4	14.2	12%	72%	26%	18	1.10	28%	42%
Africa	18,818	27.7	11.1	14.5	3%	71%	32%	18	1.36	32%	35%
China	33,419	26.7	11.1	13.2	11%	59%	41%	18	0.86	32%	51%
Vietnam	62,434	27.6	12.4	14.0	32%	76%	24%	18	0.84	33%	10%
Canada	34,307	26.2	13.5	10.8	50%	69%	28%	18	1.00	31%	47%
Delayed, lower intercept											
Mexico	312,464	23.7	12.3	9.1	68%	65%	43%	18	1.47	26%	5%
Delayed, moderate intercept											
Central America	106,616	24.6	12.8	9.9	56%	50%	32%	18	1.20	37%	8%
South America	74,558	27.0	11.7	12.9	29%	62%	26%	18	0.94	32%	26%
Cuba	15,779	28.5	11.3	12.4	54%	57%	19%	18	1.09	26%	16%
Accelerated, low intercept											
India	67,687	26.2	10.7	15.1	12%	88%	37%	18	1.30	18%	63%
Korea	28,416	27.8	12.3	14.0	38%	78%	24%	18	0.84	30%	48%
Other Asia	63,604	26.6	11.9	12.6	25%	75%	35%	18	1.04	29%	45%
Continuous intensive, high intercept											
Caribbean	40,210	26.1	13.7	12.4	10%	44%	24%	18	0.92	46%	10%
Philippines	59,978	27.3	12.6	14.5	3%	69%	25%	18	0.65	33%	44%

Source : U.S. Census 1990, 2000; American Community Survey 2006-2010, 2012-2016.

Table 3. Coefficients from linear probability models predicting female labor force participation at arrival, medium-, and longer-term years in the United States (robust S.E. in parenthesis)

	Arrival (1-2 years)		Medium-term (3-10 years)		Longer-term (11+ years)		Arrival (1-2 years)		Medium-term (3-10 years)		Longer-term (11+ years)	
	1		2		3		4		5		6	
Gradual, moderate intercept												
Europe (ref.)			0.017 **	(0.002)	0.004 **	(0.001)			0.009 **	(0.000)	-0.001	(0.001)
Africa	0.003	(0.016)	0.004 **	(0.002)	0.000	(0.001)	0.017	(0.015)	0.004 *	(0.002)	-0.001 **	(0.001)
China	-0.020	(0.020)	0.007 **	(0.003)	-0.002 **	(0.001)	-0.002	(0.017)	0.007 **	(0.003)	-0.002 **	(0.000)
Vietnam	-0.020	(0.019)	0.001	(0.003)	0.002 **	(0.001)	0.032	(0.019)	0.005 *	(0.003)	0.001	(0.001)
Canada	0.031	(0.028)	-0.007 **	(0.003)	0.002	(0.001)	0.017	(0.022)	-0.006 **	(0.002)	0.001	(0.001)
Delayed, low intercept												
Mexico	-0.141 **	(0.017)	-0.015 **	(0.002)	0.007 **	(0.001)	-0.064 **	(0.013)	-0.006 **	(0.002)	0.006 **	(0.001)
Delayed, moderate intercept												
Central America	0.032 *	(0.019)	-0.017 **	(0.003)	0.005 **	(0.001)	0.052 **	(0.016)	-0.008 **	(0.003)	0.003 **	(0.001)
SouthAmerica	0.010	(0.016)	-0.005 **	(0.002)	0.002 **	(0.001)	0.015	(0.013)	-0.002	(0.002)	0.001 *	(0.001)
Cuba	0.051 *	(0.029)	-0.008 **	(0.004)	-0.005 **	(0.002)	0.066 **	(0.024)	-0.004	(0.004)	-0.005 **	(0.002)
Accelerated, low intercept												
India	-0.174 **	(0.022)	0.012 **	(0.003)	0.003 **	(0.001)	-0.133 **	(0.018)	0.008 **	(0.003)	0.002 **	(0.001)
Korea	-0.180 **	(0.030)	0.007 **	(0.003)	0.002	(0.002)	-0.134 **	(0.027)	0.004	(0.003)	0.002	(0.002)
OtherAsia	-0.219 **	(0.022)	0.012 **	(0.003)	0.002 **	(0.001)	-0.173 **	(0.017)	0.010 **	(0.002)	0.002 **	(0.001)
Continuous intensive, high intercept												
Caribbean	0.125 **	(0.020)	-0.007 **	(0.003)	0.001	(0.001)	0.083 **	(0.019)	0.000	(0.003)	0.000	(0.001)
Philippines	0.128 **	(0.020)	-0.006 **	(0.003)	0.000	(0.001)	0.100 **	(0.018)	-0.005 **	(0.003)	0.001	(0.001)
Age at arrival (ref. 20-24)												
15-19	-0.018	(0.018)	0.004 *	(0.002)	-0.001	(0.001)	-0.059 **	(0.017)	0.007 **	(0.002)	0.000	(0.000)
25-29	-0.020	(0.014)	0.005 **	(0.002)	-0.001	(0.001)	0.009	(0.012)	-0.001	(0.002)	-0.001	(0.001)
30-34	-0.025 *	(0.014)	0.009 **	(0.002)	-0.004 **	(0.001)	0.005	(0.012)	0.000	(0.002)	-0.003 **	(0.001)
35-39	-0.002	(0.016)	0.009 **	(0.002)	-0.010 **	(0.002)	0.001	(0.014)	0.002	(0.002)	-0.007 **	(0.002)
40+	0.026	(0.016)	0.001	(0.002)	-0.010 *	(0.005)	0.002	(0.014)	-0.001	(0.002)	-0.007	(0.005)
Period of arriaval (ref. 1980s												
1990s	0.012 **	(0.005)					-0.003	(0.004)				
2000s	0.031 **	(0.006)					0.009	(0.006)				
Educational attainment (ref. high school)												
Less than HS							-0.029 **	(0.004)	-0.004 **	(0.001)	0.000	(0.000)
Some college							0.002	(0.005)	0.005 **	(0.001)	0.000	(0.000)
College							0.018 **	(0.008)	0.012 **	(0.001)	-0.002 **	(0.001)
English ability												
Does not speak English							-0.071 **	(0.007)	0.000	(0.001)	-0.001	(0.000)
Family Characteristics												
Married							-0.170 **	(0.006)	0.004 **	(0.001)	0.002 **	(0.001)
Has Childen <5 in household							-0.200 **	(0.007)	0.008 **	(0.001)	0.003 **	(0.001)
Constant	0.573 **	(0.018)					0.764 **	(0.015)				
N	1,029,442											
R-squared	0.067						0.127					

*p < .10; **p < .05

Table 4. Coefficients from linear probability models predicting female labor force participation according to national level characteristics (robust S.E. in parenthesis)

	Overall effect		Interaction with Time in the U.S. Spline					
			Arrival		Medium-term		Longer-term	
	1		2		3		4	
Individual models								
Sex ratio at arrival	-0.100 **	(0.011)	-0.077 **	(0.020)	-0.009 **	(0.002)	0.006 **	(0.001)
% women single at arriva	0.328 **	(0.032)	0.302 **	(0.069)	0.009	(0.010)	-0.007 **	(0.003)
% men w/college at arriv	-0.034	(0.025)	-0.137 **	(0.037)	0.020 **	(0.003)	-0.004 **	(0.002)
Integrated models								
Sex ratio at arrival	-0.070 **	(0.014)	-0.110 **	(0.221)	0.001	(0.003)	0.006 **	(0.001)
% women single at arriva	0.230 **	(0.046)	0.055	(0.088)	0.030 **	(0.009)	-0.002	(0.003)
% men w/college	-0.011	(0.020)	-0.174 **	(0.038)	0.028 **	(0.004)	-0.003 *	(0.002)
N	1,029,442							
R-Squared (integrated model w/interactions)			0.119					

*p < .10; **p < .05

Group A: Gradual, moderate intercept

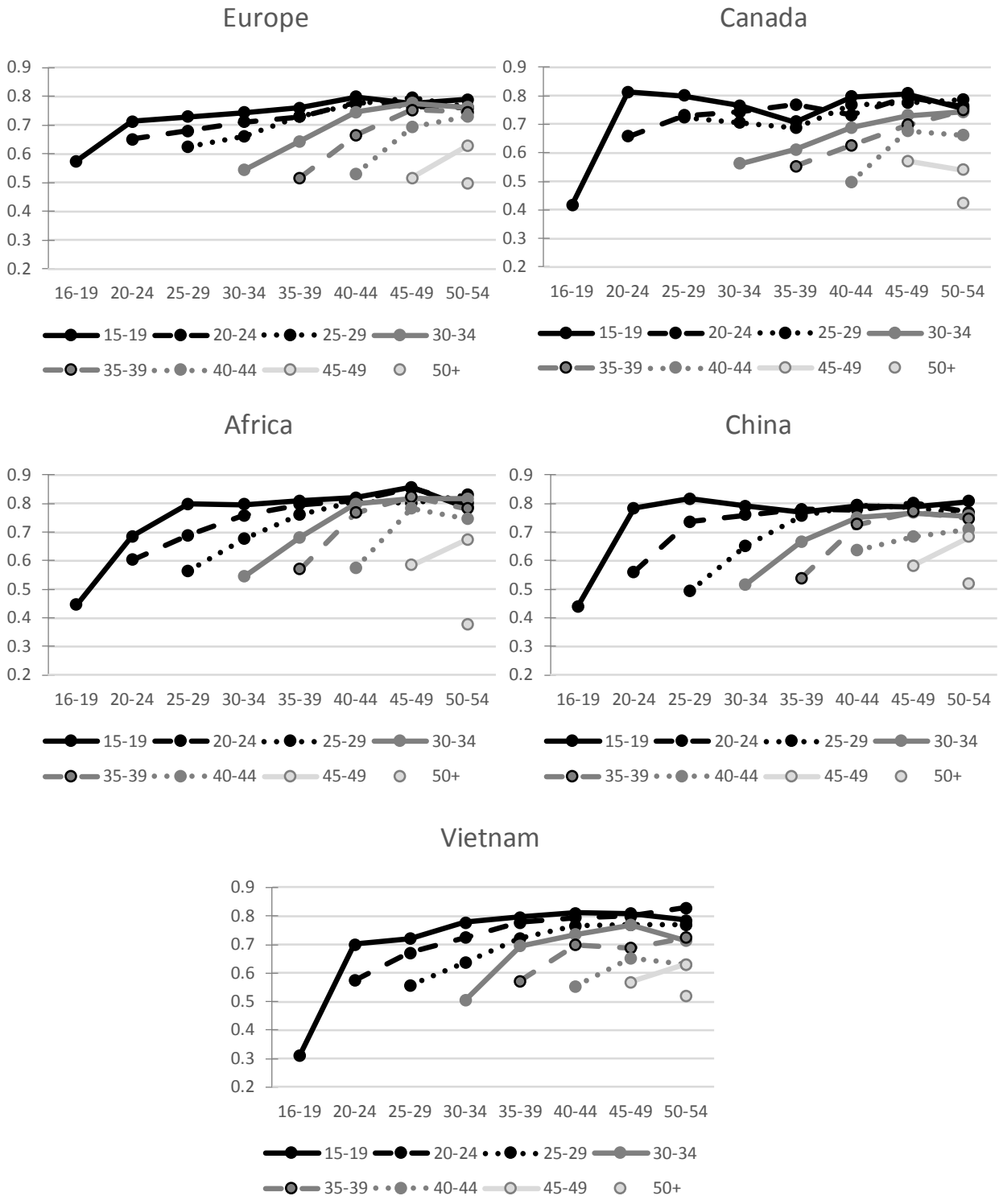
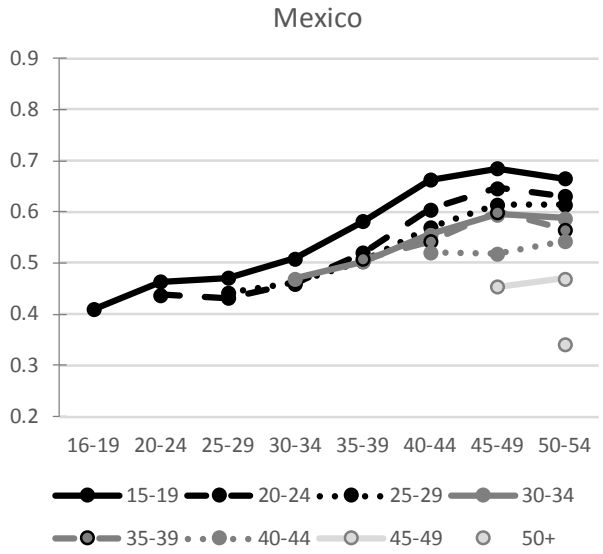


Fig. 1 Trajectories of labor force participation by national origin (Key: Age at arrival)..ctd.

Group B: Delayed, low intercept



Group C: Delayed, moderate intercept

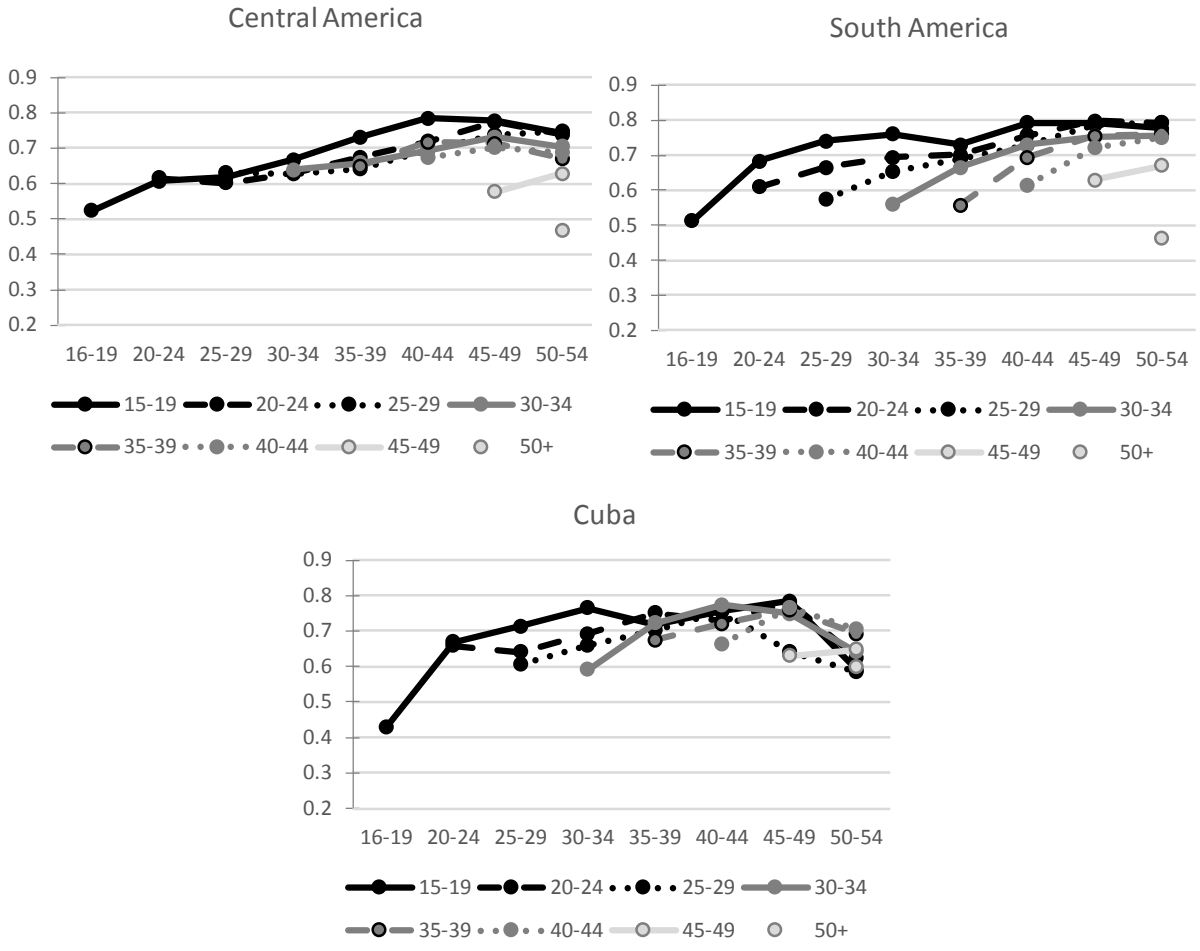


Fig. 1 Trajectories of labor force participation by national origin (Key: Age at arrival)..ctd.

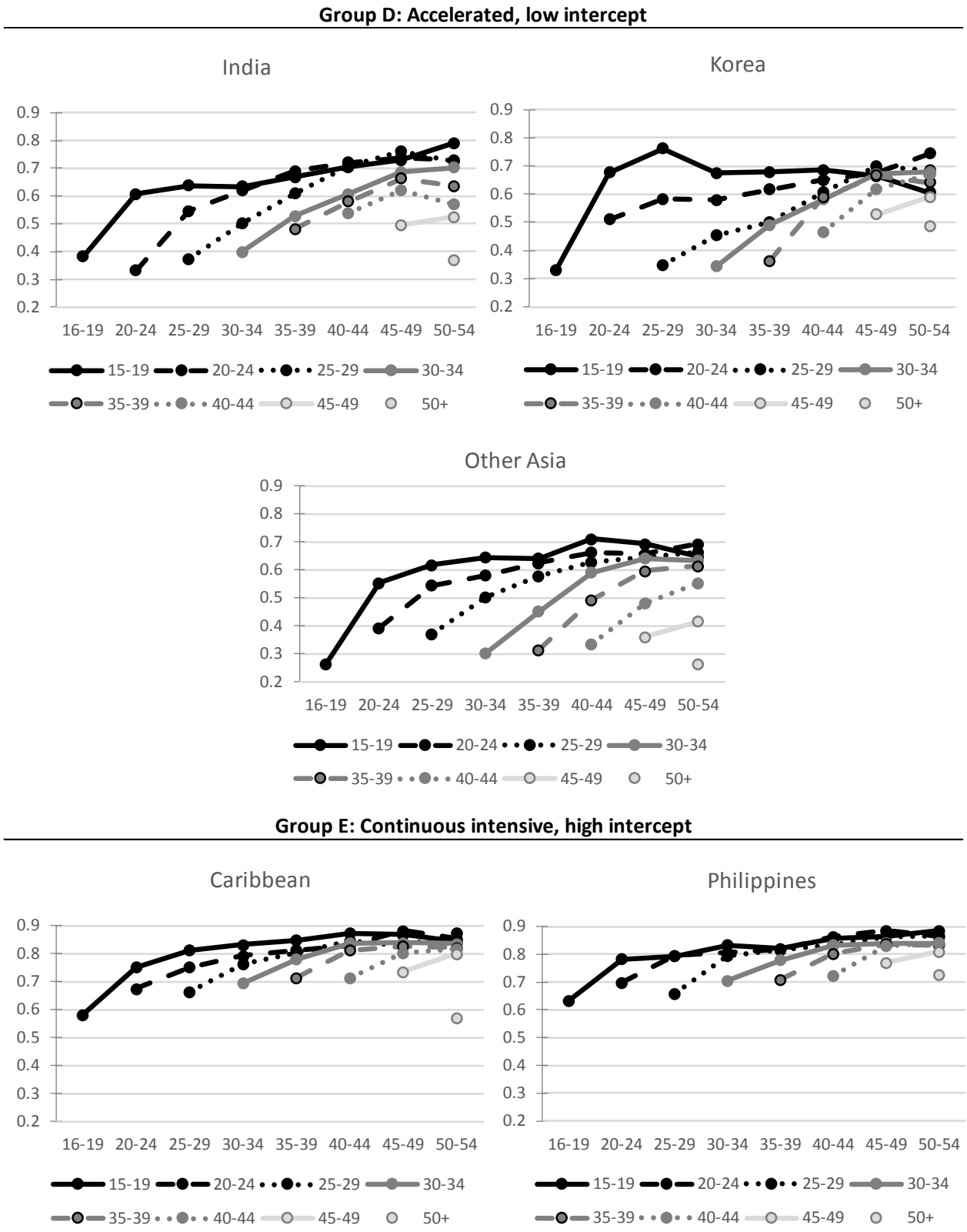
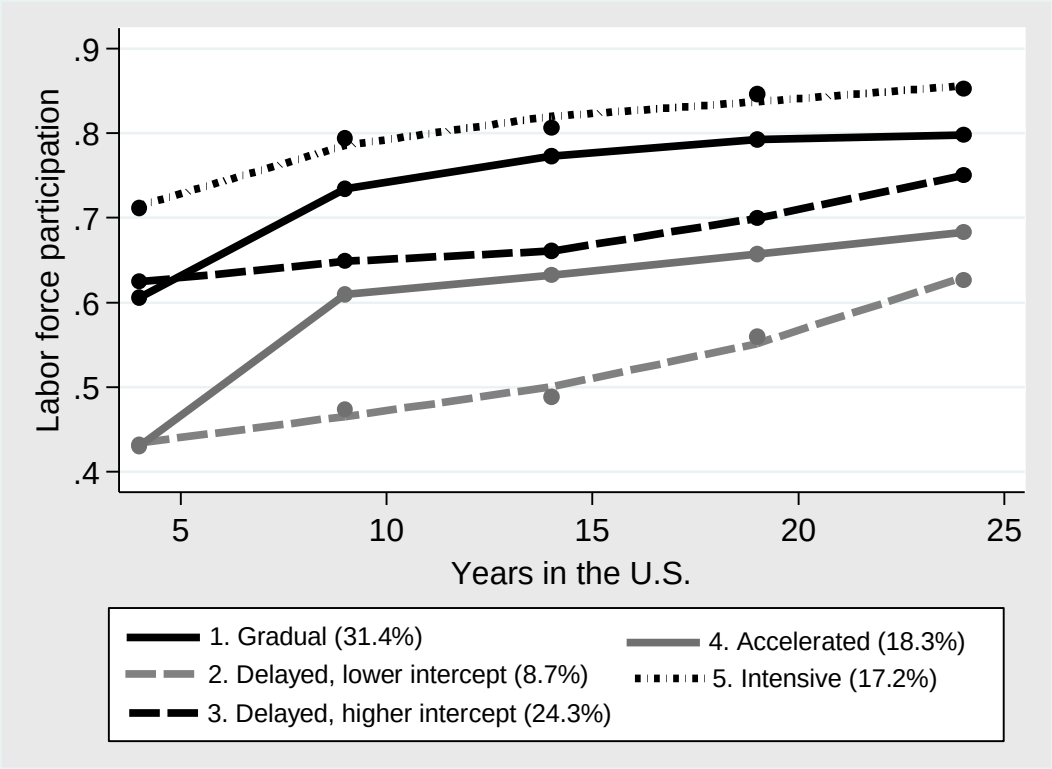


Fig. 1 Trajectories of labor force participation by national origin (Key: Age at arrival)



Appendix Fig. 1. Group-Based Trajectory Model, 5-Group Solution

Appendix Table 1. Percent probability of group trajectory membership by country of origin

	1. Gradual, moderate intercept	2. Delayed, low intercept	3. Delayed, moderate intercept	4. Accelerated, low intercept	5. Continuous intensive
Europe	67.9		32.1		
Africa	100.0				
China	100.0				
Vietnam	66.6		33.4		
Canada	30.0		26.7		43.3
Mexico		100.0			
Central America			100.0		
South America	29.8		70.2		
Cuba	37.5		44.4	11.2	6.9
India			21.5	78.5	
Korea		22.3	11.1	66.5	
Other Asia				100.0	
Caribbean					100.0
Philippines					100.0

Source: U.S. Census 1990, 2000; American Community Survey 2006-2010, 2012-2016.