

Gender Gap of Immigrant Groups in the United States

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I. Introduction

The gender wage gap is a phenomenon that appears to persist and prevail in many countries; however, the level of the gender gap is far from uniform from country to country. For example, in 1990 the average wage of a woman working in manufacturing in Brazil was 54% of the average male's wage in that industry, whereas in Myanmar this percentage was 106 (Statistics Division of the United Nations Secretariat, 2000). Moreover, researchers have found evidence that there are statistically significant differences in the gender wage gap across countries (Antecol, 2001). The variation in the gender gap across nations seems to persist even after immigration – i.e. immigration groups from different countries exhibit different gender gaps in the same host country. For instance, in 1990 working Syrian female immigrants earn on average 28% of the male working immigrants from the same group, whereas for Russian immigrants this percentage was 100 (Ruggles and Sobek, 1997).

To explain the variation of the gender gap across immigrant groups from different countries after they arrive in the U.S., we need to explore the determinants of the gender gap in general. This paper will argue that the gender gap of an immigrant group in the U.S. is determined mainly by social norms in the country of origin. In addition, it will also be argued that the effect of social norms takes place through two avenues. First, social norms determine the investments in formal education, which is an important determinant of earnings. Furthermore, social norms determine the pattern of participation in the labor market, the family structure and the choice of a field of work.

The purpose of this paper is to explore the determinants of the gender gaps in the U.S. of immigrant groups from different countries. More specifically, the purpose of this paper is two-folded. First, it will explore how in theory the social norms in the country of origin determine the gender gap through two avenues. Second, it will create an empirical model to test the hypotheses generated by the theory.

The rest of this paper is organized as follows. The next section will describe the theory relevant to the subject of gender gap and discuss how it relates to immigrant groups in particular. Section III will describe the hypotheses generated by the theory and the empirical model that will be used to test the hypotheses. Section IV presents the results of the test and discusses those results in the context of the theory.

Section V will draw conclusions and expand on the policy implications that follow from the results.

II. Theory and Literature Review

As mentioned earlier, two main avenues through which social norms in the country of origin influence the gender gap will be discussed in this paper. First, this section will discuss the effect that takes place through formal education investment decisions. Then, other possible ways in which social norms can reflect on the gender gap will be considered.

Effect of Country-of-Origin Gender Norms Through Formal Education

One of the avenues through which the social norms affect the gender gap is through the choice of investment in formal education. By investigating the theoretical connection between societal values and personal preferences we will draw conclusions about

“Immigrant Groups from different Countries exhibit different gender gaps in the same host country”

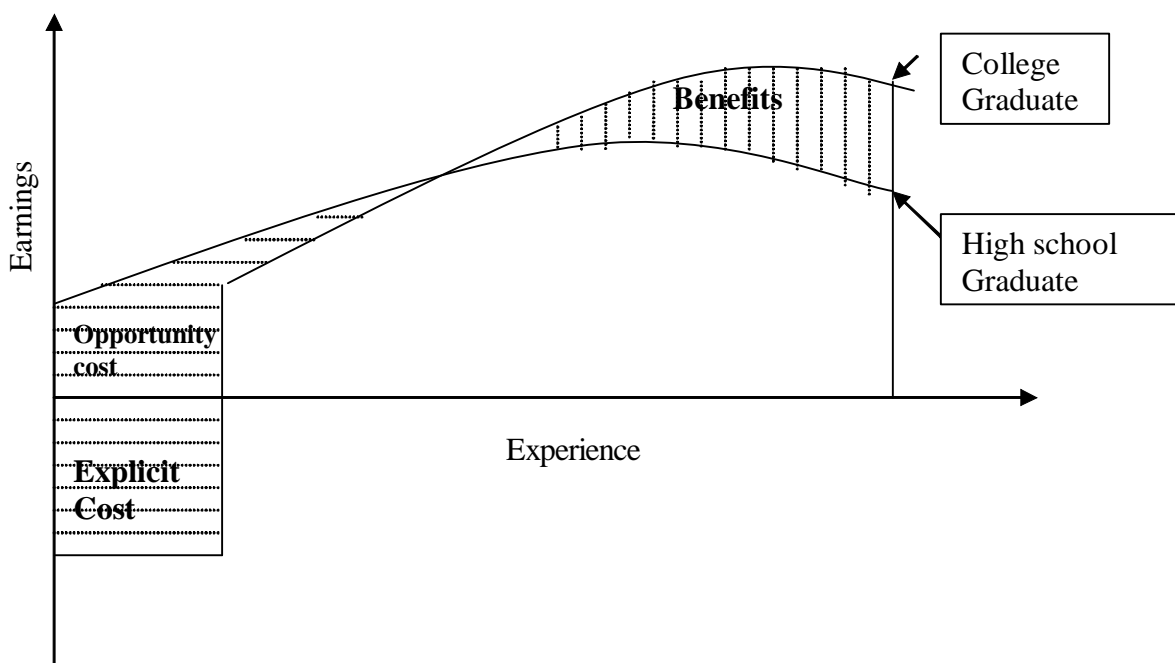
the gender gap of immigrant groups. A simple supply and demand model can explain why higher levels of human capital, and formal education in particular, generally earn higher rewards. The accumulation of formal education – one type of human capital – increases the productivity of a worker. It is widely accepted that the relationship between education and earnings is significant (Chiswick, 1978). Since under competitive assumptions the marginal productivity of the worker is equal to the worker's wage, higher levels of formal education in general translate into higher earnings. The payoff of each dollar spent on education is on average between 1.05 and 1.15 dollars (Psacharopoulos, 1985). However, the acquisition of formal education comes only at the expense of direct costs, forgone earnings and leisure. For example, the cost of a college degree is comprised of tuition costs, and the opportunity costs of the time spent in school rather than in the labor market or at leisure (Parsons, 1974). Thus, economists often perceive accumulation of formal education as an investment that will yield returns in terms of higher wages (Parsons, 1974; Sicilian and Grossberg, 2001; Khan, 1997).

Assuming that people are rational, the investment in formal education will depend on the payoff of the investment; more specifically, a person will choose a level of investment that maximizes her gains. This is

the main idea behind the human capital theory. We will consider a specific type of formal education investment – college education. Let an individual be considering whether to pursue a college degree; this decision is discrete rather than continuous and the problem of maximization is simply a problem of choosing the better of two options. Figure 1 shows the costs and benefits that one has to take into consideration when deciding whether or not to obtain a college degree (Blau, 2002). Both the college graduate and high school graduate's earnings increase with experience; however, the college graduate's earnings increase faster than do the high school graduate's as the higher qualifications of the college graduate allows her to benefit more from on the job training. Thus, the person making the decision will choose to invest in a college degree if the present value of the benefits is greater than the present value of the sum of the indirect and direct costs.

However, if the person making the decision expects to interrupt her career for caring for children, then the benefits of the degree change as shown in Figure 2. The new benefit consists of only the highlighted parts of the graph. While the woman is out of the labor market her wage does not increase. Moreover, when the woman interrupts her career, her experience before the interruption matters less than if there was no interruption. Thus, when a woman goes

Figure 1 The costs and benefits of a college degree. (Blau, 2002)



back to work after the interruption, she has to start at a lower salary than the one at which she left (Blau, 2002).

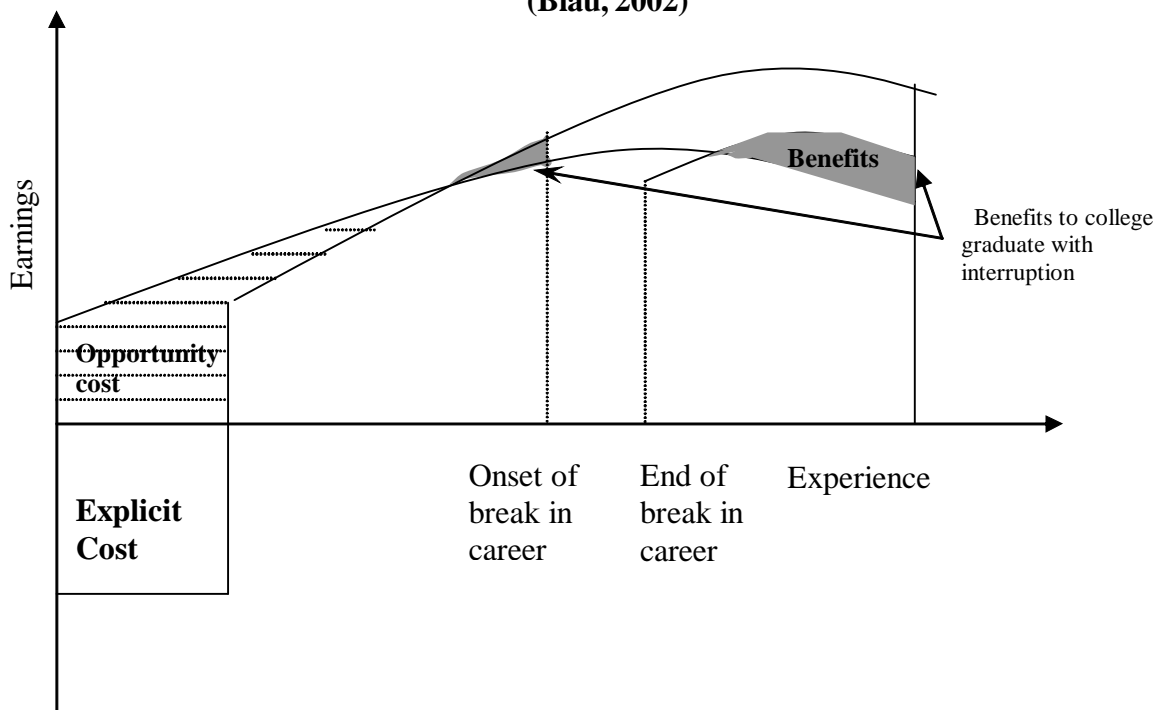
Thus, the personal preference to interrupt her career decreases the worker's payoff of obtaining a college degree and makes it less likely that she will choose to pursue higher education. If this preference is shared by women in a certain country, but not by the men in the country, then we will observe a gender formal education gap. In fact, gender norms in a country affect such preferences. There are several reasons to believe that this is true. For example, in a society in which women hold relatively disadvantaged position in the labor market the lack of same-sex role models of the same nationality might increase the perceived discrimination and the statistical discrimination. Women will then be discouraged from participating consistently in the labor market. Second, in a society in which women are expected to participate less than men in the labor market, there might be higher costs – such as social disapproval – for women than for men of labor force participation.

Human capital, and formal education in particular, can be thought of as a “stock” of income-producing skill and knowledge that is acquired through a flow of investment over an individual's lifetime. When a worker chooses to immigrate, they carry with themselves human capital baggage. Moreover, the level

of formal education accumulation can in fact be predicted to be fixed in the short run for older immigrants. One reason is that once formal education is accumulated, the cost is usually sunk. Although formal education eventually wears out (by forgetting) and becomes obsolete, it is fixed in the short run. Moreover, additional accumulation of human capital requires both significant preliminary planning, as well as time and funds. For younger immigrants with less experience in the work force and less formal education the opportunity cost of the time spent in school will be lower and they will be more likely to pursue more education. For older immigrants however, the opportunity cost is higher and their formal educational attainment is likely to be fixed in the short run. Additionally, one might find it more difficult to borrow during the educational investment period (Parsons, 1974). Immigrants may experience even greater difficulty in financing their education as they often have a less established credit history and since they often spend a significant amount of money to immigrate. Such difficulties will additionally make older immigrants' formal education fixed and thus, human capital gender gaps would carry over as the immigrants enter the U.S.

To summarize, gender norms can affect the immigrant group gender gap in the U.S. by affecting the accumulation of formal education. The reason to

Figure 2: The costs and benefits of a college degree when there is an interruption in the career.
(Blau, 2002)



believe that formal education gap will carry on to the new society is that formal education is fixed in the short run. Having considered how gender norms in the country of origin of the immigrants affect the gender gap in the U.S. through formal education, we will now explore other avenues through which the social norms affect the gender gap.

Effect of Country-of-Origin Gender Norms Through Non-Formal-Education Avenues

Family Labor Division

One avenue through which the gender norms in the country of origin can affect the gender gap of the group in the U.S. is family structure. If women arrive in the new country with their family, the Cournot-Nash model of family decision making (Chen and Woolley, 2001) predicts that their decisions of whether to pursue an uninterrupted career might be taken by the family as the deciding unit rather than by the woman as an individual. Even though individuals within the family attempt to maximize their own utility, they are interdependent because they care about each other and because they share assets (e.g. housing) and responsibilities (e.g. child care) (Chen and Woolley, 2001). Thus, decisions concerning labor division are likely to be taken by the family as the deciding unit. If there is a preexisting division of labor within the family before immigration, this division might persist after immigration even if it is not benefit maximizing for the woman. If the family comes from a society in which the societal model dictates that the woman should devote little time to work outside the home, the inert division of labor within the family will result in inert pseudo-preferences of the woman.

Choice of Occupation and Accumulation of Experience in the Country of Origin

Economists reason that there is an additional explanation of the gender gap. Wages in technical fields of work are higher than the average and growing (Berman, Bound and Machin, 1998), but women are less likely than men to pursue a mathematics major in college (Weinberger, 1999). In fact, even though women represented 46% of the United States labor force in 1996, they held only 22% of the jobs in mathematics, science or engineering (Hanson, 1996). One possible explanation of this is that individuals who expect that their labor market participation will be interrupted, for child bearing for example, might avoid

fields such as science, computer science, engineering, in which change is rapid (Blau, et al, 2002). Thus, if traditional gender roles require that the woman interrupt her career to care for her children, she will be less likely to take on a job in such a field. The choice of a field of work usually requires preliminary planning and is thus less likely to change after immigration. This is an additional reason of why traditional gender roles in the native society can influence the gender gap in the host country (through the women's choice of field of work).

Moreover, the work experience of an immigrant depends on the labor force participation in the country of origin. If traditional gender roles in the country of origin require that a woman spend little time in the work force, a woman immigrant will be less likely to have much work experience when she enters the U.S. Since experience is one of the determinants of earnings, a work experience gap will lead to a higher gender gap in the host country.

To conclude, the gender norms in the country of origin of the immigrant group affect the gender gap of the group in the U.S. through avenues other than human capital, as well. Namely, gender norms affect the group's gender gap in the U.S. through the inert family structure as well as through carrying choices of field of specialization and work experience obtained in the country of origin.

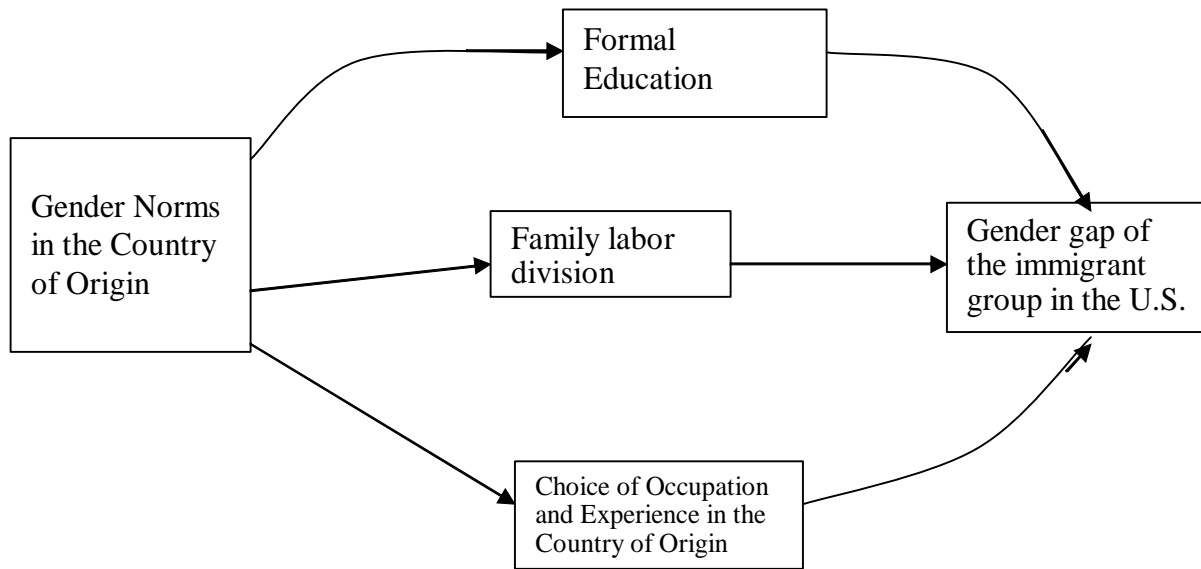
III. Hypotheses and Empirical Model

The data used in the empirical section of this work is extracted from the Economic Commission for Latin America and the Caribbean (1998), the International Labour Organization Bureau of Statistics (1998-2002), Ruggles and Sobek et. al. (1997), the Statistics Division of the United Nations Secretariat (2000) and the United Nations Children's Fund (1999). The data used is from the years 1980 and 1990. All data is an average for countries or an average for immigrant groups from different countries.

As discussed in the previous section, gender norms in the country of origin affect the gender gap in the host country in two ways – through formal education accumulation on one hand, and through choice of field, work experience in the country of origin and inert family labor division on the other. This is also illustrated in Figure 3. Thus, the two hypotheses to be tested will be associated with those two avenues.

The independent variable, which will measure the gender gap, will be ImmWoMen – the average

Figure 3: Illustration of the avenues through which gender norms in the country of origin affect the gender gap in the U.S.



U.S. wage of working women in the immigrant group divided by the average U.S. wage earned by working men in the same group. The data for this variable is extracted from Steven and Mathew Sobek et. al. (1997). The averages are computed only for working individuals so that people who are students, are in a training program, or are retired are excluded. It is important to acknowledge that this might result in a lower gender gap than the real gender gap in earnings (if women participate in the work force less). This is

necessary because the theory is based only on cases of individuals who are participating in the labor market. Moreover, the exclusion of non-working individuals is consistent in all other measures. The reason that wages are used rather than total income is that the gender wage gap is of concern especially because men and women earn different wages, not because they receive different incomes as a whole.

The theory presented in Section II advocates that one of the factors determining the gender wage

Table 1: Determinants of the group gender gap, the proxies used to estimate them and the predicted effect on the gender gap of the immigrant group.

	<i>Proxy</i>	<i>Symbol used</i>	<i>Source</i>	<i>Exp. sign</i>
<i>Dependent Variable</i>				
1 - Gender Wage Gap	Ratio of working immigrant women's average wage to working immigrant men's average wage	ImmWoMen	Steven and Mathew Sobek et. al. (1997)	
<i>Effect of Gender Norms in the Country of Origin to be Captured</i>				
Through formal education	Ratio of working women's immigrant average education rescaled to working immigrant men's	EdWoMen	Russel and Sobek et. al. (1997)	(+)
Through the family division of labor, through choice of career and work experience in the source country	Ratio of women's to men's average wages in manufacturing in the native country	NatWoMen	*	(+)

* Economic Commission for Latin America and the Caribbean (1998), International Labour Organization Bureau of Statistics (1998-2002), Statistics Division of the United Nations Secretariat (2000) and United Nations Children's Fund (1999)

gap of the immigrant group in the U.S. will be the formal education. The reason that this factor will be significant in explaining the variation of the gender gap across immigrant groups is because any significant human capital gap in the country of origin is expected to persist. As argued in Section II, the lower the formal education gap in the immigrant group, the lower we can expect the gender wage gap to be. This follows simply from the fact that formal education accumulation pays off in terms of higher wages as argued in the previous section. The variable used to measure education will be the recoded education variable from the Ruggles and Sobek et. al. (1997). The recoded education variable depends on the number of grades completed and degrees received rather than on the number of years of study. Thus, the variable takes value 1 for 0 years to kindergarten, 2 for grades 1 through 4, etc. all the way to 9 for a graduate or medical school degree. The variable used to measure the education gap will be **EdWoMen** – the average recoded education for women divided by the average recoded education for men. The higher this ratio, the lower the gender wage capital cap and thus, the higher the ratio of women’s average to men’s average wage. This way, the expected coefficient associated with **EdWoMen** is positive.

The previous section also concluded that the native gender norms’ effect consists not only of an effect through formal education but also of an effect through the somewhat rigid family division of labor, gender differences in choice of career and in work experience accumulated in the country of origin. To capture this effect, it is necessary to include a measure of gender norms. A somewhat imperfect measure of the gender norms is the ratio of women’s average salaries to men’s average wages in the country of origin. More specifically, the proxy chosen – **NatWoMen** – will be the ratio of average women’s wages in manufacturing to average men’s wages in manufacturing in the country of origin. Naturally, **NatWoMen** is not a perfect measure of the societal gender norms. The reason that manufacturing is chosen is because of data availability and because manufacturing wages depend on experience but little on education. Thus, this measure partly avoids the correlation with **EdWoMen**. The sources from which the data is extracted will be the Economic Commission for Latin America and the Caribbean (1998), International Labour Organization Bureau of Statistics (1998-2002), Statistics Division of the United

Nations Secretariat (2000) and United Nations Children’s Fund (1999). In this model **NatWoMen** can be expected to account for the effect of the gender norms other than through formal education. We can expect that the higher the native ratio of women’s to men’s salaries, the higher the ratio of wages for the immigrant group. Thus, the expected sign of the coefficient associated with the native wage ratio is positive.

Therefore, the empirical model will be equation (1)

$$\mathbf{ImmWoMen} = \mathbf{A*EdWoMen} + \mathbf{B*NatWoMen} + \mathbf{C} \quad (1)$$

The main hypotheses are that the coefficients **A** and **B** are positive and significant. In the next section **A** and **B** are estimated through a linear regression and the results are discussed in the context of the hypotheses and the theory presented.

IV. Empirical Test and Results

The linear least-square regression with **ImmWoMen** as the dependent variable and **EdWoMen** and **NatWoMen** as the independent variables was run. The coefficients that the regression yielded and their significance are described in Table 2.

Table 2: Coefficients from the linear regression analysis with dependent variable ImmWoMen. R² is 74%.

Variable	Coefficient	t value	Significance
Constant	.272	2.463	.018
EdWoMen	.346	10.846	.000
NatWoMen	-.115	-.797	.430

The regression explains 74% of the variation of the dependent variable (Adjusted R Square is .74). Thus, the model is relatively successful in explaining the gender wage gaps of immigrant groups. Also, the coefficient of the human capital proxy – the education ratio **EdWoMen** – has the expected sign and is highly significant in explaining the wage ratio **ImmWoMen** of immigrant groups. This means that the gender wage gap is in fact significantly positively correlated with the gender formal education gap.

However, **NatWoMen** is not significant in

explaining **ImmWoMen**. Therefore, possibly, the effect of gender norms through family division of labor and the choice of field of work is not as significant as expected. It is possible that, in reality, the family inert division of labor is less restricting to the individual's profit maximizing decisions than theorized. It is important to mention that not all immigrants immigrate in the U.S. with their families. The effect of gender norms through the field of specialization, on the other hand, might be accounted for by the education variable. The level of education required is higher for a dynamically changing field. Therefore, the human capital gap is highly correlated with the different participation of men and women in the highly dynamic fields. It is also important to note that the measure used for the gender social norms in the country of origin is quite limited.

V. Conclusion and Policy Implications

The most important finding of this study is that formal education gender gap is a significant determinant of the gender wage gaps of immigrant groups in the U.S. Moreover, when controlling for the formal education gender gap of the group in the U.S., other factors related to the gender norms prove to be insignificant in explaining the gender gap of the immigrant groups in the same host country. It can be concluded that the main determinant of the gender gaps of immigrant groups in the U.S. is the human capital gender gap.

Gender gap is usually perceived as an undesirable phenomenon. To facilitate the overcoming of the gender gap the government could facilitate the acquisition of formal education of immigrant women who have switched their preferences towards longer labor market participation but do not have the means to change their formal education accordingly. One incentive system that could achieve this effect would be one that secures easier financing of education for the targeted group. Future studies would benefit from more explicit measures of the gender norms in the country of origin. Two examples of such more specific measures are the size of the average family and the proportion of women who choose dynamically changing fields.

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