

How do men respond to increasing competition on the marriage market?

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Summary

This thesis investigates the effects of a higher sex ratio and a higher stock of immigrants on pre-marital investments for natives, who are children of immigrants. It also takes a look at the consequences for the labor force participation of men due to this increased sex ratio and stock of immigrants. It is found in this paper that American men with foreign parents respond negatively on increased competition in the marriage market regarding their pre-marital investments. They simply give up to compete for a good match. Also is found that the two marriage market characteristics do not have a significant influence on the labor force participation of American men, so on average, the labor force participation for these men doesn't change.

Contents

- Summary..... 2
- Contents..... 3
- 1. Introduction..... 4
- 2. Theoretical Background..... 7
- 3. Data & Methodology
 - 3.1 Data..... 10
 - 3.2 Methodology..... 11
- 4. Results
 - 4.1 Sex Ratio..... 13
 - 4.2 Stock..... 15
- 5. Conclusion..... 18
- References..... 20

1. Introduction

In the last few decades the population growth rate of the United States has changed a lot, and the rate is actually at its lowest point in 60 years now. It is likely that this has been influenced by a period of hard economic times (Krisiloff, 2011). For a long period of time in their history, the US faced a very high population growth, which could be explained by immigration.

Roughly four periods of heavy immigration are known in the American immigration history: the colonial period, the mid-19th century period, the beginning of the 20th century period and the post-1965 period. This paper investigates data from 1900 to 1970, so it will basically look at the beginning of the 20th century period. In this period the inflow mainly consisted of southern and eastern European people. 1907 was the peak year of European immigration with a number of almost 1.3 million people and by 1910 there were living 13.5 million immigrants in the United States (Altarriba & Heredia, 2008). Different acts were introduced since then under the guise of "preserving the ideal of American homogeneity".

An interesting point to notice is that the immigrants were predominantly male until the beginning of the 20th century as you can see in the figure below.

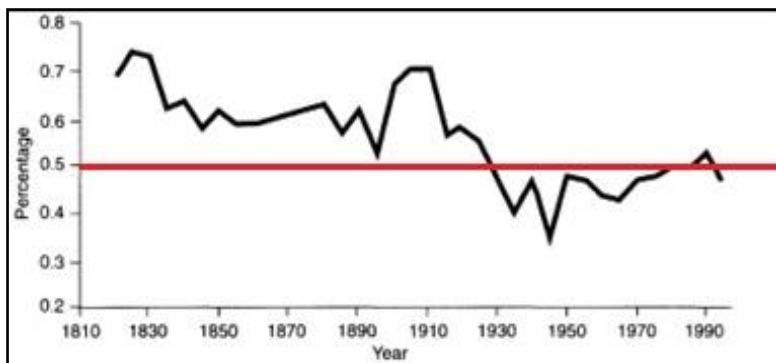


Figure 1: Proportion of immigrants who are male, 1820-1990.

Source: U.S. Bureau of the Census (1975, 1996); U.S. Immigration and Naturalization Service (1994, 1996, 1997).

It should not be surprising that men are in abundance at immigration in the early 20th century. Men were historically always more likely to migrate than women, especially when an improvement of well-being was the main motivation for moving (Smith & Edmonston, 1997). From 1930 on, the gender balance has shifted towards women. A likely reason why more women were moving to the United States would be because of family reunification.

The proportion of males and females is important to analyze, because this proportion probably may have an influence on the American culture. To define culture we use the conceptualization made by Rohner that is: "a highly variable system of meanings, which are learned and shared by a people or an identifiable segment of a population" (Rohner, 1984). Some immigrants will try to integrate as much as they can and adopt the American culture, others do not. This could be one way how different cultures in a country have grown. A more competitive culture will arise when the immigrant pool is male-dominated, since men should compete for women more than when the immigrant pool is not male-dominated.

Because the dataset also contains information about the origin of the parents, it might be interesting to analyze this too. From American people with foreign parents could be expected that they have a different mindset than Americans with American parents. It is likely that men with parents with a certain ethnicity will try to find a spouse with the same ethnicity, because these men are born in this environment and are raised with this culture's ideas. The data shows significant differences in the competitiveness of men with foreign parents and native parents.

Three questions that arise are:

- 1) How are the economic and social prospects of natives with foreign parents affected by this changing sex ratio?
- 2) How are the economic and social prospects of natives with foreign parents affected by a significant inflow of (male) immigrants?
- 3) How is the labor force participation of native men affected by these two changes?

Sex ratio will be defined here as the ratio of males to females in a marriage market. By finding answers and good interpretations to these three questions, the effects of a changing sex ratio and population will be clear, and besides that the main question will be answered, which is:

"How are pre-marital investments of natives with foreign parents affected by more or less competition?"

Previous literature has explored that socioeconomic status has a positive effect on men's chances of marrying. They also found that where the local sex ratio

produces an oversupply of men, women will be able to drive a harder bargain. As the sex ratio of the states increases, the effect of socioeconomic status on marriage success becomes stronger (Pollet & Nettle, 2008). However, this literature makes no difference between men with native parents or immigrated parents. In this case, the research that is explored in this paper may add some scientific knowledge.

Another research has shown that native-born men are actually less likely to migrate from the states with a high number of immigrants compared to states that received a lower number of immigrants, which is contrary to one's expectations. This implies that natives do not really feel this increasing stock of immigrants as a negative thing (Kritz & Gurak, 2001). The opposite is expected in this research, that when the stock of immigrants increases, a native with immigrated parents feels like his chances on the marriage market will decrease through increasing competition, which gives him a good reason to make more investments in human capital.

A recent news article, that shows the topicality of this subject nowadays, was written about competition that really matters. It says that the economy of the United States drops behind the economies of India and China, which means that competition will be bigger in the near future. Competition in the business world is what is meant here. In this article, it is written that many concerns exist about the future prospects of young kids due to poverty. Half of United States' children get no early childhood education, which means that they are not investing in human capital. This news article shows that any kind of competition will need people to invest in their selves (Cooper, Hersh, & O'Leary, 2012). This research also explores if more competition will lead to more pre-marital investments, but then focused on adult native men with foreign parents.

This thesis can be divided in a few parts. The first part contains an introduction on the subject in general, the relevance of the paper and the outline of the thesis. The second part is about the theoretical background in which you will get a better understanding of the topic. This will be followed by the third part enclosing data and methodology. The fourth part discusses the results and finally in the fifth part the conclusion is pointed out.

2. Theoretical Background

In this part you will get a better understanding of what this paper is about. More competition between men on the marriage market can be seen as the 'problem' in this paper, and we will look at the effects of this problem on their pre-marital investments and their labor force participation.

The United States' population was growing very fast around 1900, mainly through immigration. Lots of foreign men came to the United States first, hoping for a better future, later on their relatives and a majority of women came to live in the United States too. So this immigration caused a significant increase in the sex ratio and a significant increase in the stock of immigrants. The increased sex ratio resulted in an increase in competition between males on the marriage market, which makes it harder to find a spouse. However, the increase in stock of immigrants resulted in having a larger pool of potential spouses to choose from, as we assume here that Americans with foreign parents prefer to find a match in the ethnic group where their parents are part of.

Before men will find a good match, they need to make their selves as attractive as possible based on four measures, the so-called pre-marital investments. The four measures are "Age at first marriage", "Highest grade attained", "Some high school" and "Educational score". The age at first marriage tells us that people have more time to invest in their selves when they are older if marrying for the first time, the other three measures tell us that people make more investments if their highest grade attained is higher, if they've had at least some high school and if they have a better educational score.

The marriage market consists of all men and women who are trying to find a spouse in a certain state. Men can match with someone of the ethnic group where their parents are part of or with someone from the pool of native women. We assume that men prefer to find a spouse in the ethnic group where their parents are part of, so that they have a higher utility if this is the situation. When they match with a native woman, this may result in getting a more educated match but having a lower utility too. The ideal amount of pre-marital investments to find the preferred spouse can be determined by the following utility function:

$$U(I) = \alpha * I - \theta$$

An individual can invest the money that is left from their total wealth (w), after some consumptions (c) and some savings (s), in human capital. The individual's investments are thus given by $I = w - c - s$. This investment produces an output that depends on the investments of itself and its spouse, who can come from the same ethnic group where their parents are part of or from the pool of natives. There will be utility costs, denoted by θ , for the individual if the spouse is a native. The costs are that high that marrying someone of their own ethnic group is by far the preferred option, as stated above.

Economic and social prospects, as stated in the partial questions, need to be interpreted as someone's chances on the marriage market. Someone's chance is bigger when they make more pre-marital investments, and someone's chance is smaller when they make less or no pre-marital investments.

Once men have found a good match, the sex ratio and the stock of immigrants may influence the bargaining power within the household. Only one parameter, "in labor force", is used. Some more variables were available in the dataset, but we keep it to this one because it's the most relevant one. One may think that the chance of participating in the labor force of an individual would decrease when this individual acquires more bargaining power, because they might choose to consume leisure rather than they might choose to work then. There may be more bargaining power when fewer people of a particular sex live in a certain state. This implies that if the sex ratio goes up, women will have more and men will have less power to bargain. However, this is not what the results show. The bargaining power is expected to remain constant if the total population will grow. So this implies that if the stock of immigrants increases, more men but also more women are about to live in a certain state, and thus, there will be no significant change in bargaining power.

The result of acquiring more bargaining power is that these people will choose to take leisure rather than work, which may ensure that labor force participation for these people, in this case women, goes down. The results section will show how the sex ratio and the stock of immigrants truly affect the labor force participation of native men.

The men on whom this research is focused are American, native men of whom both parents are immigrated. We call them second-generation Americans, which is precisely defined as the children of immigrants born between 1885-1915.

Now this section has named some consequences of a changing sex ratio and a changing population, the next section will empirically show this.

3. Data & Methodology

After pointing out the link that may exist between pre-marital investments and the sex ratio, pre-marital investments and the increasing stock of population through immigration, and between labor force participation and these two measures in the theoretical background, this link will now be investigated empirically.

3.1 Data

The dataset that is used for this paper has been put together by another researcher. It includes data from second-generation Americans who are mostly born from 1885 to 1915. This is a beneficial time period to use data from, because the second-generation Americans were likely to marry to someone of their own ethnic group during this period, 40 percent of the males and 45 percent of the females (Lafortune, 2013). The dataset is constructed using the IPUMS files for 1910,1920 and 1930 including data about sex ratios and immigrant flows for each state, period of time and ethnicity and including data about national flows for males and females (Ruggles, et al., 2010). The data for state can be split up in 51 different states, the data for period of time can be split up in 7 periods, between 1900 and 1970, and the data for ethnicity can be split up in 42 different ethnicities, showing that the data set is very extensive.

Table 1 summarizes for different ethnic groups the distribution of the people whose parents are both immigrated and the distribution of the instruments. The variable that measures the distribution of having 2 foreign parents, which is shown in the last column, does not have a very big spread. The members of the ethnic groups have on average only two foreign parents for about 33,9% of the time. Second-generation Americans have more competition on the marriage market if their ethnic group has a lot of people with two foreign parents, as all these people compete for the same immigrated women.

Table 1: Summary statistics

Ethnic Group	Stock of Immigrants	Sex Ratio	Mom & Dad Foreign
British ancestry	0.162	1.012	0.310
	(0.159)	(0.536)	
Francophone	0.033	0.985	0.199

	(0.033)	(0.711)	
South Europeans	0.256	1.591	0.387
	(0.277)	(1.061)	
Hispanics	0.152	1.352	0.296
	(0.117)	(1.079)	
Scandinavian	0.056	1.994	0.234
	(0.054)	(1.748)	
Germanic	0.184	1.432	0.329
	(0.215)	(0.765)	
Russians and others	0.394	1.105	0.403
	(0.483)	(0.526)	
Other Europe	0.095	1.405	0.279
	(0.095)	(1.213)	
Other countries	0.047	3.120	0.218
	(0.043)	(3.123)	

3.2 Methodology

Like explained before, economic and social prospects need to be interpreted as someone's chances on the marriage market, because this paper is focusing on a men's prospects to marry while having foreign parents. To have a better chance of finding a good matching spouse, they have to make their selves attractive. This is measured by four parameters: age at first marriage, highest grade attained, some high school and educational score.

To find an effect of the fact that both your parents are foreign, I have included some interactions to measure this (see table 2 and 3 in "Results"). First some new variables had to be generated, like MomDad, which is the interaction between having a foreign mother and a foreign father, like MomDadPredStock, which is the interaction between MomDad and the predicted immigrants stock, and like MomDadPredSexRatio, which is the interaction between MomDad and the predicted sex ratio. Then I could run the regressions in Stata: four times a regression interacted with the sex ratio and four times a regression interacted with the total population stock, all having a different outcome variable as stated above.

The regression relates pre-marital investment of second generation Americans to two characteristics of the individual's 'preferred' marriage market: its sex ratio and its total size. The first one measures the presence of one gender relative to the other, while the second one estimates the market thickness. The main regressions that follow from it are:

$$Y = \alpha + \beta_1 * \text{sex ratio} + \beta_2 * \text{stock of immigrants} + \beta_3 * \text{sex ratio} * \text{MomDad} + \varepsilon$$

$$Y = \alpha + \beta_1 * \text{sex ratio} + \beta_2 * \text{stock of Immigrants} + \beta_3 * \text{stock of immigrants} * \text{MomDad} + \varepsilon$$

where Y can be each parameter of pre-marital investments for a certain individual of a certain ethnic group and born in a certain state.

To find an answer on the third question, I've run a regression for labor force participation on the interaction between sex ratio and MomDad, and a regression for labor force participation on the interaction between total population and MomDad.

In the next part the results of these regressions will be shown and explained.

4. Results

In this section the three partial questions, stated in the introduction, will be answered to get a better understanding of the answer on the main question. Section 4.1 is about the first and third partial question and section 4.2 is about the second and third partial question.

4.1 Sex Ratio

Regressions showed that pre-marital investments with respect to education will be lower when the sex ratio increases and you are a native person with foreign parents. This is not what would be typically expected. It could be interpreted as someone has given up trying to outperform other Americans. All coefficients are shown in table 2 and will be explained below.

A regression of the age at first marriage on the interaction between foreign parents and the sex ratio shows a significant, positive coefficient of 1.24. This means that the age at first marriage is going up when there are more males in the country and you're having parents who aren't born in the United States. This makes sense because the more males there are in a country, the more competition between men there will be to find a good match. It does make sense that you will marry at higher age when your parents are foreign compared to someone whose parents are native, because women in general are likely to prefer men, including the family, that are from the same ethnicity as they are.

Regressions of three different parameters of education on the interaction between foreign parents and the sex ratio also show significant effects, but they have negative coefficients. For the highest grade attained the coefficient is -1.21, for getting at least some high school the coefficient is -0.14 and for the educational score the coefficient is -60.45. This means that when there are more males in the country and someone is having parents who aren't born in the United States, the highest grade attained, the level of getting at least some high school and the educational score are going down. When there are more males in a country, more competition between men to find a good match is expected. However, the negative coefficients show that American men are not trying to outperform other men by means of getting higher highest grades, more high school and a better educational score. They simply give up the battle.

If the assumption is made that men with foreign parents are less likely to be chosen by women than men with native parents, then it does make sense that men will get a lower highest grade when their parents are foreign compared to someone whose parents are native. So, when these men know they are not going to be chosen, they give up the fight and they leave their school achievements for what is it.

A reason why American men with foreign parents have had less high school than American men with native parents could be that the family fled from their home country and had to build up a totally new life in the United States, what entails high costs. So having foreign parents can say a lot about the wealth of a family.

It also does make sense that you will achieve lower educational scores when your parents are foreign compared to an American man that does have native parents. Culture is an important factor in this situation, as the culture between different ethnicities can be very diverse. American people are set naturally very competitive and want to get the best out of their selves. When your parents are from outside the United States, they might think in a very different way because of culture and you presumably do think in the same way as they do.

A regression of being in the labor force on the interaction between foreign parents and the sex ratio shows a significant negative coefficient of -0.29. This means that the number of men that will join the labor force is going down when the relative number of men increases in the United States and your parents are immigrants. This can be interpreted as a standard in a particular ethnic group. Some of the 41 ethnic groups have strict hierarchy, which means that no matter how many men are living in the United States, they will always have more power than women.

Table 2: Pre-marital investments and labor supply of males for increasing sex ratio

	Age at first marriage	Highest grade attained	Some high school	Educational score	Labor force participation
Sex Ratio	-1,465***	-0,703***	-0,122***	-3,450	0,083***
	(0,585)	(0,220)	(0,035)	(14,174)	(0,033)
Stock	0,271***	-0,559***	-0,080***	-19,558***	-0,063***
	(0,073)	(0,026)	(0,004)	(1,666)	(0,004)
Mom & Dad Foreign	-1,127	0,541**	0,046	42,295**	0,306***
	(0,701)	(0,263)	(0,042)	(16,881)	(0,040)
Sex Ratio × Mom & Dad Foreign	1,239*	-1,211***	-0,145***	-60,454***	-0,287***
	(0,686)	(0,258)	(0,041)	(16,572)	(0,039)

Notes: Standard errors clustered at the state level in parentheses.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

4.2 Stock

Some other regressions showed that pre-marital investments with respect to education will be higher when you are a native with foreign parents and the total stock of immigrants increases. This is not what would be typically expected, because when the immigrants stock increases there are more women to choose from. However, these results could be interpreted as someone who wants to make itself more attractive in the marriage market, because the women can also choose a man from a larger pool now. All coefficients are shown in table 3 and will be explained below.

A regression of the age at first marriage on the interaction between foreign parents and the total population stock shows a significant, negative coefficient of -0.53. This means that the age at first marriage is going down when the population is growing and you're having parents who are not born in the United States. Because the population is growing due to immigrants, the pool to pick a partner from is bigger and the pool of immigrants probably also includes some more women of their preferred ethnicity, so it makes sense that someone's marrying earlier then. So, the marginal effect of a bigger total population stock is that men marry about half a year earlier for the first time for each additional person in the society.

Regressions of three different parameters of education on the interaction between foreign parents and the total population stock also show significant effects, but they have positive coefficients. For the highest grade attained the coefficient is 0.30, for getting at least some high school the coefficient is 0.01 and for the educational score the coefficient is 8.07. This means that when the population is growing and someone is having parents who are not born in the United States, the highest grade attained, the level of getting at least some high school and the educational score are going up. When the population is growing due to immigration, the number of male immigrants increases which ensures that the quantity of competition remains the same as before. This is why they want to make themselves more attractive. The positive coefficients indeed show that American men are seriously trying to outperform other men by means of getting higher highest grades, more high school and a better educational score.

Having foreign parents can say a lot about the wealth of a family. For example, the family may have been fled from their home country and have to build up a totally new life in the United States. This could be a way in which these American men can profit from their situation and having a better life by getting more high school compared to American men with native parents.

The American men are not trying to compete for the immigrant women, so there is only competition left between immigrant men and native men with immigrated parents. In this situation the native men with immigrated parents need to outperform the immigrant men to find a match. The pressure of competition is much lower when you have native parents, as you don't need to compete for this new inflow of immigrant women.

A regression of being in the labor force on the interaction between foreign parents and the total stock of immigrants shows a negative coefficient of -0.01. It is not a significant result, so we cannot draw very scientific conclusions from it. The number of men, whose parents are foreign, that will join the labor force remains almost constant but may go a little bit down when the total population in the United States is growing. This could make sense because no matter how fast the population may grow, bargaining power in some ethnic groups generally remains the same.

Table 3: Pre-marital investments and labor supply of males for increasing stock of immigrants

	Age at first marriage	Highest grade attained	Some high school	Educational score	Labor force participation
Sex Ratio	-0,567*	-1,581***	-0,228***	-47,440***	-0,127***
	(0,322)	(0,120)	(0,019)	(7,712)	(0,018)
Stock	0,689***	-0,802***	-0,092***	-26,282***	-0,060***
	(0,129)	(0,046)	(0,007)	(2,975)	(0,007)
Mom & Dad Foreign	0,428***	-0,853***	-0,109***	-23,398***	0,019***
	(0,108)	(0,038)	(0,006)	(2,428)	(0,006)
Stock × Mom & Dad Foreign	-0,532***	0,304***	0,014	8,069**	-0,008
	(0,154)	(0,055)	(0,009)	(3,554)	(0,008)

Notes: Standard errors clustered at the state level in parentheses.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

5. Conclusion

To conclude the paper, I will name some limitations and give an answer on the three partial questions. Then we can see the final effect on the main question that is explored in this research.

One limitation of this research is that even if the dataset might be very extensive, all fixed effects are left out of the regressions. The reason why I left the fixed effects out is because the software was not able to include them since there were so many. Another limitation is that lots of previous literature talks about the criminal activity that is associated with immigration. I did also not take this aspect into account.

The first question that is investigated in section 4.1 was about the effects on the economic and social prospects of natives with foreign parents due to a changing sex ratio. In a country with an increasing sex ratio, people that have two foreign parents are marrying later, will attain a lower highest grade, are having less high school, and will achieve a lower educational score. This all could be interpreted as if these men give up competing for a good match.

The second question that is investigated in section 4.2 was about the effects on the economic and social prospects of natives with foreign parents due to a significant inflow of (male) immigrants. In a country with an increasing population due to immigrants, people that have two foreign parents are marrying earlier, will attain a higher highest grade, are having more high school and will achieve a higher educational score. All parameters show the willingness of American man of making themselves attractive to have a better chance on the marriage market in a certain state for a certain ethnic group.

The third question was about the effects of a changing sex ratio and a changing stock of immigrants on the labor force participation of American men with foreign parents. When the sex ratio increases, it is shown that significantly fewer men participate in the workforce. So it looks like men have always more power in some particular ethnicities. When the stock of immigrants increases, it is shown that roughly the same number of men participate in the workforce. That makes sense because both men and women have immigrated into the United States, so

the average power of men remains the same then and thus, the number of men that participate in the workforce also doesn't change.

By combining these effects, we see that the more competition between men there is, the less pre-marital investments men are willing to do and the less competition there is between men, because the number of female immigrants increases by a growth in total population, the more pre-marital investments men are willing to do. We cannot say a lot about the rise or fall in labor force participation of American men due to increased or decreased competition in the marriage market, because one of the effects was not significant. However, the other effect showed that the labor force participation of men significantly decreases when there are more men relative to women, what implies that due to increasing competition men are willing to put more effort in the labor market, in order to prove their selves. The final effect is ambiguous.

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