

Gender Difference in Evolution of Market Participation of Risky Financial Assets

Jing Jian Xiao, Department of Human Development and Family Studies, University of Rhode Island¹ Tsun-Feng Chiang, School of Economics, Henan University²

Abstract

This study uses the China Family Panel Studies 2010 and 2014 to examine the gender difference in market entrance of risky financial assets. The first primary finding is, consistent with the literature, females have higher ownership of mutual fund, but further examination shows that the significant correlation between gender and market participation does not always exist. The second finding extends the first one by showing females are more likely enter the mutual fund market during the period between 2010 and 2014. This study attributes the higher participation of females in the financial market to the fact that females play more active roles than males in household finances in China. However, females' entrance in the mutual fund market could be due to low-risk products instead of higher risk tolerance.

Introduction

In the field of household finance, it is believed that some individual characteristics such as age, wealth, education, race and gender, predict risk preference. For example, an older, wealthier, higher educated, and white male has higher probability in taking risk by participating in the financial market or holding a larger proportion of risky assets in his portfolio. These findings had been well documented in the literature (e.g. Almenberg & Dreber, 2015; Bertaut, 1998; Christelis et al., 2011; Croson & Gneezy, 2009: Dwver et al., 2002; Guiso et al., 1996: van Rooii et al., 2011, to name a few). Most of these studies focused on the US or European countries with developed financial markets. However, it was found that female is more likely than male to own mutual fund while there is no gender difference in the stock ownership when using the Chinese household data to estimate the correlations between household characteristics and financial market participation (Chu et al., 2017). Females are considered to be financially fragile because of their longer life expectancy, shorter work tenure, lower earnings and less participation in financial markets which gives equity premium in the long run (Fonseca et al. 2012; Almenberg & Dreber, 2015). If gender differences in household finance vary across countries or cultures, the policy implications related to females' financial welfare should be adjusted accordingly. In this study, we would like to further explore the gender difference in market participation in China and provide implications based on the findings.

Distinguishing itself from the literature, this study also considers households' financial decisions in a dynamic environment. Under the circumstance of a short period of time or being in a developed financial market, the correlations between household characteristics and market participation of risky assets are expected to be stable. However, if the financial market is developing and the financial asset is more accessible than before, like today's China, or a shock occurs, the correlations could be changing. Malmendier and Nagel (2011) showed macroeconomic dynamics impacted on market participation of the US households. Chiang and Xiao (2017) also found black households withdrew from the stock market during the financial crisis in the US. Since Chu et al. (2017) found in 2014 females were more likely to participate in the mutual fund market, the purpose of this study is to explore whether gender difference in market participation always exists or the correlation is different before 2014, the year the mutual fund market in China expanded significantly. The primary findings of this study are two: there is no gender difference in either stock or mutual fund ownership in 2010, and

¹ Professor, Department of Human Development and Family Studies, 2 Lower College Road,

University of Rhode Island, Kingston, RI, USA. Email: xiao@uri.edu.

² Corresponding Author: Assistant professor/School of Economics, 85 Minglun Street, Henan

University, Kaifeng, Henan 475001, China. Phone: 86.182.3789.3607. Email: tchiang@ncsu.edu.



during the period of 2010 and 2014, more females enter the mutual fund market than males while there is no gender difference in the participation in the stock market. We assert that the products availability is the reason that attract female to enter the mutual fund market.

The rest of this study is organized as follows. The next section reviews previous research about gender difference in financial behaviors; the third section introduces the data; the fourth section presents empirical results; and the fifth section concludes and provides implications.

Literature Review

It had been well documented there exists gender difference in many economic behaviors, including financial behaviors. Compared with males, females were found to have lower risk tolerance in both subjective and objective perspectives. For subjective risk tolerance, or willingness to take risk, females are less willing to take higher risk. Using self-reported surveys, Barsky et al. (1997), Hallahan et al. (2004), Sung and Hanna (1996), to name a few, found the consistent results that females are more risk averse. For objective risk tolerance that are measured by observable financial market participation or shares of risky financial assets to total financial asset, the empirical results for gender difference was mixed, but most studies agreed females' risk tolerance is lower than males in stock ownership and market participation of risky financial assets. For example, Bertaut (1998) and Christelis et al. (2011) used the US household data to examine the correlation between household characteristics and market participation of financial assets. They both found compared with females, males prefer holding stocking directly or less diversified portfolios. Using Italian data, Guiso et al. (1996) found the negative correlation between the ratio of risky assets to total assets and female. Similarly, Barber and Odean (2001) used the US data of household investors to look for the gender difference in trading in the stock market. The results indicated males traded more frequently than females which led to lower returns for males. They concluded males' overconfidence makes them overestimate their own evaluation of stock performance. Estimating individuals' preference in portfolios for pension fund with Swedish data, Karlsson and Norden (2007) also used overconfidence to interpret their findings that males are more home biased toward domestic equities.

Another strands of literature studied financial literacy and/or education. Using the US data, females' performance in tests regarding finance and economy were lower (e.g. Fonseca et al., 2012; Lusardi and Mitchell, 2008). Related to financial literacy, Chen and Volpe (2002) studied college students' financial education and found female students are less willing and enthusiastic to learn personal finance. Although the literature agrees females have lower financial literacy than males, in certain areas of household finance, females could be stronger than males. For example, Danes and Hira (1987) found college males know more about loans and insurance, but females know more about comprehensive financial management covering topics from household budgeting to tax deduction. Another example is a study by Lusardi and Mitchell (2007) that found no evidence for gender difference in retirement planning.

While females are less financially literate, a large body of studies found the gender difference in objective risk tolerance declines when controlling financial literacy. Dwyer et al. (2002) studied the gender difference in choosing the types of mutual fund using the data of the US investors. They showed when the financial knowledge is included, there is no gender difference in the last risky mutual fund, but males are still more likely to take riskiest mutual fund. Almenberg and Dreber (2015) used the Swedish individual data and found the gender difference disappears in stock participation after controlling financial literacy. Halko et al. (2012) instead did not find gender difference in risk-taking decreases significantly by controlling for investment knowledge using a Finnish sample.

In summary, the literature showed although in some areas of household finance gender difference is not significant, in general female are more risk averse, less financially literate and less confident. However, the novel finding in Chu et al. (2017) showed females in China are more likely to enter the mutual fund market. Therefore, we propose the first hypothesis:

H₁: There is gender difference in market participation of risky assets.

This study, similar to Chiang and Xiao (2017) and Malmendier and Nagel (2011), considers the market participation may change in time because the financial market is developing in China. Then the second hypothesis is proposed below:

H₂: The correlation between market participation and a characteristic changes in time

Later the estimation results will show female in China is not always positively correlated with market



participation of mutual fund and the significant correlation could be due to the expansion of mutual funds market.

Data

The primary purposes of this study are to examine whether correlations between household characteristics, particularly gender, and market participation change during a period of time and the gender difference in financial market entrance exists in China. To achieve these purposes, it requires us to keep track of the same sets of households' finances over time. Another requirement for the data is they can provide more information to interpret the estimation results.

This study chooses the data from the China Family Panel Studies (CFPS) that keeps track of the same households' economic and social status biennially since 2010. Although four waves of surveys had been conducted, for now the full datasets in 2010 and 2014 only are available to the public.³ While there is only a two-year panel, it allows us to observe the change of ownership of risky assets and the possible change of correlations. Furthermore, the period between 2010 and 2014 is meaningful because the mutual fund market expanded during this period so that we can estimate whether gender difference changes in the changing financial market. Both surveys in 2010 and 2014 provide household's ownership of saving, stock, bond and mutual fund. If there is no detailed amount of financial assets to build a continuous indicator for the level of risk taking, both stock and mutual fund are considered to be risky financial assets because they are exposed to the systemic risk of the economy and issuer-specific risk, not like deposit in the bank covered by deposit protection.⁴ In this study, the observable dependent variables are the ownership (market participation) of risky financial assets to the question whose gender is to use in a married household.

Conventionally, for household data previous research uses the household head's gender and the corresponding characteristics, along with the sum of the household's characteristics, as the determinants of risk tolerance (e.g. Bertaut, 1998; Chiang and Xiao, 2017; Christelis et al., 2011). The potential problem of using household heads' characteristics is the number of male household heads dominate for married households and the sample size of female is relatively small. The extreme example is the Survey of Consumer Finances that assumes the household head of a married household is male. Additionally, CFPS does not clearly identify household head. Nevertheless, in the 2014 survey, the respondent who answered the financial module was the individual who is mostly familiar with the financial situation of his or her household. Therefore, compared with household head, the respondent is more likely to make the most important decisions in market participation of risky assets for the household. The financial literacy module is not available for the 2010 survey, this study thus assumes a respondent of financial module in the 2014 survey was also the household member mostly familiar with household finances. In addition to participation of risky financial assets and household characteristics, the financial module in the 2014 survey provides information regarding the gender difference in managing household finances which will help interpret our estimation results and make international comparisons.

Figure 1 presents the ownership of risky assets for male and female households in 2010 and 2014. In 2010, around 11% of households directly owned stocks; 5.77% were female households and 5.10% were male households. Less than 6% of households owned mutual fund. The ownership of mutual fund for female households, which is 3.17%, was also slightly higher than that of male households, which is 2.43%. When both stock and mutual fund are considered, the ownership for all households. In 2014, the ownership of stock and total risky assets declined for both male and female households, but the ownership of mutual fund for female households. Like 2010, there was a small gender difference in ownership. Although descriptive statistics shows female households had higher percentage in ownership of risky assets, the following section will control other household characteristics to test whether there exists statistical

³ For registration and data access, visit <u>http://www.isss.edu.cn</u>. Some restrictions may apply for authorization.

⁴ In CFPS 2010, the data for holdings of corporate bond and government bond were combined, while in CFPS 2014, only holding of government bond was reported. For consistency, this study does not discuss market participation of bond although bond is considered as risky asset.



significance for gender difference in ownership and the evolution of market participation.



Figure 1 The Percentages of Ownership of Risky Financial Assets (by Gender) Data Source: China Family Panel Study 2010 and 2014.

Empirical Results

This section has two parts. The first part revisits previous research that found female households are more likely to participate in the mutual fund market in 2014. Then the data of 2010 are used to show gender difference in market participation could change in time. The second part extends the first part by examining whether female households are more likely to participate in the market of risky assets during the period between 2010 and 2014. Other than the interested variable, gender, where male is the reference category, the following household/individual characteristics are controlled, education, marital status, location, total income, net worth (the difference between total assets and total debts), age and squared age.⁵ Table 1 presents the descriptive statistics of the household/individual characteristics sorted by gender. Since in the following primary estimations, characteristics in 2010 are used and categorical characteristics does not change for most individuals over time, the descriptive statistics is associated with 2010 data.

	Female			Male	
Frequency	Mean	Std. Dev.	Frequency	Mean	Std. Dev.
Characteristics	5				
1,624			1,389		
155	0.0954		105	0.0756	
155			105		
686	0.4224		566	0.4075	
000			500		
437	0.2691		348	0.2505	
201	0.1977		249	0.2505	
321			540		
25	0.0154		22	0.0158	
1,624			1,390		
99	0.0610		144	0.1036	
1,304	0.8030		1,150	0.8273	
	Frequency Characteristics 1,624 155 686 437 321 25 1,624 99 1,304	Frequency Characteristics 1,624 Mean 1,624 0.0954 155 0.4224 686 0.4224 437 0.2691 321 0.1977 25 0.0154 1,624 99 0.0610 1,304	Frequency Characteristics 1,624 Mean Std. Dev. 1,624 0.0954 0.4224 686 0.4224 0.1977 321 0.1977 0.1977 25 0.0154 1,624 99 0.0610 0.8030	Female Frequency Characteristics 1,624 Mean Std. Dev. Frequency 1,624 1,389 155 0.0954 105 686 0.4224 566 437 0.2691 348 321 0.1977 348 25 0.0154 22 1,624 1,390 99 0.0610 144 1,304 0.8030 1,150	Female Male Frequency Characteristics 1,624 Mean Std. Dev. Frequency Mean 1,624 1,389 105 0.0756 155 0.0954 105 0.0756 686 0.4224 566 0.4075 437 0.2691 348 0.2505 321 0.1977 348 0.2505 25 0.0154 22 0.0158 1,624 1,390 99 0.0610 99 0.0610 144 0.1036 1,304 0.8030 1,150 0.8273

Table 1 Descriptive Statistics (by Gender)

⁵ Total income includes all household members' labor income, bonus, compensation, monetary presents, retirement pension, etc. For households engaged in farming, agricultural products kept for own consumption are transferred to market values and counted as income. Total assets include financial assets, real estate and business properties. Total debts are the sum of loans associated with total assets and borrowings from banks or individuals.



Divorced Widowed	76 145	0.0468 0.0893		52 44	0.0374 0.0317	
Location	1,624			1,390		
Rural	112	0.0690		115	0.0827	
Urban	1,512	0.9310		1,275	0.9173	
- Continuous C	Characterist	ics				
Total Income (RMB)	1,564	46,301.8	69,397.1	1,324	46,578.4	51,128.5
Net Worth (RMB)	1,576	395,905.7	778,915.6	1,332	464,092.7	1,110,008.9
Age	1,624	44.3	14.5	1,390	45.2	15.7
Sample Size		1,624			1,512	

Note: A mean value of a sub-categorical characteristic is equal to the number of observation in this sub-category divided by the number of total observation in this category.

Table 1 shows there are more females in the sample, which implies in most households females are more familiar with household finance no matter they are household heads or not. In the sample, compared with male households, education levels, total income, net worth are lower for female households. More females have been married than males, but the proportions of being divorced and widowed are also larger for females. Gender difference is not large in location and age.

Gender Difference in Market Participation

Table 2 presents the results from random effects logit estimation using the 2010 and 2014 panel data. Dependent variables are household holding of stock, mutual fund, or stock and mutual fund in both 2010 and 2014. The independent variables are individual and household characteristics also in both years.⁶ A time dummy is also added. The results in first, second and third column show the binary choice of market participation of stock, mutual fund or either stock or mutual fund, respectively. Most characteristics are correlated with market participation and the signs meet expectations no matter which market is considered. Higher educated individuals are more likely to own risky financial assets; urban households are more likely to own risky assets; income is positively correlated with market participation while net worth is only positively and slightly significantly correlated to the holding of mutual fund. Age is increasing in the probability of market participation with decreasing rate. No gender difference is found in the stock market participation. This finding is different from the literature where males are found to be positively correlated with market participation (e.g. Bertaut, 1998; Christelis et al., 2011; Halko et al. 2012). For the mutual fund, female is more likely than male tohold. In line with the first hypothesis, using the panel data can give general correlations between market participation of risky financial assets and characteristics, but it does not capture the change of correlation. Therefore, the following estimations use the 2010 and 2014 data separately to test the second hypothesis which asks whether these correlations change in a financial market in transit like China.

Ownership Characteristics	Stock	Mutual Fund	Stock or Mutual Fund
	<u>Co</u>	efficient (Standard Erro	or <u>)</u>
- Categorical Character	ristics (Base)		
Gender (Male)			
Female	0.0706 (0.2052)	0.4983** (0.2086)	0.2159 (0.1775)
Education (High			
School)			
No Formal Education	-4.6056*** (0.8283)	-2.5252*** (0.6814)	-3.8936*** (0.6374)
Elementary or Secondary	-1.9589*** (0.2711)	-1.2929*** (0.2712)	-1.7519*** (0.2291)
Associate or Bachelor Graduate	0.9975 ^{***} (0.2559) 1.5657 ^{**} (0.6999)	1.1010 ^{***} (0.2608) -2.1505 (1.3844)	1.2736 ^{***} (0.2326) 0.9723 (0.6555)

⁶ Since categorical characteristics are time-invariant, such as education and gender, or close to be time invariant, such as marital status and location, the random effects approach is adopted.



Marital Status (Never Married)				
Married	0.6328 (0.5062)	0.0914 (0.4937)	0.5758 (0.4252)	
Divorced	-0.7587 (0.7638)	-0.5697 (0.7163)	-0.7109 (0.6214)	
Widowed	-1.1506 (0.8618)	-1.3863 [*] (0.7820)	-0.9755 (0.6833)	
Location (Rural)				
Urban	2.8417*** (0.7719)	1.1966** (0.5698)	2.2304*** (0.5381)	
- Continuous Characte	ristics			
Total Income	2.40×10 ^{-6***}	1.58×10 ^{-6***}	2.35×10 ^{-6***}	
	(6.49×10 ⁻⁷)	(4.34×10 ⁻⁷)	(6.21×10 ⁻⁷)	
Net Worth	3.13×10⁻ ⁹	3.90×10 ^{-9*}	3.14×10⁻ ⁹	
	(2.58×10 ⁻⁹)	(2.35×10⁻ ⁹)	(2.66×10 ⁻⁹)	
Age	0.2766*** (0.0475)	0.2347*** (0.0466)	0.2778*** (0.0409)	
Age Square	-0.0024*** (0.0005)	-0.0020*** (0.0005)	-0.0024*** (0.0004)	
Year (2010)				
2014	-0.3550*** (0.1301)	-0.1481 (0.1486)	-0.3633*** (0.1142)	
Constant	-14.5844*** (1.4200)	-12.2582*** (1.3260)	-13.1439*** (1.1368)	
Sample Size	5867	5867	5867	

Note: The results do not change in terms of signs and significance for total income and net worth are taken logarithm.

Table 3 and Table 4 show the results from logit estimations using the 2014 and 2010 data, respectively. While not controlling the identical characteristics, the results in Table 3 are similar to Chu et al. (2017) who found the unusual correlation of female's market participation of risky assets in 2014. Like the panel results in Table 2, female is more likely to participate in the mutual fund market, and there is no gender difference in participation in stock and risky financial asset markets. However, it was not always that female is more likely to participate in the mutual finds market. The results in Table 4 using the 2010 data indicate that female is not significantly correlated with market participation of mutual fund.

Table 3 Ownership of Risky Financial Assets in 2014

Ownership Characteristics	Stock	Mutual Fund	Stock or Mutual Fund	
Coefficient (Standard Error)				
- Categorical Characte	ristics (Base)	·		
Gender (Male)	, , , , , , , , , , , , , , , , , , ,			
Female	0.0240 (0.1253)	0.3868** (0.1679)	0.1032 (0.1131)	
Education (High	. ,	. ,	. ,	
School)				
No Formal Education	-2.5173*** (0.5914)	-1.8029*** (0.6154)	-2.2525*** (0.4659)	
Elementary or	-0.0382*** (0.1615)	-0.8234*** (0.2145)	-0.8966*** (0.1453)	
Secondary	-0.3302 (0.1013)	-0.0234 (0.2143)	-0.0300 (0.1+33)	
Associate or Bachelor	0.4602** (0.1531)	0.7132*** (0.1971)	0.6542*** (0.1393)	
Graduate	0.9263 (0.3775)	-1.0706 (1.0320)	0.6965 [*] (0.3740)	
Marital Status (Never Ma	rried)			
Married	0.3651 (0.3206)	-0.2842 (0.3546)	0.2352 (0.2756)	
Divorced	-0.1752 (0.4683)	-0.2586 (0.5056)	-0.0729 (0.3928)	
Widowed	-0.4186 (0.5208)	-1.1620 [*] (0.6723)	-0.4424 (0.4496)	
Location (Rural)				
Urban	1.7905*** (0.5864)	0.5028 (0.4649)	1.2068*** (0.3887)	
- Continuous Characte	ristics			
Total Income	1.11×10 ^{-6***}	1.06×10 ^{-6***}	1.15×10 ^{-6***}	
	(3.22×10 ⁻⁷)	(3.14×10 ⁻⁷)	(2.30×10 ⁻⁷)	
Net Worth	1.19×10 ⁻⁹	2.17×10 ⁻⁹	1.19×10 ⁻⁹	
	(1.37×10 ⁻⁹)	(1.36×10⁻⁰)	(1.40×10 ⁻⁹)	
Age	0.1483*** (0.0324)	0.1808*** (0.0380)	0.1626*** (0.0284)	
Age Square	-0.0013*** (0.0003)	-0.0015*** (0.0004)	-0.0014*** (0.0003)	
Constant	-8.0337*** (0.9359)	-8.0663*** (1.0821)	-7.4694*** (0.7728)	
Sample Size	3014	3014	3014	

Note: The results do not change in terms of signs and significance for total income and net worth are taken logarithm.



Table 4 Ownership of Risky Financial Assets in 2010

Ownership Characteristics	Stock	Mutual Fund	Stock or Mutual Fund
	Co	efficient (Standard Err	or)
- Categorical Character	eristics (Base)		
Gender (Male)			
Female	0.0868 (0.1303)	0.0224 (0.0179)	0.1305 (0.1178)
Education (High			
School)			
No Formal Education	-2.4562*** (0.6342)	-1.1900** (0.5335)	-2.0067*** (0.4396)
Elementary or Secondary	-1.0015*** (0.1660)	-0.7673*** (0.2350)	-0.9018*** (0.1487)
Associate or Bachelor	0.4144** (0.1611)	0.7437*** (0.2224)	0.5973*** (0.1488)
Graduate	0.4093 (0.4426)		0.1049 (0.4469)
Marital Status (Never Ma	arried)		
Married	0.1150 (0.3855)	0.6331 (0.6170)	0.2872 (0.3471)
Divorced	-0.9482 (0.5828)	-0.8871 (0.9599)	-1.1705** (0.5773)
Widowed	-0.6562 (0.5595)	-0.6449 (0.9493)	-0.5022 (0.5002)
Location (Rural)			
Urban	1.1928** (0.5593)	1.3398 [*] (0.7487)	1.3160*** (0.4958)
- Continuous Characte	eristics		
Total Income	3.64×10 ^{-6*}	1.75×10 ^{-6*}	3.64×10 ^{-6*}
	(2.15×10⁻ ⁶)	(1.40×10⁻ ⁶)	(2.30×10 ⁻⁶)
Net Worth	3.05×10⁻ ⁷	1.77×10 ^{-7*}	4.07×10 ^{-7**}
	(2.05×10⁻)	(1.06×10 ⁻⁷)	(2.02×10 ⁻⁷)
Age	0.1933*** (0.0348)	0.1896 ^{***} (0.0470)	0.1867*** (0.0306)
Age Square	-0.0018*** (0.0004)	-0.0018*** (0.0005)	-0.0018*** (0.0003)
Constant	-8.0679*** (0.9221)	-9.4380*** (1.3154)	-7.9737*** (0.8985)
Sample Size	2853	2809	2853

Note: 1. The results do not change in terms of signs and significance for total income and net worth are taken logarithm. 2. No observation for individual with graduate degree participated the mutual fund market.

Gender Difference in the Evolution of Market Participation

Table 3 and Table 4 show, along with some other characteristics, female in 2010 was not different in market participation from male, but became more likely to own mutual fund in 2014. The next estimation extends this finding by examining with what household/individual characteristics are associated to entering the market of risky financial assets between 2010 and 2014. For this estimation, the dependent variable is indexed 1 if the household did not own risky assets in 2010 but owned in 2014; and indexed 0 if the household did not own risky assets in both 2010 and 2014. The independent variables are the values of household characteristics in 2010. The estimation results are presented in Table 5. For the entrance of stock market, female is not different from male. Compared with a high-school educated individual, a lower educated individual is less likely to enter the stock market. While it is only slightly significant, a married household is more likely to enter the market compared with a single household. For mutual fund, more characteristics can predict the probability of market entrance. Compared to the results in Table 3 and Table 4 where female is more likely than male to own mutual fund in 2014 and no difference in 2010, Table 5 shows female is more likely to enter the mutual fund market during 2010 and 2014. Compared with an individual with high-school diplomat, an individual with higher education is more likely to enter the market. Compared with the counterpart results in Table 4 where higher educated had higher probability of holding mutual fund, this estimation further shows higher educated individuals

Table 5 Entrance of Risky Financial Assets Market during 2010 and 2014 Panel

Entrance Characteristics	Stock	Mutual Fund	Stock or Mutual Fund
	<u>Co</u>	efficient (Standard Erro	<u>or)</u>
- Categorical Charact	eristics (Base)		
Gender (Male)			
Female	-0.1446 (0.1960)	0.5710** (0.2301)	0.1737 (0.1736)
Education (High			
		2 72	



School)			
No Formal Education	-2.2103** (1.0272)		-2.7399*** (1.0251)
Elementary or Secondary	-0.3810 (0.2506)	-0.6023** (0.2741)	-0.5221** (0.2149)
Associate or Bachelor	0.6781*** (0.2491)	0.7458*** (0.2614)	0.6605*** (0.2177)
Graduate	1.1995** (0.5358)		0.8087 (0.5295)
Marital Status (Never Mar	ried)		
Married	1.1683 [*] (0.6318)	0.1117 (0.5593)	0.7042 (0.4759)
Divorced	1.1734 (0.7562)	0.5012 (0.6793)	1.1099** (0.5632)
Widowed	0.2851 (0.9705)	0.0593 (0.7673)	0.2945 (0.6726)
Location (Rural)			
Urban		0.9179 (0.8258)	1.6620** (0.7670)
- Continuous Character	ristics		
Total Income	1.33×10 ⁻⁶	2.34×10 ^{-6**}	1.75×10 ^{-6*}
	(1.21×10⁻ ⁶)	(9.10×10⁻ ⁷)	(9.78×10 ⁻⁷)
Net Worth	8.52×10 ⁻⁸	1.59×10 ⁻⁸	5.97×10 ⁻⁸
	(5.32×10⁻ ⁸)	(9.06×10⁻ ⁸)	(5.43×10 ⁻⁸)
Age	0.0671 (0.0422)	0.1537*** (0.0447)	0.0932** (0.0362)
Age Square	-0.0007 (0.0004)	-0.0015*** (0.0005)	-0.0009** (0.0004)
Constant	-5.4775 ^{***} (0.9970)	-8.3810*** (1.3769)	-7.1701*** (1.1297)
Sample Size	2348	2458	2420

Note: 1. The results do not change in terms of signs and significance for total income and net worth are taken logarithm. 2. No observation for individual living in urban entered the stock market, and no observation with no formal education or graduate degree entered the mutual fund market.

are more likely to enter the market. Like the cross-section results, total income and age are positively correlated and age is correlated with decreasing rate with the market entrance. For the market entrance of either stock or mutual fund, the results are mixed. Gender is not correlated, while education level and total income (weakly) are positively correlated with market entrance; urban households are more likely to enter the market; and age is also positive correlated but with a decreasing rate. The results that a divorced individual is more likely to enter the market may indicate he or she needs to secure the future living by entering the financial market without the support of a partner.⁷

Another tests for withdrawal from the market between 2010 and 2014 are examined. The tests are opposite to market entrance by including only households holding risky assets in 2010 to discover whether any correlation between gender and leaving the market (not holding risky assets in 2014). The results indicate no significant correlations exist for both gender and most other characteristics.⁸

Interpretation about Gender Difference in Financial Market Participation and Entrance

The study shows in China female has higher probability of holding mutual fund and entering the mutual fund market than male, and there exists no gender difference in holding and entering stock and overall risky assets. The different results from other studies mostly using western countries' data might reflect roles of females play in household finance differ in China and the West. For example, RAND American Life Panel (ALP) shows male get more involved in investment than female. 49.2% of male respondents reported they track investment in their households, 32.2% reported both they and their partners keep track, and 18.6% reported their partners alone keep track. While for female respondents, the corresponding percentage were 32.8%, 34.8%, and 32.4%.⁹ Although we do not have identical survey questions for China households, the CFPS 2014 has similar question which asks a respondent "I manage my own financial revenues and expenditures, as well as those of my family." The

literacy. They pointed out a divorced individual can improve financial knowledge by making his/her financial plans alone.

https://mmicdata.rand.org/alp/index.

⁷ This interpretation is deduced from Fonseca et al. (2012) studied the determinants of financial

⁸ The estimation results for market withdrawal are available upon request.

 $^{^{\}rm 9}$ See RAND ALP module surveys MS64 and MS73, which are available with questionnaires at



respondent can choose one of five ordinal answers from totally inapplicable to totally applicable. The descriptive statistics by gender is summarized in Figure 2.

Figure 2 shows only less than 5% and 10% of respondents claimed it is not applicable for them to manage theirs and their families' finance. Among respondents in these two groups, the percentages of male are larger than female. On the other hand, it is not surprising to see more than 85% of respondents manage both themselves and their families' finances to some extend because the respondents are the ones mostly familiar with their finances in their households. Among these respondents, the percentages for female are larger than male and the difference is increasing from generally applicable to totally applicable. Connecting Figure 2 with previous empirical results, it might be deduced that female in China get involved more in household finance so females are more likely to make decision for holding financial assets or entering the financial market.



Figure 2 The Percentages of Respondents Managing Both Theirs and Their Family's Financial Expenditure and Income (by Gender)

Note: Respondents who refused to answer or do not know are excluded. Data Source: China Family Panel Study 2014

However, it is too early to conclude that females in China are more risk-taking. Figure 3 shows the annual amount of mutual fund assets under management in China. During the period from 2010 through 2014, the amount of mutual fund assets increased from around 2,500 trillion RMB to 4,500 trillion RMB and then it continued to increase in the following year (McLoughlin and Meredith, 2017). 2014 is the year when the mutual fund market started to expend rapidly. The driving force of the mutual fund expansion was money market fund while the amounts of equity and bond fund increased marginally and hybrid fund declined. The CFPS does not distinguish the types of mutual fund owned by households, but it is very possible the expansion of mutual fund market, or money market fund, more precisely, attract more females than males given other characteristics controlled, as Table 5 shows. Having higher probability of holding money market fund implies females are still risk averse because compared with other types of mutual fund, money market fund is a type of low-risk, low-return and high-liquidity asset. Therefore, we believe that females in China are more likely to enter the mutual fund market when low-risk products are available.







Data Source: McLoughlin and Meredith (2017).

Conclusion

This study uses data from China Family Panel Study 2010 and 2014 to examine the gender difference in market participation of risky financial assets. First it revisits the literature by showing in 2014 females were more likely to own mutual fund than males, and no gender difference in stock market participation. However, this study demonstrates the correlations between household characteristics and market participation are not always stable over time by finding in 2010 females were not different from males in participation in mutual fund and stock markets. Furthermore, when the sample is restricted to households with no ownership of mutual fund in 2010, the empirical study shows also females are more likely to enter the mutual fund market during 2010-2014. This study attributes the reason that female has higher market participation to the fact that females play more active role in household finance in China and the participation depends on the low-risk financial assets available.

This study provides implication in both policy-making and further research. The first implication is regarding with the females' welfare in China. Some studies, such as Fonseca et al. (2012) and Almenberg and Dreber (2015), indicated females are financially fragile so the access to financial market for long-term premium can improve their welfare. Like the western countries, females in China also face lower earnings and shorter work tenure since a household head, or the primary income source in a household, is generally a male, but the problem of females' financial fragility in financial accessibility could be less severe according to this study which finds females are more active in the market of mutual fund. Returns in the mutual fund can partially compensate their adverse economic status. However, the females' willing to enter the mutual fund market could be conditional on the availability of low-risk products. Therefore, we suggest lowering restriction and increasing product variety can improve females' welfare. Furthermore, the negative but not significant coefficient for females' entrance of stock market might indicate females in China still needs more relevant financial knowledge and information for the long-run investments to improve their financial welfare.

The other implication of this study is about further research. In an economy in transit like China, researchers might need to concern about the structure change, which makes the correlations between variables of interest shift. Although testing the structure change is common in the macroeconomics literature, few studies of household finance take it into consideration. Additionally, just like Quisumbing (1996) mentioned the power distribution between males and females in a household leads to gender difference in agricultural production and Ke (2018) found that countries with traditional gender norms have low stock participation rate, applying their idea for studying household finance might obtain interesting new findings.

References

- Almenberg, J., & Dreber, A. (2015). Gender, stock market participation and financial literacy. *Economics Letters*, 137, 140-142.
- Barber, B., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *Quarterly Journal of Economics*, 116, 261-292.
- Barsky, R. B., Juster, F. T., Kimball, M. S., & Shapiro, M. D. (1997). Preference parameters and behavioral heterogeneity: An experimental approach in the health and retirement study. *Quarterly Journal of Economics*, 112, 537-579.
- Bertaut, C. C. (1998). Stockholding behavior of U.S. households: Evidence from the 1983-1989 survey of consumer finances. *Review of Economics and Statistics*, 80, 263-275.
- Chen, H.,& Volpe, R. P. (2002). Gender differences in personal financial literacy among college students. *Financial Service Review*, 11, 289-307.
- Chiang, T.-F., & Xiao, J. J. (2017). Household characteristics and the change of financial risk tolerance during the financial crisis in the United States. *International Journal of Consumer Studies*, 41, 484-493.
- Christelis, D., Georgarakos, D., & Haliassos, M. (2011). Stockholding: Participation, location, and spillovers. *Journal of Banking & Finance*, 35, 1918-1930.
- Chu, Z., Wang Z., Xiao J. J., & Zhang, W. (2017). Financial literacy, portfolio choice and financial well-being. *Social Indicator Research*, 132, 799-820.
- Croson, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic Literature*, 47, 1-27.



- Danes, S. M., & Hira, T. K. (1987). Money management knowledge of college students. *Journal of Student Financial Aid*, 17, 4-16.
- Dwyer, P.D., Gilkeson, J.H., & List, J.A. (2002). Gender differences in revealed risk taking: Evidence from mutual fund investors. *Economics Letters*, 76, 151-158.
- Fonseca, R., Mullen, K. J., Zamarro, G., & Zissimopoulos, J. (2012). What explains the gender gap in financial literacy? The role of household decision making. *Journal of Consumer Affairs*, 46, 90-106.
- Guiso, L., Jappelli, T., & Terlizzese, D. (1996). Income risk, borrowing constraints, and portfolio choice. *American Economic Review*, 86, 158-172.
- Halko, M.-L., Kaustia, M., Alanko, E. (2012). The gender effect in risky asset holdings. *Journal of Economic Behavior and Organization*, 83, 66-81.
- Hallahan, T., Faff, R., & Mckenzie, M. (2004). An empirical investigation of personal financial risk tolerance. *Financial Services Review*, 13, 57-78.
- Karlsson, A., & Nordén, L. (2007). Home sweet home: Home bias and international diversification among individual investors. *Journal of Banking & Finance*, 31, 317-333.
- Ke, Da. (2018). Cross-country difference in household stock market participation: The role of gender norms. *AEA Paper and Proceedings*, 108, 159-162.
- Lusardi, A., & Mitchell, O. S. (2007). Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth. *Journal of Monetary Economics*, 54, 205-224.
- Lusardi, A., & Mitchell, O. S. (2008). Planning and financial literacy: How do women fare? *American Economic Review*, 98, 413-417.
- Malmendier, U., & Nagel, S. (2011). Depression babies: Do macroeconomic experiences affect risk taking? *Quarterly Journal of Economics*, 126, 373-416.
- McLoughlin, K., & Meredith, J. (2017). The rise of Chinese money market funds. Retrieved from the Internet on Apr. 25, 2018 at

https://www.rba.gov.au/publications/bulletin/2017/mar/pdf/bu-0317-9-the-rise-of-chinese-mone v-market-funds.pdf

- Quisumbing, A. R. (1996). Male-Female differences in agricultural productivity: Methodological issues and empirical evidence. *World Development*, 24, 1579-1595.
- Sung, J., & Hanna, S. (1996). Factors related to risk tolerance. *Financial Counseling and Planning*, 7, 11-20.
- van Rooij, M.C.J., Lusardi, A., & Alessie, R.J.M. (2011). Financial literacy and stock market participation. *Journal of Financial Economics*, 101, 449-472.



Gender Difference in China's International and Interregional Marriages: Quantitative Evidence and Socioeconomic Implications

Qingbin Wang, University of Vermont¹

Abstract

This paper uses the mostly recently available data to assess the gender difference in China's international and interregional marriages, examine the potential impacts of economic growth and other sociodemographic factors on the gender difference in such marriages, and discuss their potential socioeconomic implications. Preliminary results suggest three major conclusions: First, the number of Chinese-foreign marriages in mainland China, defined as marriages between Chinese citizens living in mainland China and the citizens of foreign nations and residents of Hong Kong. Macao and Taiwan. increased significantly from about 22,200 in 1985 to 68,200 in 2006 but then dropped to 42,200 in 2016. Second, as most of the Chinese-foreign marriages in the 1980s and 1990s were between women of mainland China and men of Hong Kong, Macao, Taiwan and foreign nations, the gender difference is still very significant but has shown a downward trend in recent years. For example, the proportion of women from mainland China in the marriages between residents of Hong Kong and residents of mainland China reduced gradually from about 95% in 1990 to 75% in 2016. Third, for the growing number of interregional marriages across the 31 provinces, municipalities and autonomous regions in mainland China, proportionally more women have migrated from relatively less developed regions to more developed regions through interregional marriages. This pattern has also contributed to the increasing difficulty for many men in less developed regions and many women in large cities like Shanghai and Beijing to find love. While the gender difference in China's international and interregional marriages reflects the interaction of a host of socioeconomic factors and has many implications, this study is likely one of the first exploratory research projects to empirically examine such gender difference as well as its rends and potential socioeconomic implications.

Introduction

While marriage as one of the most important human and family relationships has been the focus of many studies, there are limited studies on the gender difference in international and interregional marriages, especially in transitional countries like China (Goode, 1993; Higgins et al., 2002). The major purpose of this study is to assess the gender difference in China's international and interregional marriages, identify the key factors behind the gender difference and its changes over time, and discuss the potential socioeconomic implications of the gender difference in such marriages.

¹Professor, Department of Community Development and Applied Economics, University of Vermont, Burlington, VT 05405, USA. Phone: 802 656-4564. Email: qwang@uvm.edu.

China as the world's most populous country has experienced rapid economic growth, significant socioeconomic transition, and dramatic changes in marriage patterns including interregional and international marriages, since its economic reform started in the late 1970s. China's experience, together with improved data availability, has provided a unique and excellent case for studying many socioeconomic issues such as marriage, divorce, and remarriage (Platte, 1988; Zeng and Wu, 2000; Wang, 2001; Palmer, 2007; Wang and Zhou, 2010; Zhang et al., 2014). This study with a focus on the gender difference in China's interregional and international marriages is developed directly from the previous studies on China's trends of marriage and divorce (Wang, 2001), divorce and remarriage (Wang and Zhou, 2010), and divorce, fake divorce and remarriage (Wang, 2016). Specifically, this study uses the most recently available data from mainland China, Hong Kong and other sources to assess the gender difference in Chinese-foreign marriages (i.e., marriages between residents of mainland China and foreign citizens and residents of Hong Kong, Taiwan and Macao) and interregional marriages between



residents in Shanghai and each of the other 30 provinces, municipalities and autonomous regions from 2012 to 2015, examine the potential impacts of economic growth and other socioeconomic factors on the gender difference in such marriages, and discuss the potential socioeconomic implications of the gender difference.

A comprehensive literature review suggests that, although the gender difference in China's interregional and international marriages and its likely causes and potential impacts have been frequently reported in the public media in China and abroad, there are very limited studies on the topic, especially empirical studies based on quantitative analysis. This is likely one of the first studies to empirically examine some widely held assumptions about international and interregional marriages in China.

Data and Methods

Data used in this study include four major parts: (1) China's national data on the number of Chinese-foreign marriages from 1989 to 2016. The same data are also available for the 31 provinces, municipalities and autonomous regions during the same period. The data include the number of marriages between mainland China residents and each of the five foreign groups: foreign citizens, residents of Hong Kong, residents of Taiwan, residents of Macao, and overseas Chinese. The data also include the total number of females from mainland China in such Chinese-foreign marriages but such data are not available for each of the five foreign groups. While the national data provide information on changes over time, the pooled time-series and cross-sectional data provide valuable information on the regional disparities in the Chinese-foreign marriages and gender difference. (2) Annual data from Hong Kong for 1986-2016 containing information on the number of marriages between Hong Kong residents and mainland China residents and the number of men and women from each of the two regions. (3) Data from Shanghai City on the number of interregional marriages between Shanghai residents and residents from each of the other 30 provinces, municipalities and autonomous regions and gender information (the number of men and women from each of the other 30 regions) from 2012 to 2015. (4) Annual data on per capita income and other sociodemographic variables for each of the 31 regions over the study period.

Detailed data on marriage and divorce are often limited, even in developed countries like the United States where the national divorce data do not include California and a few other states. Chinese government organizations have collected very detailed data on marriage and divorce and have published more and more data. Although a large proportion of the data collected by the government has not been available to researchers, the data from different cities, regions or government organizations can sometimes complement each other in addressing certain research questions. The data sets compiled for this study are a good example of such efforts.

The data introduced above will be analyzed to attain our research objectives through appropriate statistical methods such as graphical analysis and regression analysis. For example, the following regression model will be estimated to identify the major factors for the gender difference in the interregional marriages between Shanghai residents and residents from each of the other 30 regions in mainland China:

$$Y_{it} = a + b_1 T_t + b_2 GDP_{it} + b_3 ED_{it} + \sum_{j=1}^n \gamma_j D_{jt} + e_{it}$$

where Y_{ti} is the female-male ratio of people who migrated from region *i* to Shanghai through marriage in year *t*; *T* is a time variable in which 2012 equals 1, 2013 equals 2, and so on; *GDP* is the real per capita gross domestic product (GDP) with 2000 as the base year; *ED* is the education level; *D* is a set of demographical variables such as the distance to Shanghai; *e* is the error term; and *a*, *b*, and γ are the coefficients to be estimated. The time variable *T* is included to capture any trend across all the regions over time. The real per capita GDP is used to measure the average income, and the education level *ED* is measured using the percentage of population with a college or graduate degree.



Estimation results of this model will provide information on the significance of each independent variable as well as its numerical impact on the dependent variable. For example, b_2 is expected to be negative, meaning that relatively more women from regions with lower per capita income have migrated to Shanghai through marriages.

Preliminary Findings

While the data analysis is still in progress, the preliminary findings are presented in three subsections: (a) Gender difference in China's international marriages, (b) Gender difference in the marriages between mainland China and Hong Kong residents, and (c) Gender difference in China's interregional marriages – evidence from Shanghai.

Gender difference in China's international marriages

Data on China's international marriages and the proportion of mainland China females from 1989 to 2016 are presented in Figure 1. The data suggest three major findings: First, the number of Chinese-foreign marriages between residents of mainland China and foreign citizen and residents of Hong Kong, Macao and Taiwan increased rapidly in the 1980s and 1990s and reached the record high of 79,825 in 2003, but has shown a declining trend since then. One major factor behind the decline in recent years is likely the significant growth in income in mainland China and the reduction of comparative economic advantages of people, especially men, from outside mainland China.



Figure 1. China's international marriages and the proportion of mainland China females



Second, for the Chinese-foreign marriages in China, the "foreigners" were dominated by residents, mainly men, from Hong Kong, Taiwan and Macao but the proportion of citizens of foreign nations has increased rapidly. For example, the proportion of foreign citizens in China's international marriages increased steadily from 4.8% in 1989 to 58.40% in 2013 and then fluctuated around 54.5% in the next three years. On the other hand, the proportion of residents from Taiwan, Hong Kong and Macao dropped from 87.30% in 1989 to 31.81% in 2016. The proportion of overseas Chinese in China's international marriages was between 9% and 12% over the study period.

Third, while the Chinese-foreign marriages were dominated by women from mainland China and men from outside mainland China until recent years, the proportion of women from mainland China has decreased significantly, from 92.20% in 1989 to 59.15% in 2016. Although the gender difference in China's international marriages and its changes over time have been frequently reported in the media, Figure 1 presents detailed information only over the study period.

While the national data presented in Figure 1 are not sufficient for examining the impacts of selected socioeconomic factors on the changes in the number of international marriages and the proportion of mainland China females in such marriages, similar data are also available by the 31 regions over the study period. The panel data will be used to examine the impacts of per capita income, education, urbanization, geographical location and other factors on the number of international marriages as well as the gender difference through regression analysis. The analysis is in progress and findings will be presented at the ACFEA meeting.

Gender difference in the marriages between Hong Kong and mainland China residents

While Figure 1 does not include information on the gender difference in China's international marriages for each of the five groups (foreign citizens, residents of Hong Kong, residents of Taiwan, residents of Macao, overseas Chinese), data from government organizations in Hong Kong and mainland China, combined by the author, are reported in Figure 2.



Figure 2. Marriages between Hong Kong and mainland China residents and the proportion of mainland China females

Data presented in Figure 2 suggest three major findings: First, the number of marriages between Hong Kong and mainland China residents increased steadily from 15,020 in 1989 to 39,950 in 2006 but has remained at a much lower level since 2007. Second, the proportion of the marriages between Hong Kong and mainland China residents registered in Hong Kong has increased significantly and steadily over the study period. One reason for the change could be the return of Hong Kong by the United Kingdom to the Chinese central government in 1997. As a special administrative region of China, Hong Kong has gone under many reforms and it has become much easier for residents of mainland China to get married in Hong Kong. Third, the proportion of mainland China females in marriages with Hong Kong residents dropped steadily from about 94% in 1989 to 76% in 2016. The decrease is consistent with the trends reported in Figure 1 but at a slower pace.

Gender difference in China's interregional marriages - evidence from Shanghai

In China the number of men and women who have migrated across provinces, municipalities and autonomous regions through interregional marriages has increased rapidly in the past three decades. For example, as reported by many newspaper reports, many young women with age, education and appearance advantages have moved to relatively developed regions like Shanghai with higher income and living standards through interregional marriages. Also, interregional marriages have provided opportunities for men in relatively developed regions to attract women from other regions. This gender difference in interregional marriages may have contributed to the widely reported difficulty for relatively more men in less developed regions to find love and more "leftover women" in developed regions like Shanghai and Beijing. "Leftover women" as a Chinese concept has been frequently used in Chinese and international media to represent women in marriage age but have had difficulties in finding men to get married. It has been a growing social problem in many large cities like Beijing, Shanghai and Shenzhen.

While the data on interregional marriages in China are very limited, this study uses the data on the number of marriages between Shanghai residents and residents from each of the other 29 regions in China from 2012 to 2015 to examine the gender difference in such marriages and identify the potential factors that may explain the gender difference. Note that Tibet is not included in our analysis because the number of interregional marriages between residents from Tibet and residents in Shanghai was less than 10 each year for the study period. Data presented in Figure 3 suggest two major findings: First, an average of 50,987 individuals moved to Shanghai from the other regions in mainland China through marriage each year from 2012 to 2015 and they counted for an average of 36.02% of the total marriages registered in Shanghai over the period. Second, of the people who moved to Shanghai for marriage from 2012 to 2015, 70.75% of them were women, suggesting that significantly more women moved to Shanghai for marriage than men. Specifically, 84,510 more women moved to Shanghai through interregional marriages than men over the period (144,230 women and 59,720 men). This could be a significant factor for the increasing number of "leftover women" in Shanghai.

The 2015 data for the 29 provinces, municipalities and autonomous regions, ranged by the percentage of women, are presented in Figure 4. The figure suggests that there were significant variations in the percentage of women across the 29 regions. Among the residents who moved from each of the 29 regions to Shanghai for marriage in 2015, Beijing had the lowest





Figure 3. Interregional marriages registered in Shanghai and the proportion of women from other regions



Figure 4. Interregional marriages registered in Shanghai and the proportion of women who moved to Shanghai from each of the 29 regions in 2015

at 40.28% of women and Sichuan had the highest at 83.83% of women.

The panel data of 29 regions over the four years will be used to estimate the regression model presented in a previous section and the results will be presented at the ACFEA meeting. The analysis will identify important factors for the gender difference across the 29 regions and quantify the impact of each factor when other factors are controlled.

Conclusions and Implications

This paper uses the most recently available data to assess the gender difference in China's international and interregional marriages, examine the potential impacts of economic growth and other demographic factors on the gender difference in such marriages, and discuss their potential socioeconomic implications. Preliminary analysis results suggest three major conclusions: first, while the number of Chinese-foreign marriages in mainland China, defined as the marriages between Chinese citizens living in mainland China and the citizens of foreign nations and residents of Hong Kong, Macao and Taiwan, increased significantly from about 22,200 in 1985 to 68,200 in 2006 but then dropped to 42,200 in 2016. China's open-door policies and rapid economic development have been key factors behind these dramatic changes, especially the rapid increase in the 1980s and 1990s and the significant decrease in recent years.

Second, while most of the Chinese-foreign marriages in the 1980s and 1990s were between women of mainland China and men of Hong Kong, Macao, Taiwan and foreign nations, the gender difference is still very significant but has shown a downward trend in recent years. For example, the proportion of women from mainland China in marriages between residents of Hong Kong and residents of mainland China reduced gradually from about 95% in 1990 to 75% in 2016.

Third, for the growing number of interregional marriages across the 31 provinces, municipalities and autonomous regions in mainland China, proportionally more women have migrated from relatively less developed regions to more developed regions through interregional marriage and this pattern has also contributed to the increasing difficulty for men in less developed regions to find love as well as the increasing number of "leftover women" in large cities like Shanghai and Beijing.

The gender difference in China's interregional and international marriages reflects the interaction of many socioeconomic factors and has many socioeconomic implications. This study as exploratory research has empirically examined such gender difference and potential socioeconomic factors contributing to its changes, as well as discussed some socioeconomic implications of the gender difference in China's international and interregional marriages. As the gender difference in international and interregional marriages is a very complex issue in China and many other nations, this research has many limitations such as data availability and consistency. There are growing needs for more research on the gender issues, especially on the causes of the gender difference and its socioeconomic impacts.

References

Goode, W.J. (1993). World Changes in Divorce Patterns. New Haven: Yale University Press.

- Higgins, L.T., Zheng, M., Liu, Y., & Sun, C.H. (2002). Attitudes to marriage and sexual behaviors: A survey of gender and culture differences in China and United Kingdom. *Sex Roles* 46(3–4): 75–89.
- Palmer, M. (2007). Transforming family law in post-Deng China: Marriage, divorce and reproduction. *The China Quarterly* 191: 675–695.
- Platte, E. (1988). Divorce trends and patterns in China: Past and present. *Pacific Affairs* 61(3): 428–445.
- Wang, Q. (2001). China's divorce trends in the transition toward a market economy. *Journal of Divorce & Remarriage* 35(1/2): 173–189.
- Wang, Q., & Zhou, Q. (2010). China's divorce and remarriage rates: Trends and regional disparities. *Journal* of *Divorce and Remarriage* 51: 257-267.
- Wang, Q. (2016). Marriage and divorce in a transitional society: A quantitative analysis of divorce, fake divorce, and remarriage in China. Selected paper presented at the ACFEA



Meeting, Hong Kong, July 7-10.

Zeng, Y., & Wu, D. (2000). Regional analysis of divorce in China since 1980. Demography 37(2): 215-219.

Zhang, C., Wang, X., & Zhang, D. (2014). Urbanization, unemployment rate and China's rising divorce rate. *Chinese Journal of Population Resources and Environment* 12(2): 157-164.





UF FLORIDA Agenda



- 1. Purpose of the Study
- 2. Background: Financial Knowledge, Financial Socialization, Time Perspective and Risk Tolerance
- 3. Methods: Data collection, Study Sample, Measurement of Variables and Analysis
- 4. Results
- 5. Discussion and Closing Remarks







Purpose of the Study

The purpose of this study was to determine gender based differences in financial socialization and financial knowledge in Turkey.



Background (1 of 4)

Financial Knowledge

- > Financial knowledge is one of four key factors,
 - > along with sufficient income,
 - > access to suitable and affordable financial products,
 - > appropriate regulation, identified as necessary for individuals to achieve positive financial outcomes,
 - > secure financial wellbeing.
- Financially literate consumers are more likely to be informed and confident and therefore better able to participate in economic life (Ali, Anderson, McRae, & Ramsay, 2014).
- Financial knowledge is directly related to the well-being of individuals (Bhushan & Medury, 2013; Shim et al., 2009).







Background (2 of 4)

Financial Socialization

- Parents were important socialization agents of their children's emotional well-being (Eisenberg et al., 2001) and behavioral health (Lau, Quadrei, & Hartman, 1990) as well.
- The quality of parent-child communication regarding financial topics proved to be the most potent predictor of children's financial well-being (Serido et al., 2010).



Background (3 of 4)

Time Perspective

- It is a measure of the extent to which individuals focus on the future, present or past (Hershey & Mowen, 2000; Jacobs-Lawson & Hershey, 2005).
- Basic preference shifters such as time perspective have been found to be related to well-being (Shobe & Page-Adams, 2001).
- Previous studies reported that future orientation predicts the tendency to plan and save (Hershey & Mowen, 2000; Jacobs-Lawson & Hershey, 2005).



Data Collection

Study Sample

59.1% single.

Turkey.

-

-

-

-

--

-







Table 1. Characteristics of the Participants (N=513)

Variables		
Gender		
Women	260	50.7
Men	253	49.3
Marital status		
Single	303	59.1
Married	181	35.3
Widow/Divorced	26	5.1
Living with partner	3	0.6
Education level		
High school or less	160	31.2
College or more	353	68.8
Spouse' Education level		
High school or less	89	48.4
College or more	95	51.6
Working status		
Working	262	51.1
Retired	28	5.4
Student	184	35.9
Not working	39	7.6
	Min-Max	M/SD
Age	18-70	31.2 (12.09)
Income	500.00TL-	4042.33TL
	17000.00TL	(2537.32)
Family Size	1-13	3.7 (1.63)
Number of child	0-7	1.49 (1.19)





Methods (4 of 7)

Measurement of Variables

Financial Socialization. Shim et al., 2010.

Parental Direct Financial Teaching: Participants were asked to assess on a five point scale 1 (strongly disagree) to 5 (strongly agree) the extent to which they thought their parents engaged in six direct teaching methods (e.g., 'spoke to me about the importance of saving'). $\alpha = .53$.

Parental Financial Role Modeling: Participants were asked to indicate on a five-point scale 1 (strongly disagree) to 5 (strongly agree) their agreement with four statements (e.g., 'When it comes to managing Money, I look to my parent(s) as my role models'). $\alpha = .93$.

Financial relationship with parents: Participants were asked to indicate on a five-point scale 1 (*strongly disagree*) to 5 (*strongly agree*) the degree to which they agreed or disagreed with three items (e.g., 'I argue a lot with my parent(s) about money matters'). $\alpha = .84$.

Methods (5 of 7)

Measurement of Variables

Time Perspective. Zimbardo and Boyd (1999)'s Time Perspective Inventory (ZTPI-short), 15 items, $\alpha = .73$.

The response scale was five-point Likert-type scale from 1 (very uncharacteristics) to 5 (very characteristics).

- Past-Negative; e.g., 'I often think of what I should have done differently in my life.' α = .59.

- Past-Positive; e.g., 'It gives me pleasure to think about my past.' α = .59.

- Present-Fatalistic; e.g., 'Since whatever will be will be, it doesn't really matter what I do.' α = .59.

- **Present-Hedonistic;** e.g., 'It is important to put excitement in my life.' $\alpha = .70$.

- Future scale; e.g., 'When I want to achieve something, I set goals and consider specific means for reaching those goals.' α = .68.









Methods (7 of 7)

Data Analysis

Ordinary Least Square Regression analysis was computed to determine the interrelationships between financial knowledge and the independent variables when control socio-demographic variables.

Independent Samples t-test was computed to determine the differences between women and men on financial socialization, financial knowledge, time perspective and risk tolerance.



Results (1 of 5)

TABLE 2. OLS Regression of Financial Knowledge

Independent variables	Model 1	Model 2	Model 3	Model 4
Parent direct financial teaching	.223 (.040)***	.179 (.042)***	.177 (.042)***	.147 (.042)***
Parental financial role modeling	222 (.041)***	190 (.042)***	186 (.042)***	149 (.042)***
Financial relationship with parents	.093 (.053)	.118 (.055)*	.117 (.055)*	.122 (.054)*
Past-Negative		107 (.076)	104 (.077)	074 (.076)
Past-Positive		.010 (.089)	.008 (.090)	.008 (.090)
Present-Fatalistic		170 (.063)**	166 (.064)**	160 (.063)*
Present-Hedonistic		.073 (.067)	.074 (.067)	.052 (.073)
Future-Oriented		.142 (.079)	.141 (.079)	.137 (.079)
Average risk			.312 (.430)	.036 (.427)
Above average and substantial risk			026 (.482)	306 (.475)
Gender (1= women)				-1.368 (.370)***
Age				.023 (.022)
Education level (1= high school graduates or less)				-1.122 (.455)*
Spouse' Educational Level				-1.045 (.720)
Marital Status (1- married)				.390 (.563)
Income				1.186 (.783)
Constant	4.835 (.869)***	5.142 (1.443)***	4.982 (1.461)***	1.224 (2.970)
F	16.482***	8.454***	6.811***	6.676***
R ²	.089	.118	.119	.177







Results (2 of 5)

TABLE 3. OLS Regression of Financial Knowledge for Women

Independent variables	Model 1	Model 2	Model 3	Model 4
Parent direct financial teaching	.183 (.055)***	.167 (.059)**	.171 (.060)**	.149 (.060)*
Parental financial role modeling	162 (.061)**	-,132 (.062)*	136 (.063)*	101 (.064)
Financial relationship with parents	.174 (.077)*	.159 (.081)*	.166 (.082)*	.213 (.082)**
Past-Negative		118 (.108)	123 (.108)	106 (.109)
Past-Positive		-,186 (.129)	-,184 (,130)	156 (.132)
Present-Fatalistic		072 (.094)	073 (.094)	084 (.095)
Present-Hedonistic		.015 (.100)	.018 (.100)	006 (.106)
Future-Oriented		.160 (.112)	.160 (.114)	.132 (.115)
Average risk			219 (.602)	663 (.612)
Above average and substantial risk			459 (.686)	869 (.692)
Age				.030 (.035)
Education level (1- high school graduates or less)				970 (.656)
Spouse' Educational Level				911 (1.053)
Marital Status (1= married)				.456 (.805)
Income				2.429 (1.120)*
Constant	3.625 (1.247)**	5.550 (2.006)**	5.681 (2.030)**	-3.427 (4.333)
F	6.972***	3.486***	2.819**	2.817***
R^2	.076	.100	.102	.148





Results (3 of 5)

TABLE 4. OLS Regression of Financial Knowledge for Men

Independent variables	Model 1	Model 2	Model 3	Model 4
Parent direct financial teaching	.254 (.058)***	.201 (.059)***	.195 (.059)***	.181 (.061)**
Parental financial role modeling	245 (.056)***	201 (.056)***	~195 (.056)***	-,195 (.056)***
Financial relationship with parents	001 (.072)	.060 (.073)	.060 (.073)	.054 (.073)
Past-Negative		117 (.107)	100 (.108)	062 (.110)
Past-Positive		.201 (.121)	.190 (.122)	.171 (.124)
Present-Fatalistic		247 (.086)**	~.242 (.088)**	203 (.089)*
Present Hedonistic		.124 (.091)	.121 (.093)	.048 (.107)
Future-Oriented		.150 (.109)	.164 (.109)	.164 (.112)
Average risk			.727 (.607)	.689 (.609)
Above average and substantial risk			-7.69 (.676)	.030 (.676)
Age				.022 (.029)
Education level (1= high school graduates or less)				-1.347 (.645)*
Spouse' Educational Level				-1.218 (1.013)
Marital Status (1= married)				.450 (.804)
Income				113 (1.129)
Constant	5.736 (1.196)***	3.849 (2.059)	3.421 (2.087)	4.154 (4.107)
F	8.814***	6.461***	5.340***	4.180***
R ²	.096	.175	.181	.209







Results (5 of 5)

 TABLE 5. Financial Socialization, Time Perspective, Financial Knowledge and

 Willingness to Take Financial Risks by Gender (Continue)

8.24 (3.32)	8.13 (3.02)	.380
2.56 (1.44)	2.63 (1.41)	613
20 - 20 		
2.84 (1.48)	2.80 (1.39)	.268
2.84 (1.46)	2.69 (1.37)	1.196
9.98 (3.01)	10.36 (2.97)	-1.442
3.77 (1.21)	3.96 (1.14)	-1.796
3.23 (1.31)	3.26 (1.29)	247
2.97 (1.31)	3.13 (1.33)	-1.428
		2010/2010
11.34 (2.59)	11.61 (2.55)	-1.195
3.99 (1.00)	4.09 (1.09)	-1.041
	10000	1200.00
3.68 (1.13)	3.85 (1.10)	-1.758
3.67 (1.09)	3.67 (1.14)	012
7.41 (4.32)***	5.81 (4.24)	4.238
.249 (.433)	.203 (.403)	1.221*
.328 (.470)	.315 (.465)	.307
.422 (.495)	.480 (.500)	-1.316*
12.3%	10.3%	$\chi^{2=2.170}$
16.2%	16.0%	
20.8%	24.4%	
	8.24 (3.22) 2.56 (1.44) 2.84 (1.46) 9.98 (3.01) 3.77 (1.21) 3.23 (1.31) 2.97 (1.31) 11.34 (2.59) 3.99 (1.00) 3.68 (1.13) 3.67 (1.09) 7.41 (4.32)*** 2.49 (4.33) 328 (4.70) 4.22 (4.95) 12.3% 16.2% 20.8%	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$



Discussion (1 of 3)

- Financial knowledge of men found to be significantly higher than that of women.
- Financial knowledge significantly varied by financial socialization variables except relationship with parents.
- Both women and men who discuss finance with their parents were positively associated financial knowledge.
- Both women and men who imitate the roles modeled by their parents when managing their finances were tend to be having lower levels of financial knowledge.







•

Discussion (2 of 3)

- Both women and men respondents with held high school or less degrees tend to be having lower levels of financial knowledge.
- Women respondents who reported higher conflict and stress with their parents related to money and spending were positively associated financial knowledge.
- Men participants who focused a fatalistic, helpless, and hopeless attitude toward the future and life (present-fatalistic) were negatively associated levels of financial knowledge.
- Women respondents with higher income tend to be having higher levels of financial knowledge.

Discussion (3 of 3)

- Men respondents with held high school or less degrees tend to be having lower levels of financial literacy.
- Women reported significantly more learn about managing their money from their mother and their siblings than men.
- Men reported more conflict and stress than women on the relationship with their parents is not good because of money issues.
- Women reported more seeing their parents as financial role models than men on the overall index and all but one of the component items.
- The findings have important implications for policy-makers, educators, regulators and researchers interested in especially financial knowledge and financial socialization.









Questions, Comments, & Feedback

Jorge Ruiz-Menjivar, Ph.D. Professor of Consumer Economics University of Florida, USA Email: jhruiz@ufl.edu





The Determinants of Push-or-Pull into Self Employment: The Role of Gender in Taiwan

Kuang-Ta Lo^{*} National Chengchi University Department of Public Finanbce

Abatract

The relationship between macroeconomic variables, such as unemployment or economic growth rates, and self-employment has been a traditional source of controversy among economists, caused by an ambiguous prediction provided by the theory (Thurik et al. 2008). On the one hand, the 'recession-push' theory supports the idea that unemployment reduces the opportunities of gaining paid-employment and the expected gains from job search, which "pushes" people into self-employment. Therefore, this theory suggests the existence of a positive relationship between self-employment and unemployment, that is, an opposite relation between the business cycle and the self-employment rate. On the other hand, the 'prosperity-pull' hypothesis represents an opposite interpretation of this relationship: at times of high unemployment firms face a lower market demand. This reduces self-employment incomes and possibly also the availability of capital, while the risk of bankruptcy increases. Thus, individuals are "pulled" out of self-employment. At the same time, self-employment may become riskier because if the venture fails, it is less likely that the self-employed worker can find a job in paid-employment. As a result, a negative relationship between self-employment and unemployment is suggested.

In brief, "push" factors are typically those associated with being pushed out of paid employment into a less preferred self-employed situation, and are thus positively associated with increases in the unemployment rate and unemployment durations. Conversely, "pull" factors are those which make the choice of self-employment more attractive to paid employment. Understanding the mechanisms by which individuals choose self-employment is important for determining whether a strategy of encouraging self-employment is likely to be effective in combatting high unemployment or for stimulating the economy. Although the relationship between unemployment and self-employment has been studied extensively, due to its complex and multifaceted nature, various scholars have found a large array of different results; furthermore, when the gender issue has been considered in this field, it makes the exact nature of the relation become much more interesting but also complicated.

Numerous studies have reported that women and men have different reasons for starting a business (Buttner and Moore, 1997; Gatewood et al., 1995; Scott, 1986; Shane et al., 1991). There appears to have been a consensus in some of the literature that, historically, men were more inclined to become owners of small businesses because of financial considerations and were more likely to be pulled into their business ventures. Conversely, women were more likely to become owners of small business because and were also more likely to be pushed into self-employment (Brush, 1992; Buttner and Moore, 1997; Cromie, 1987; Scott, 1986). An additional motivating factor pertinent only for women was to be able to better balance work and family responsibilities (Buttner and Moore, 1997; Green and Cohen, 1995; Marlow, 1997).

A secondary issue for women starting their own businesses is risk, as there is often risk attached to operating and owning businesses, irrespective of size, and it has often been stated that men are higher risk takers in business than women. However, in their gender comparative study, Welsch and Young (1984) found no difference between women and men on risk taking propensity. Later studies though have found significant gender differences, for example, Sexton and Bowman-Upton (1990) conducted personality tests and found that women scored lower on risk taking. Cliff (1998) also found that women were more concerned about taking risks on business related issues. The gender differences regarding business risk do need to be put in context, as women going into business often do not have the same emotional or physical support that their male counterparts have (Chell and Baines, 1998; Jurik, 1998). Additionally, Green and Cohen (1995) found that women perceive business ownership to have additional risks other than just financial, such as personal and psychological risks. For many women,

^{*} Kuang-Ta Lo is an Associate Professor at the Department of Public Finance in National Chengchi University. Mail Address: No.64, Sec.2, Zhi-nan Rd., Wenshan 11605, Taipei, Taiwan. Email: vancelo@nccu.edu.tw. Tel.: +886-2-29387062. Fax: +886-2-29390074.



making the change from the relative certainty of being a paid employee to being self-employed, as well as the possibility of being in control of other people, is an enormous emotional shift. Women starting businesses often have many more difficulties than men in relation to basic aspects such as access to finance and, at a more fundamental level, being taken seriously as a business operator (Mirchandani, 1999; Still and Guerin, 1991; Still and Walker, 2003). This has two outcomes: one being that women not only start small but continue to be very small or micro enterprise and are often under capitalised (Marlow and Carter, 2004), and the other is that they may well get disenchanted with not being taken seriously and continually feel undervalued and, in the worst case scenario, do not continue with the business (Walker and Webster, 2004). However, if self-employment is the only available employment option, then not only is that risk financially and emotionally exponential, for older women it could be extremely difficult. Marlow and Carter (2004) refer to self-employment for some women as a "coping strategy" which is more applicable to older women than younger women.

In summary, there is evidence that self-employed women have different characteristics than self-employed men (Cowling and Taylor 2001; Georgellis and Wall 2005). This difference is partly driven by changing household structures, employment status of the partner, and familial responsibilities (Brown et al. 2006; Wellington 2006). It is also worth noting that the form and gender of self-employment are changing across areas and even generations. For example, in the 1980s, most of the increase in self-employment in U.S. came from self-employed employers, or those who hire paid help. In the 1990s, growth came from the solo self-employed or people who work on their own. An influx of women into self-employment accompanied the trend towards more solo self-employment. Although men are still more likely than women to be self-employed, self-employment grew faster for women than for men in the 1990s at the same time as it became more heterogeneous, as certain forms exhibited more dimensions of precarious employment.

In this paper, we construct the regional-based panel data comprising 20 counties and cities from 1988 to 2013 in Taiwan to investigate how and to what extent unemployment will affect self-employment behaviors, and how the gender factor play the role in this issue. Our preliminary results show that an increase of the unemployment rate has a positive effect on self-employment, supporting the "recession-push" hypothesis. Besides, the areas with higher proportion of women also have a positive correlation with the rate of self-employment sector, after controlling the age, marriage rate and the education variables. However, we found that the social welfare spending has a negative correlation with the self-employment ratios in counties; and the family size and income level have no impact on the rate of self-employment sections in Taiwan.

Keywords: Self-employment, Push-or-Pull Hypothesis, Gender, Panel data, Taiwan JEL classifications: J21, J16, C23