THE IMPACT OF WITHIN-HOUSEHOLD RELATIVE INCOME ON HAPPINESS: DOES GENDER IDENTITY MATTER?

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ABSTRACT. Based on a household survey from China, this paper analyzes the effect of within-household relative income on happiness, taking into account the role of gender identity. Results show that the probability of being happy decreases significantly with the wife earning more income than her husband for both men and women from the households holding the traditional gender identity, i.e., the husband should be a breadwinner and the wife a homemaker. This is, however, not the case for those households without such a traditional view.

Keywords: happiness; within-household relative income; gender identity; China

1. Introduction

Akerlof and Kranton (2000) introduce the idea of "identity" from psychology into economic analysis. Identity is defined as a sense of self and one's recognition of belonging to a certain social category, thus associated with how individuals should behave in these categories. As for individuals, as a couple

within a household, they are usually assigned different gender role categories – as either a "husband" or a "wife." From the traditional view of gender identity, the husband is expected to be a breadwinner and the wife a homemaker. Males are also supposed to earn more money than their wives (e.g., Bertrand et al., 2015). With the societal development over time as reflected in, for example, a closing gender gap in education, it has become more common that the wife may earn more money than her husband (Blau and Khan, 2000). This has gradually challenged the traditional gender identity. Loss in gender identity may not only result in discomfort and incur a reduction in utility of oneself, but also reduces others', such as one's spouse's, utility (Akerlof and Kranton, 2000). Against this background, this paper aims to empirically analyze the effect of within-household relative income on the happiness of the husband or the wife, taking into account whether he or she generally holds the traditional gender identity.

Previous studies on individual's income and happiness show that income, in general, is positively correlated with individual's and/or household's happiness (e.g., Ball and Chernova, 2008; Oshio et al., 2011). Hao and Wen (2013) find, in addition, that the spouse's income affects individual's happiness differently, depending on one's age and income level. Focusing on the relative income within a household, Qian and Qian (2015) show that for men own income share has a more positive effect on own happiness than for women. The potential relevance of gender issues in this income-happiness nexus has rarely been explicitly considered in the previous related literature. There were studies investigating the role of within-household relative income for marriage satisfaction (e.g., Furdyna et al., 2008[1]; Zhang and Tsang, 2012[2]; Zhang et al., 2012[3]; Bertrand et al., 2015), spousal violence (e.g., Macmillan and Garter, 1999; Atkinson et al., 2005[4]) and divorce risk/ marriage instability (e.g. Heckert et al., 1998; Rogers, 2004; Liu and Vikat, 2007; Zhang and Tsang, 2012). One may expect marriage satisfaction to be positively and spousal violence and divorce risk to be negatively related to individual's happiness, thus linking the relative income's effect found in these studies to individual's happiness. But the direct evidence on the nexus between within-household relative income and "individual's" happiness taking into account the relevance of the gender identity in an explicit way is still far from sufficiently investigated.[5] This study aims at providing some first evidence to contribute to filling this gap.

Our research is most closely related to Asadullah et al. (2015) who investigate the determinants of individual's happiness in China and find that women, urban residents, and people with higher income are generally happier than their counterparts. Although their analysis also touches the gender issue, they do not explicitly consider the aspect of the traditional gender identity and the gender-based division of labor in their analysis as we do in our analysis.

Considering the aspect of gender identity explicitly is the most substantial contribution that our analysis makes to help fill the gap in the literature. The topic itself is, however, not only interesting for the academic research but also highly socially relevant. With changing formal and informal rules and norms in societies women have obtained more opportunities to acquire skills and knowledge and to shape their lives on their own over time (e.g., World Economic Forum, 2016). They become less dependent, also with respect to income, on their male family members, particularly their husbands. Many governments in the world have also implemented policies to support women to develop their careers and to take over top and leading positions in science, governments and the private sector. As results, it is becoming more common that wives earn more money than their husbands. This is the case for 27% of American couples according to the American Community Survey 2008–2011 (Bertrand et al., 2015) and about 12% of Chinese couples based on the survey we analyze. These developments in societies have gradually challenged the traditional gender identity and labor division within households over time. On the one hand, one may expect that individual's happiness may increase with increasing household income through the increasing participation of wives in the labor market. On the other hand, the challenge upon the traditional gender identity may affect individual's happiness negatively due to identity loss as suggested by Akerlof and Kranton (2000). Since enhancing human well-being nowadays means not only the increase in material wealth but also the positive development of individual's happiness, gaining more insights into the topic of how income may affect individual's happiness taking into account changing gender identity will help better understand the overall impact on human well-being in pursuit of increasing female participation in labor market and gender equality.

The rest of this paper is organized as follows. We introduce the dataset that we use for the analysis in Section 2. The estimation models are introduced in Section 3 where main results are also presented. Further estimations for robustness check and their findings are provided in Section 4. The paper ends with a brief conclusion in Section 5.

2. Data

Our analysis is based on a representative household dataset from the Chinese General Social Survey (CGSS) for the years of 2010, 2012 and 2013.[6] The annual survey was addressed to one randomly selected representative – male or female – per household. We focus our analysis on responses provided by married and not yet retired individuals.[7] Outlier household samples such as those with household nominal income lower than the official average subsistence level (MCA, 2009, 2011, 2012) and those with extremely high incomes

(top 1%) are deleted from the analysis. As a result, our analysis is based on a pooled dataset, consisting of 4,465 males and 5,002 females.

The main variables of the analysis are constructed as follows. The individual's happiness was originally measured based on a five-level Likert scale with 1 referring to "very unhappy" and 5 "very happy." For our analysis, we first construct a dummy happiness variable (*Happiness_D*) with individuals classified as being happy if their happiness level is higher than 3. Both the individual's and his/her spouse's yearly income – CPI-deflated at the provincial level with the year of 2010 as base year – are considered while calculating the total income of the household (*Income_total*). Taking the individuals' and the total income as base, a dummy variable (*Above_half_wife*) is constructed with 1 referring to a household with the wife earning more money than the husband and 0 otherwise.

We use the interviewees' responses to a survey question to classify them into two groups, with the one group holding the traditional gender identity and the other not. The question asked the interviewees to indicate the extent to which he/she agrees with the following two statements: (1) A husband should be a breadwinner, while a wife should be a homemaker, and (2) For women, a good marriage is more important than a good career.[8] Here again a five-level Likert scale was used with 1 denoting "totally disagree" and 5 denoting "totally agree." Respondents who gave rather neutral answers equal to 3 are deleted from the analysis. From the remaining respondents, those agreeing on one of the two statements, i.e., with answers higher than 3, are grouped as those holding the traditional gender identity and the others not.

3. Estimation Model and Main Results

The Logit estimation model for the analysis is as follows:

Happiness$_{Di}$ = α + $X_i\beta$ + $Z_i\eta$ + ε_i (1)

where *X* is our focus explanatory variable of whether the wife's income is higher than her husband, and *Z* is a set of control variables derived from the related literature. They include the total income of the household in log (*Log_income_total*), the respondent's age (*Age*) and the square of age (*Age_square*), the respondent's health status (*Health*; 1 (very unhealthy) to 5 (very healthy)), social contact frequency in the previous year (*Social_contact*; 1 (never) to 5 (very frequent)), frequency of engaging in relaxing activities in the previous year (*Relax*; 1 (never) to 5 (very frequent)), and living area (*Rural*; 1 (rural) and 0 (urban)) as well as whether the respondent has children or not (Children, 1 (at least one child) and 0 (no child)). Table 1 presents some basic statistics.

Table 1 Basic statistics

Variable	No. of Obs.	Mean	Std. Dev	Min	Max
Happiness	4465 (5002)	3.858 (3.861)	0.795 (0.819)	1 (1)	5(5)
Happiness_D	4465 (5002)	0.783 (0.777)	0.412 (0.416)	0 (0)	1(1)
Income_total	4465 (5002)	39423 (38672)	35860 (36832)	2500 (2500)	281438 (281438)
Income_wife	4465 (5002)	13332 (13734)	16379 (17122)	0 (0)	201295 (200000)
Above_half_wife	4465 (5002)	0.091 (0.138)	0.287 (0.345)	0 (0)	1 (1)
Age	4465 (5002)	40.202 (37.769)	7.700 (7.319)	18 (18)	59 (49)
Health	4465 (5002)	3.983 (3.847)	0.962 (1.002)	1 (1)	5 (5)
Social_contact	4465 (5002)	2.887 (2.703)	0.993 (1.022)	1 (1)	5 (5)
Relax	4465 (5002)	3.254 (3.347)	0.896 (0.934)	1 (1)	5 (5)
Rural	4465 (5002)	0.402 (0.424)	0.490 (0.494)	0 (0)	1 (1)
Children	4465 (5002)	0.944 (0.960)	0.229 (0.196)	0 (0)	1 (1)
Trad_view	4465 (5002)	0.806 (0.798)	0.395 (0.401)	0 (0)	1 (1)

Source: CGSS. Notes: own calculation. Numbers without brackets are based on responses from men and others are from women.

Estimation exercises are carried out based on data for male and female respondents, respectively. We further differentiate the samples into two groups – one group holding the traditional gender identity (*Trad_view* = 1) and the other group not (*Trad_view* = 0). Results are presented in Table 2. It shows that for respondents holding the traditional gender identity (Column (1) and (3)) the probability of being happy decreases significantly if the wife earns more money than the husband.[9] This finding no longer holds, when focusing the analysis on the respondents not holding the traditional gender identity (Column (2) and (4)) where the corresponding coefficients are found to be insignificant and even positive. Such difference found is consistent with Akerlof and Kranton (2000) and our expectation that loss in gender identity may incur a reduction in utility of oneself but only if the respondents – male or female – hold the traditional gender identity.

Table 2 Logit regression results with robust estimator of variance

	(1)	(2)	(3)	(4)
	Male	Male	Female	Female
	Traditional	Nontraditional	Traditional	Nontraditional
Log_income_total	0.584 (0.065)***	0.487 (0.154)***	0.436 (0.063)***	0.460 (0.153)***
Above_half_wife	−0.261 (0.142)*	0.064 (0.301)	−0.279 (0.111)**	0.166 (0.253)
Age	−0.102 (0.051)**	−0.161 (0.116)	−0.053 (0.057)	0.081 (0.131)
Age_square	0.001 (0.001)**	0.002 (0.001)	0.001 (0.001)	−0.001 (0.002)
Health	0.406 (0.045)***	0.266 (0.108)**	0.419 (0.042)***	0.375 (0.100)***
Social_contact	0.209 (0.044)***	0.058 (0.111)	0.144 (0.042)***	0.244 (0.104)**
Relax	0.106 (0.047)**	−0.192 (0.114)*	0.186 (0.044)***	0.159 (0.102)
Rural	0.271 (0.104)***	0.446 (0.264)*	0.093 (0.096)	0.337 (0.240)
Children	−0.056 (0.216)	−0.163 (0.520)	−0.097 (0.255)	−0.065 (0.453)
Province Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
N	3598	852	3992	997
Pseudo R^2	0.097	0.078	0.099	0.120

Note: Robust standard errors are in parentheses; ***/**/* significant at 1%/5%/10% level.

4. Robustness Check

Further estimation exercises based on the same model construction but with different definitions of the key variables considered and based on differently defined (sub-)samples are carried out for robustness check. Firstly, we use 2% (RO(1) in Table 3) and 5% (RO(2)) as key values to delete the top-income outliers to ensure that the estimation results are not driven by our decision for the baseline key value used. Secondly, we use two alternative definitions to construct the happiness dummy variable. Here we either re-categorize the respondents with the happiness level of 3 to be happy (RO(3)) or we use a more strict definition by deleting respondents with the happiness level of 3 from the analysis (RO(4)). Thirdly, we turn to focus on the respondents' happiness intensity and run ordered logit regressions (RO(5)). Moreover, we extend the set of control variables to consider the wife's income (*Income_wife*) in log in addition in order to better understand the role of the wife's income on individual's happiness in general (RO(6)).[10] Our baseline results (Basic) are again shown in Table 3 and they are hardly changed by these alternative estimations.

Table 3 Results of robustness check

Regression	Male		Female	
	Traditional	Nontraditional	Traditional	Nontraditional
(Basic)	−0.261(0.142)*	0.064(0.301)	−0.279(0.111)**	0.166(0.253)
(RO1)	−0.245(0.143)*	0.085(0.304)	−0.284(0.111)**	0.162(0.254)
(RO2)	−0.254(0.144)*	−0.003(0.309)	−0.296(0.113)***	0.181(0.260)
(RO3)	−0.519(0.199)***	0.497(0.457)	−0.336(0.163)**	−0.257(0.393)
(RO4)	−0.555(0.209)***	0.489(0.463)	−0.424(0.166)**	−0.142(0.406)
(RO5)	−0.296(0.122)**	0.105(0.218)	−0.231(0.094)**	0.007(0.178)
(RO6)	−0.266(0.147)*	0.153(0.313)	−0.269(0.115)**	0.167(0.256)

Note: Only the coefficients of our key variable of interest "Above_half_wife" are shown here; Robust standard errors are in parentheses; ***/**/*significant at 1%/5%/10% level.

5. Conclusion

Different from the previous literature, the paper investigated the relative income-happiness nexus by explicitly considering the fact of whether the respondents hold the traditional gender identity or not. We divided the observations into two groups with the one group which holds the traditional gender identity and the other not. Comparable estimations were run for different groups separately. Results showed that the probability of being happy decreases significantly, if the wife earns a higher income than her husband for the group holding the traditional gender identity but not for the group without such a view. The finding stayed robust after considering alternative estimations. This finding was in line with the argument of Akerlof and Kranton (2000) that identity loss would reduce one's utility.

Our analysis helps not only fill the above mentioned literature gap to some extent. It is also highly socially relevant. It suggests that the challenge upon the traditional gender identity needs to be taken seriously in pursuit of gender equality. Policies may not only focus on providing support to women and households to help female workers be better integrated into the labor market and the society. Measures need to be implemented to help transform the traditional gender identity shared among many individuals and households. Only in this way, the pursuit of gender equality will not just lead to a higher material wealth of women but also help deal with the negative happiness impact of the wife's higher income in relation to her husband's. Which measures may come into consideration in this regard is worth being further investigated in the future.[10]

Two limitations of the paper, driven by data constraints, are worth mentioning. Firstly, our analysis cannot investigate how one's loss of gender identity may affect the utility of one's spouse. Secondly, we cannot investigate whether the validity of the relative income-happiness nexus may also depend on the related view of individuals' social networks. Both limitations can be perceived as opportunities for the related future research.

NOTES

1. Furdyna et al. (2008) consider work-family gender ideology for their analysis. They find some support for a negative association of wife-to-husband income ratio and the marital happiness particularly for women with more traditional gender ideology. Different from our analysis, they consider marital happiness instead of individual's happiness, they use an interaction term to integrate the aspect of gender ideology in their study and their study relies on responses from women only.

2. Zhang and Tsang (2012) find that marital perceived equity in areas such as finances, housekeeping, care and socialization of children etc. can help reduce the impact of wives' relative income on marital instability, while no such mediating effect can be found on marital happiness. It is worth being noted, however, that a couple may feel that they share the responsibilities equally (a higher perceived equity) but this can still be not in line with their internalized gender identity. Thus, perceived equity can still have different impacts on marital satisfaction and/or marital instability for interviewees with different views of gender identity. The difference between equity and identity is, however, not taken into account in Zhang and Tsang (2012).

3. Zhang et al. (2012) use a dummy variable with "1" referring to a household with the wife earning more money than the husband. This is similar to what we do for our analysis (s. Section 2). They do use the concept of the traditional gender identity to support the interpretation of their finding of a negative impact of the wife's relatively higher income on marital satisfaction. However, they do not consider the gender identity explicitly for their analysis as we do (s. Section 2 and 3). Moreover, their analysis is based on a survey of 612 samples only. The sample size is much smaller than that of our analysis.

4. Atkinson et al. (2015) consider men's gender ideology for the analysis. They find that wives' share of relative incomes is positively related to spousal violence only for the cases with husbands having traditional gender ideologies. Differently, our analysis considers individual's happiness instead of marital abuse and we take into account both men's and women's view of gender identity.

5. One exception here is Van der Meer (2014) who considers interviewee's income proportion for his/her subjective well-being in his analysis. He does consider some gender identity issues in the analysis and controls for "modern family values" and the "centrality of the family" in the regressions. In this way, he does not, however, investigate whether the impact of interviewee's income proportion on his/her subjective well-being might be different, if he/she may have different family values and different attitudes towards families.

6. The survey data for the year of 2011 cannot be used, since the key question which we use to construct the variable for the individual's view of gender identity was not included in the survey of that year.

7. The official retirement ages (60 for male workers and 50 for female workers, see SC (1978)) are used here.

8. In the survey there were more than these two statements for which interviewees' agreement was asked. But only these two statements considered here are clearly linked to some key aspects of the traditional gender identity.

9. Tests find no significant effect difference in scales between male and female respondents.

10. No statistically significant impact of the additionally considered variable – the wife's income – on individual's happiness can be found here.

11. The study of Inglehart et al. (2014) based on World Values Survey may be considered as a first key step in research in this direction where the authors find that a combination of cultural, economic and genetic factors would determine the levels of tolerance of societies and their openness to gender equality.

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