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The Male Marriage Wage Premium in Cross-National Perspective

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Abstract

Using data from 29 countries from the Luxemburg Income Study, we demonstrate that married men earn on average 7% more than unmarried men. Unmarried men would have to work 43 hours per week in order to earn the same as married men working 40 hours. We find substantial cross-national variation: in some countries married men make 25% more than unmarried men, while in others no difference in earnings exists. We extend existing research in several ways: (1) by distinguishing intra-household specialization and married men's sense of responsibility, (2) by including a wide range of countries, and (3) by employing accurate country-level indicators, enabling us to tap more closely into country-level conditions affecting the male marriage wage premium. Following the argument that country variations depend on the pressure for men to be the breadwinner, we identify four country conditions: gender differences in labor market circumstances, gendered cultural norms, marital stability, and social protection provisions. The premium is smaller in countries where both women and men actively participate in economic and political life and in decision making and in countries with a higher divorce rate. Our study reiterates the necessity to employ cross-national comparisons to reveal influential structuring conditions.

Introduction

The starting point of this paper is that country level conditions reproduce and reinforce inequalities linked with the distribution of paid and unpaid work. Prior research has shown, for example, that earnings inequalities between mothers and childless women can be buffered by social policies: mothers' income disadvantage is lower in countries with generous maternity leaves and publicly provided childcare than in countries with less generous public provisions for parents (Budig, Misra, and Boeckmann 2012). Institutions, policies and cultural norms mold the meaning and prominence of marriage, the dominance of the male breadwinner model and the position of women in the labor market (Alwin, Braun, and Scott 1992; Crompton 1999; Esping-Andersen 1999). In light of the importance of contextual conditions in shaping individual behavior, it is surprising that comparative work is almost entirely absent from the large research literature on the male marriage wage premium (*hereafter MMWP*)(for exceptions, see Datta Gupta, Smith, and Stratton 2007; Jakobsson and Kotsadam 2013; Schoeni 1995). The MMWP, the phenomenon that married men earn higher wages than unmarried men, has mostly been examined in a single-country framework, as if it were "occurring in a stateless social structure" (Mayer and Müller 1986: 218). In this paper we focus on countries' economic, cultural and institutional conditions and how they shape the MMWP.

The limited comparative work on the MMWP suggests substantial cross-national variation in its magnitude. Analysing data from the 1970s and 1980s, Schoeni (1995) found that in the United States married men earned 30% more than unmarried men, while in Sweden the premium was 6%. Schoeni attributed these differences to institutional and cultural factors, but did not elaborate on them. In more recent studies, women's labor market participation, divorce rates and public care provisions explained differences in the magnitude of the MMWP (Datta Gupta et al. 2007; Jakobsson and Kotsadam 2013). This paper builds upon earlier work in three important ways. First, we extend the theoretical framework to reach an understanding of why and how the MMWP varies across countries. While earlier work exclusively focused on intra-household specialization (Becker 1981), we also consider married men's

sense of responsibility (Bernard 1981; Killewald and Gough 2013; Townsend 2002). Moreover, we argue that both are dependent on country context and the extent to which there is pressure for men to take up the role of the breadwinner. Our second contribution is that we compare the MMWP across a larger number of countries, including European as well as several non-European and less developed countries, allowing a more extensive overview of the cross-national variation in the MMWP. We are also more likely to capture differences in the *strength of the mechanisms* underlying the MMWP, as the contextual conditions vary substantially. Third, we employ more and more accurate *country level indicators*, enabling us to tap more closely into different conditions affecting the MMWP. Specifically, following from our theoretical framework, we identify four country conditions that are likely to affect the male breadwinner role: (1) gender differences in labor market circumstances, (2) gendered cultural norms, (3) marital stability and (4) social protection provisions. These extensions of earlier work serve to better answer the two main research questions: To what extent does the MMWP vary across countries? And can variations be explained by differences in country conditions?

We use micro-level data from 29 countries gathered by the Luxembourg Income Study (LIS). These data are coupled with macro-level information from several sources, including the *Human Development Reports* from the United Nations Development Programme (UNDP) (UNDP, 1995-2008), the *United Nations Statistics Division Demographic Yearbooks* (UN 2010) and the World Values Surveys (WVS 2015). We estimate multilevel regression models to test our hypotheses.

Country context and the male marriage wage premium

Country level conditions shape the behavior of individuals in a number of ways. Institutions and policies serve as frameworks that impose structure in people's lives, and they have intended as well as unintended consequences (Leisering 2004). The structuring of lives is at times very direct and visible, as is the case with the introduction (or expansion) of compulsory education or the declaration of war (Mayer and Schoepflin 1989). Other policies

have a more indirect effect, such as when they strengthen autonomy versus interdependence in families (Hagestad and Dykstra forthcoming). Economic circumstances create or diminish opportunities for leaving home, entering the labor market, having children, and so forth. Their effects tend to cumulate over time (Dannefer 2003). The cultural context prescribes life paths and behaviors for both men and women. While adherence to cultural norms leads to societal acceptance, those who do not abide by them can face rejection or even hostility (Liefbroer and Billari 2010).

In the literature on the MMWP, contextual dependencies have largely remained unexamined. Explanations have revolved around micro-level determinants. In what follows, we argue that the importance of these determinants might vary, depending on country-specific conditions.

Broadly speaking, micro-level explanations for the MMWP fall into two categories. The first is the selection perspective, which posits that men with a higher earnings potential are more likely to marry (Becker 1981; Keeley 1977; Nakosteen and Zimmer 1987). According to this perspective, marriage does not actually influence men's wages. Empirical evidence suggests that selection only explains part of the MMWP (De Linde Leonard and Stanley 2015; Ribar 2004). In this paper, we use cross-sectional data, which makes it difficult to adequately examine selection processes. Therefore we will only account for them by including control variables at the individual and the country level, instead of also developing hypotheses on cross-national variation in selection. The second set of explanations assumes that men's wages are affected by marriage. Positive discrimination of married men by employers (Hill 1979) belongs in this category, but because discrimination is notoriously difficult to examine outside of an experimental setting, we refrain from pursuing this issue. Instead, we focus on two theories that link marriage to men's *productivity*.

The specialization hypothesis (Becker 1981) is employed most often to explain how men's wages are affected by marriage. According to this perspective, the MMWP is a result of intra-household specialization. Married men become more productive than unmarried men because they have a spouse who performs household activities, which enables them to more strongly focus on gainful employment. A second theory, which has recently grown in popularity, links the MMWP to married men's sense of responsibility. Supposedly, marriage instills men with a sense of responsibility to provide for their family, especially financially (Killewald and Gough 2013; Townsend 2002), making them more focused and more productive at work, compared to their unmarried counterparts. The two explanations are not incompatible. Intra-household specialization may strengthen men's sense of responsibility to provide for their family, while at the same time a sense of responsibility may lead men to specialize in gainful employment. Given our cross-national comparative focus, the question of which perspective better explains the MMWP is beyond the scope of the current article. Both revolve around the social pressure for married men to be the breadwinner. Country level conditions impose stronger or weaker *pressure to be the breadwinner*, and thus larger or smaller MMWPs.

Gender differences in labor market circumstances

In general, men are more often employed, work more hours and earn more than women, but there are considerable differences across countries in men's advantage on the labor market. In countries where men have a stronger labor market position, wives are more financially dependent on their husbands, and thus there exists a greater pressure for married men to be the breadwinner. We therefore hypothesize that the MMWP is greater in countries where men's labor market advantage is more pronounced (H1).

Jakobsson and Kotsadam (2013) tested a similar hypothesis by comparing countries with high to those with low female labor force participation. They found a greater premium in countries where women are less often employed. Yet, their approach is questionable. First, dividing countries into two groups leads to a loss of information and, as the authors themselves indicate, complicates the interpretation of the results. Dichotomization of countries may be linked with the omission of national characteristics, obscuring the true origin of differences in the MMWP (Jakobsson and Kotsadam 2013). Second, female labor force participation rates may not tell the whole story. Differences in labor market standing also extend, among others, to education and the number of management positions held by men and women.

Gendered cultural norms

Gendered cultural norms shape expectations about “appropriate” behavior for men and women (Connell 1987; Ridgeway and Correll 2004; Ridgeway 2008). According to Connell’s gender relations theory, an important gendered cultural norm ties masculinity to the responsibility for breadwinning. There are considerable differences in gender traditionality across countries, however. For example, whereas the male breadwinner ideology has remained relatively strong in the Netherlands and Germany, it has become weaker in Scandinavian countries (Lewis et al. 2008). In countries where cultural norms are more gender-traditional, married men will be subjected to greater pressure to be the male breadwinner, and marriage will likely increase men’s productivity more. Therefore the MMWP is expected to be greater in more gender-traditional countries (H2).

In line with this hypothesis, Datta Gupta and colleagues (2007) argue that differences in cultural norms may explain why the MMWP in Denmark is smaller than in the United States. In Denmark, norms are less traditional, as evinced by more female labor force

participation and a more equal division of household labor. Yet, due to the two-country comparison that the authors make, they are unable to pinpoint the mechanisms underlying the differences in the MMWP, and other explanations cannot be ruled out.

Marital stability

Another factor at the country level that may affect the MMWP is marital stability. Men's traditional role as the breadwinner is based on the notion that couples stay together. High levels of marital instability weaken the pressure to be the male breadwinner role for two reasons. First, specialization becomes a risky strategy, especially for women (Iversen and Rosenbluth 2010). Second, partners may feel less responsible for one another when there is a reasonable chance they divorce. In countries with higher marital instability, i.e. a higher divorce rate, we therefore expect that the MMWP will be smaller (H3).

To test this hypothesis, Jakobsson and Kotsadam (2013) distinguished countries with high and low divorce rates. They found a lower marriage premium in countries with high divorce rates, but the difference was not statistically significant. As noted earlier, the procedure of splitting countries into two groups is questionable. Other supporting evidence comes from Gray and Vanderhart (2000) who compared the MMWP across American states and found that the premium was smaller in states where divorce was easier (and more common) due to less strict legislation.

Social protection provisions

The pressure to be a breadwinner depends on the extent to which countries provide their citizens with a social safety net (Gornick and Meyers 2008). In countries with less social protection, families are more or less left to their own devices to care for children, the sick and frail older adults. As a result, specialization between spouses in unpaid caring tasks and

breadwinning will be greater. In countries with more generous social protection programs, families have the government to fall back on and pressure on wives to be carers and husbands to be breadwinners is weaker, leading to a smaller MMWP (H4).

The abovementioned finding by Datta Gupta and colleagues (2007) that the MMWP is smaller in Denmark than in the United States might be attributable to differences in public care provision between these two countries. In Denmark, the state provides extensive care for the young, the elderly and the sick, relieving families of some of the associated burden and lowering breadwinner pressure. Once again however, their two-country comparison makes it impossible to rule out other explanations.

Confounders

There are several country level conditions that may impact the MMWP, without impacting breadwinner pressure. First, the country's level of wealth may be important. Wealth is not only related to each of the contextual conditions described above, but also to people's income levels and the likelihood of marriage. Therefore, accounting for a country's wealth is crucial to obtain an unbiased estimate of the interaction between marriage and contextual conditions in relation to earnings. Income inequality is another possible confounder that needs to be accounted for. Several scholars have argued that the MMWP is likely to be larger in countries with more income inequality, simply because differences in earnings are greater in these countries (Cooke 2014; Petersen, Penner, and Hogsnes 2006). As mentioned, selection is one mechanism underlying the MMWP and there may be differences in selection into marriage across countries. These differences in selection can be accounted for by controlling for the percentage of people who are married, as selection is more stringent in countries where marriage is less common (Datta Gupta et al. 2007; Huijts and Kraaykamp 2011).

Method

The micro-level data come from the Luxembourg Income Study (LIS), the largest available cross-sectional income database of harmonized micro data collected from multiple countries over a period of decades (LIS 2015). The LIS data are commonly viewed as the best data source for comparative stratification research (Atkinson 2004). In the current paper we use data from Wave VII that were collected in or around 2007, which we supplement with data from Waves V (1990s and 2000), VI (2004) and VIII (2010) in order to be able to examine as many countries and contexts as possible. The 2007 wave was selected because it was the most recent wave with data from a large number of countries. The analyses are based on data from 29 countries: Austria, Belgium, Canada, Colombia, the Czech Republic, Estonia, Finland, France, Germany, Greece, Guatemala, Hungary, Iceland, India, Ireland, Israel, Italy, Japan, Luxembourg, Mexico, the Netherlands, Russia, Slovakia, South Africa, Spain, Sweden, the United Kingdom, the United States and Uruguay. These are the countries for which information on hourly wages was available directly or where it could be calculated based on income and the number of hours worked. The selected countries, most of which belong to the OECD, are quite diverse geographically, politically and historically. The diversity of these countries ensures that there is considerable variation at the country level with respect to the characteristics of interest.

We restrict the sample to employed men between the ages of 20 and 60. The selection of employed men may result in a slight underestimation of the MMWP, as married men may be more likely to be employed than unmarried men. The selected age range roughly represents the dominant period of working life for men.

Individual-level variables

Our dependent variable is the log of hourly wages. In all countries except Belgium, France, India, Italy, Mexico, Russia and Uruguay, these are gross rather than net levels, corrected for purchasing power parity in 2011 US dollars. Extensive checks were undertaken to ensure that the net-gross measurement difference does not affect our results (results available upon request). Analyses revealed no systematic relation between the way in which wages were measured and the MMWP, although obviously reported wages are lower in countries where net levels were reported. The wages were log transformed to account for the skewed distribution of the original values. Transforming the values has the added benefit that exponentiated coefficients can be interpreted as percentages. Across all countries, 28% of employed men did not report their income and these respondents are excluded from the analyses. Imputation of these values is unfeasible due to the fact that it is unlikely they are missing at random (Allison 1999).

The main independent variable in the analyses is marital status. Marital status is a dummy variable indicating whether the respondent is married or cohabiting without being married. The reference category pertains to those who are unpartnered and have never been married. We excluded divorced and widowed men (6.6% or 8,847 cases), because losing a partner, whether through separation or death, involves dynamics that are beyond the scope of this paper. For instance, divorce and widowhood are often accompanied by depressive symptoms, which can in turn affect work and income. We would have liked to distinguish marriage and cohabitation (cf. Mamun 2012). Unfortunately, in most countries the distinction was not included in the original questionnaire. Less than one percent (0.22%) of the employed men did not report their marital status.

We also included several individual-level control variables to account for selection of men with a higher earning potential into marriage: age, age squared and level of educational

attainment. Level of educational attainment is measured with three dummies indicating low, middle or high education, with is adapted from the ISCED 1997 classification. Across countries less than one percent (0.5%) of employed respondents did not report their educational attainment. Other authors have included additional controls. Jakobsson and Kotsadam (2013) for instance included measures of health and the presence of underage children, which we feel is problematic, given that a large body of research shows that health is positively affected by marriage (Waite and Gallagher 2000), as is the presence of children (Balbo, Billari, and Mills 2013). Furthermore, a harmonized measure of health was not available in the dataset. Alternative analyses in which we accounted for the presence of children under 18 produced the same substantive results.

Additional controls for occupational status and sector were included in separate analyses, based on the notion that the marriage premium is partly due to married and unmarried men choosing different occupations and industries (Petersen et al. 2006). Occupational status is based on the ISCO 1988 classification and consists of three dummies for (1) managers, (2) other skilled workers and (3) laborers. This measure is not available for Canada and Japan. In the other countries 3% of employed respondents did not report their occupational status. Occupational sector is based on the ISIC 3.1 classification and consists of three dummies for those employed in (1) agriculture, (2) industry or (3) services. The measure is not available for Sweden and in the other countries around 4% of employed respondents did not report the sector in which they worked.

The selection criteria yield a sample of 124,251 respondents across the 29 countries. Pooled weighted descriptive statistics for the individual level variables are reported in Table 1. Descriptive statistics for each of the countries separately are available upon request.

Table 1. Pooled descriptive statistics for individual-level variables across 29 countries ($N = 124,251$).

| Variable | Mean | SD | Min. | Max. |
|------------------------------------|-------|-------|-------|---------|
| Log of hourly wages | 2.10 | 1.05 | -5.55 | 9.05 |
| Hourly wages (ppp) | 12.49 | 29.96 | 0.00 | 8508.68 |
| Married | 0.76 | | 0.00 | 1.00 |
| Single (never married) | 0.24 | | 0.00 | 1.00 |
| Age | 40.86 | 10.12 | 20.00 | 60.00 |
| Low education | 0.26 | | 0.00 | 1.00 |
| Middle education | 0.45 | | 0.00 | 1.00 |
| High education | 0.29 | | 0.00 | 1.00 |
| Managers ^a | 0.23 | | 0.00 | 1.00 |
| Other skilled workers ^a | 0.67 | | 0.00 | 1.00 |
| Laborers ^a | 0.10 | | 0.00 | 1.00 |
| Agriculture ^b | 0.06 | | 0.00 | 1.00 |
| Industry ^b | 0.39 | | 0.00 | 1.00 |
| Services ^b | 0.56 | | 0.00 | 1.00 |

Note: Statistics are weighted with probability weights provided by the LIS. ^a Not measured in Canada and Japan: $N = 110,871$. ^b Not measured in Sweden: $N = 109,227$.

Country level variables

At the country level, we used five measures to test our hypotheses. To examine the effect of gender differences in labor market circumstance, we used two measures. First, in order to be able to compare our results with those of earlier comparative work (Jakobsson and Kotsadam 2013) we incorporated female labor force participation. The information for each of the countries is based on data from the World Bank (World Bank 2015a) and reflects the employment rate of females aged 15 and over for the year of survey. Second, we incorporated the multidimensional Gender Empowerment Measure (GEM) from the United Nations Development Programme's Human Development Reports (United Nations Development Programme (UNDP) 1995). The GEM is a composite index including, among others, the ratio of estimated female to male earned income, the percentage of seats in parliament held by women, and the percentage of female legislators, senior officials and managers. The original metric of the index is between 0 and 1, where 1 indicates that men and women are entirely

equal. The original metric was rescaled to range from 0 to 100. The GEM measure is matched to the year of survey. Data on the GEM was unavailable for Guatemala, India, Luxembourg and South Africa.

Our hypothesis concerning the influence of gendered cultural norms was tested using data from the World Values Surveys (WVS) (WVS 2015). The selection of countries restricts the possibilities with regard to the items that can be used to measure the normative climate. Only one relevant item was available for a substantial number of countries: “Husband and wife should both contribute to income”. Responses ranged from 1 = *strongly agree* to 4 = *strongly disagree*. Responses were recoded and rescaled so that the measure ranges from 0 to 100 and the aggregate mean served as the country indicator. A higher score on the resulting measure indicates a more gender-traditional normative climate. We used data from the WVS wave that most closely matched the year of survey for each of the countries. Data on the normative climate were not available for Guatemala and Israel.

Information on divorce rates comes from the *United Nations Demographic Yearbooks* (UN 2010). In case information was missing, other data sources were utilized (see online appendix). We employ the number of divorces per 100 marriages instead of the crude divorce rate. The crude divorce rate is lower in countries with higher rates of unmarried cohabitation and may therefore obscure actual underlying mechanisms. Divorce rates were unavailable for India and Uruguay.

Finally, we used public social protection expenditure, as a percentage of the GDP. The information comes from a variety of sources such as the International Monetary Fund and Eurostat and was gathered by the International Labour Organization (ILO) (ILO 2015). The measure encompasses social benefits and transfers in cash or in kind to households and individuals with the aim to relieve them of the burden of risks and needs related to healthcare,

disability, old age, parental responsibilities, loss of a spouse or parent, unemployment, housing and social exclusion (Eurostat 2015).

In addition, we included four country level control variables. The first is GDP per capita provided by the World Bank (World Bank 2015b). The second is a measure of income inequality, the GINI, also from the World Bank (World Bank 2015c). GINI scores range from 0 to 100, with a higher score indicating greater wage inequality. The GINI was not available for Luxembourg. The last country level control is the percentage of married people to account for the selectivity of marriage. This measure was aggregated directly from the LIS micro-level data, prior to our sample selection.

Table 2 shows descriptive statistics for the country level variables across the 29 countries, as well as selected country averages of individual-level variables.

Table 2. Descriptive statistics of country-level variables across 29 countries.

| Country | % Women working | GEM | Gender- traditional norms | Divorce rate | Social Protection Expenditure | GDP per capita | GINI | % Married |
|---------------|-----------------------|-------|---------------------------------|-----------------|-------------------------------------|----------------------|-------|--------------|
| Austria | 50.40 | 77.00 | 33.20 | 50.80 | 20.33 | 37695 | 30.04 | 75.12 |
| Belgium | 43.60 | 72.50 | 30.50 | 59.80 | 18.75 | 34633 | 33.14 | 73.95 |
| Canada | 61.90 | 82.00 | 32.20 | 46.80 | 10.30 | 37056 | 33.90 | 58.96 |
| Colombia | 50.70 | 49.60 | 20.90 | 8.70 | 12.65 | 3755 | 58.88 | 43.02 |
| Czech Rep. | 50.60 | 58.60 | 20.70 | 64.30 | 9.31 | 12529 | 26.95 | 73.96 |
| Estonia | 54.40 | 63.70 | 29.80 | 54.20 | 19.90 | 12443 | 31.25 | 58.07 |
| Finland | 57.60 | 88.70 | 36.30 | 44.80 | 21.33 | 42307 | 38.20 | 62.54 |
| France | 49.90 | 71.80 | 26.90 | 55.60 | 21.33 | 34880 | 31.69 | 62.98 |
| Germany | 52.00 | 83.10 | 31.90 | 50.70 | 19.34 | 37202 | 31.83 | 68.86 |
| Greece | 42.40 | 62.20 | 23.30 | 21.20 | 15.34 | 24306 | 33.96 | 83.75 |
| Guatemala | 47.30 | - | - | 2.60 | 2.93 | 2288 | 54.89 | 64.18 |
| Hungary | 42.80 | 56.90 | 21.10 | 61.60 | 18.10 | 11627 | 28.30 | 70.27 |
| Iceland | 71.40 | 86.20 | 43.90 | 30.00 | 10.00 | 61662 | 29.32 | 62.59 |
| India | 36.30 | - | 26.60 | - | 10.00 | 6873 | 33.38 | 96.45 |
| Ireland | 54.10 | 69.90 | 32.70 | 16.20 | 13.00 | 52923 | 31.73 | 50.08 |
| Israel | 51.10 | 62.20 | - | 27.70 | 11.40 | 22107 | 41.18 | 86.13 |
| Italy | 38.50 | 69.30 | 32.20 | 22.00 | 18.78 | 32270 | 35.43 | 84.96 |
| Japan | 48.50 | 55.70 | 46.80 | 34.40 | 15.25 | 36817 | 32.11 | 66.07 |
| Luxembourg | 47.00 | - | 42.10 | 56.20 | 14.29 | 86127 | - | 62.51 |
| Mexico | 40.80 | 56.30 | 20.10 | 12.30 | 4.28 | 7687 | 46.05 | 76.12 |
| Netherlands | 58.50 | 85.90 | 54.40 | 45.00 | 14.17 | 44401 | 30.31 | 69.43 |
| Russia | 57.10 | 48.90 | 30.80 | 53.90 | 8.66 | 6310 | 39.27 | 77.65 |
| Slovakia | 50.40 | 63.00 | 21.60 | 44.40 | 11.06 | 13973 | 27.71 | 91.45 |
| South Africa | 46.70 | - | 24.30 | 15.50 | 4.81 | 5757 | 67.40 | 50.91 |
| Spain | 48.20 | 79.40 | 28.30 | 63.00 | 16.40 | 27660 | 62.65 | 78.66 |
| Sweden | 58.60 | 75.70 | 18.70 | 67.00 | 25.79 | 32477 | 25.54 | 75.77 |
| UK | 55.10 | 78.30 | 40.30 | 52.50 | 14.50 | 41567 | 38.07 | 58.70 |
| United States | 58.30 | 76.20 | 36.70 | 49.30 | 9.30 | 45417 | 41.64 | 60.80 |
| Uruguay | 52.50 | 51.10 | 23.90 | - | 12.85 | 4861 | 47.13 | 66.50 |

Analytic strategy

The analyses proceeded in two steps. First, regression models were estimated for each of the countries separately to provide an overview of MMWPs. The results are depicted in Figures 1a and 1b. Full regression results are not presented here, but they are available upon request. Second, a set of multilevel regression models was estimated. The first model, examining the

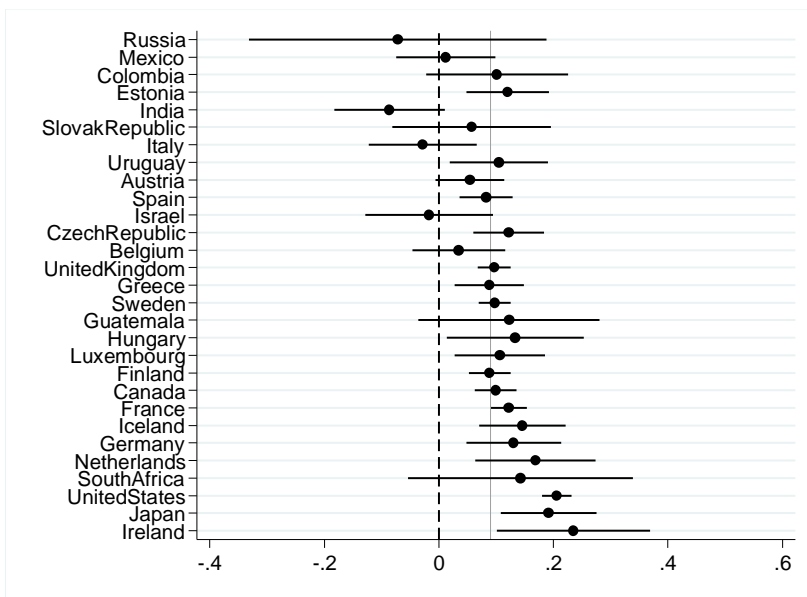
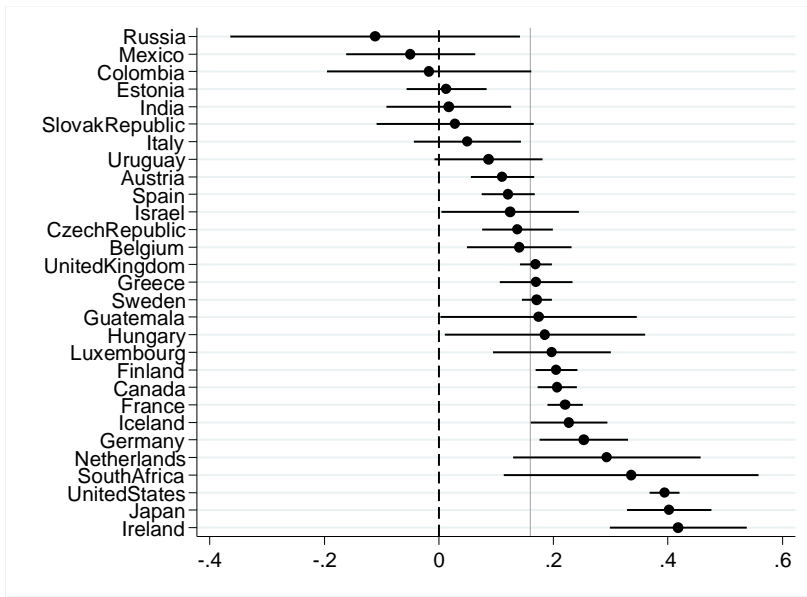
crude marriage premium across countries, incorporated only marital status as a predictor and did not account for human capital differences, i.e. selection into marriage. The second model included the human capital variables, educational attainment and age in order to control for selection. A random slope for marital status was added in the third model to assess the degree of country variation in the effect of marriage on hourly wages. The fourth model introduced cross-level interactions between marital status and the country level variables to test the hypotheses about the influence of contextual conditions on the MMWP. Finally, several additional analyses were performed to assess the robustness of the results. Each regression model included the individual-level sampling weights provided by the LIS.

Results

Results from single country analyses

Figure 1a plots the crude effect of marriage on hourly wages across the 29 countries. The estimates of the marriage premium range from a low of -0.11 (or -10.5%) in Russia, indicating a penalty although it does not seem to be significant, to a high of around 0.40 (or 52%) in Ireland. On average there is a crude premium of around 0.16 (or 17%) across the countries. This implies that married men across the countries earn on average 17% higher wages than unmarried men, not accounting for confounders. The 95% confidence intervals overlap with zero in 8 out of the 29 countries, indicating there is no clear evidence of a MMWP in these countries. Figure 1b plots the effect of marriage after controlling for age and educational attainment. The figure clearly shows that human capital differences between married and unmarried individuals account for a considerable part of the difference in hourly wages between married and unmarried men. The average MMWP across countries now drops to 0.09 (or 9%). In 11 of the countries, the 95% confidence intervals now overlap with zero, indicating that clear evidence is lacking for a MMWP once human capital variables have

been controlled for. Ireland continues to be the country with the highest MMWP, although it drops to 0.23 (or 26%). In a third set of analyses we controlled for occupational status and sector, resulting in a rise in the number of countries without clear evidence of a remaining MMWP from 12 to 26 (as mentioned above, three countries had no information on occupational status and sector). The average MMWP was 0.07 (or 7%) and the Netherlands had the highest premium: 0.20 (or 22%). Apparently, controlling for occupational status and industry further diminishes the average MMWP, but not to the point that a premium no longer exists in any country. Thus, this study provides additional evidence that the selection hypothesis alone does not fully explain the MMWP in all countries.



Figures 1a and 1b. 1a (top): Crude marriage premium across countries and 1b (bottom): Marriage premium controlled for human capital variables. Gray vertical lines represent the average premium across countries.

Multilevel results

As Model 1 of Table 3 shows, the average crude premium is estimated at 0.19 (or 20%) across the 29 countries. This is somewhat higher than the average of 0.16 (or 17%) that the single country analyses produced. The difference is attributable to the influence of several countries with large sample sizes and a relatively high MMWP.

The controls for educational attainment and age introduced in Model 2 partly explain, as we saw earlier, the difference in wages between married and single men. Specifically, the estimate of the marriage premium drops by more than a third, from 0.19 to 0.11 (or 12%)¹. Educational attainment, not surprisingly has a positive effect on men's wages and so does age. Age squared has a negative relation to wages, indicating that the positive effect of age diminishes as men become older.

Model 3 assesses country variation in the magnitude of the effect sizes by introducing a random slope for the effect of marriage on men's wages. It also controls for the undue influence of larger sample. A likelihood ratio test reveals that including the random slope significantly improves the model fit, compared to the model where it is not included.

Table 3. Multilevel regression results analyzing men's hourly wages across 29 countries.

| | Model 1 | Model 2 | Model 3 |
|----------------------------|---------------------|----------------------|----------------------|
| Married | 0.189*** (0.021) | 0.108*** (0.014) | 0.095*** (0.015) |
| Middle education | | 0.280*** (0.045) | 0.283*** (0.045) |
| Highly education | | 0.609*** (0.059) | 0.613*** (0.059) |
| Age | | 0.006*** (0.002) | 0.006*** (0.002) |
| Age squared | | -0.000*** (0.000) | -0.000*** (0.000) |
| Constant | 1.799*** (0.188) | 1.619*** (0.195) | 1.623*** (0.191) |
| <i>Variance components</i> | | | |
| Constant | 1.039 (0.299) | 0.866 (0.249) | 0.784 (0.237) |
| Married | | | 0.012 (0.004) |
| Residual | 0.311 (0.030) | 0.262 (0.026) | 0.261 (0.025) |
| (pseudo) loglikelihood | -27951.9 | -25104.1 | -25022.3 |
| N(countries) | 29 | 29 | 29 |
| N | 124251 | 124251 | 124251 |

Note: Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

In the next set of models, we include cross-level interactions between the country level variables and the marital status dummy variable. We tested the cross-level interactions in separate analyses, as including them all at once is likely to lead to severely biased results (Stegmueller 2013). Each of these models was also re-estimated using the different country level control variables. Only GDP per capita significantly affected the estimates of the MMWP, which is why we only report the results of the models including this control variable. For the sake of brevity, we only report the main effects of interests and the cross-level interactions in Table 4; the estimated effects of the individual level control variables are available upon request.

Two of the five cross-level interactions between the marital status dummy and the country-level variables are significant². There is no clear evidence that female labor force participation, the normative climate and the social protection expenditures are related to the magnitude of the MMWP, although all effects are in the expected direction. The results suggest that GEM has the expected negative effect on the MMWP: the wage advantage of married men is smaller in countries where men and women have more equal rights, responsibilities and opportunities. The interaction effect size is estimated at -0.004 (or -0.4%), meaning that in countries with a 10-point higher gender empowerment score than average, the effect of marriage on men's wages is around 4% less. A decrease to almost half of the average estimated premium of 0.08 (or 9%) is quite substantial. The divorce rate also has a negative effect on the MMWP. In line with our hypothesis, the wage advantage is smaller in countries where marriages are less stable. The interaction effect size is -0.002 (or -0.2%), meaning that in countries with a 10 percent higher divorce rate than average, the MMWP is about 2% lower. This figures entails a decrease of almost 25% of the average estimate of 0.09 (or 9%).

In four out of five models, the interaction between GDP and the marital status dummy is significant and positive. In countries with a higher GDP per capita, the MMWP is greater.

Table 4. Multilevel regression models including cross-level interactions with country conditions.

| Model 4a | | Model 4b | | Model 4c | |
|--|---------------------------------|----------------------------|---------------------------------|-----------------------------|---------------------------------|
| Married | 0.062 ⁺ (0.036) | Married | 0.083 ^{***} (0.012) | Married | 0.087 ^{***} (0.016) |
| Female labor force participation | 0.012 (0.019) | GEM | 0.023 ^{**} (0.009) | Traditional norms | -0.001 (0.013) |
| Married x Female labor force participation | -0.002 (0.003) | Married x GEM | -0.004 ⁺ (0.002) | Married x Traditional norms | 0.002 (0.003) |
| GDP (per capita) | 0.000 ^{***} (0.000) | GDP (per capita) | 0.000 ^{**} (0.000) | GDP (per capita) | 0.000 ^{**} (0.000) |
| Married x GDP (per capita) | 0.000 ^{**} (0.000) | Married x GDP (per capita) | 0.000 ^{***} (0.000) | Married x GDP (per capita) | 0.000 (0.000) |
| (pseudo) loglikelihood | -25000 | (pseudo) loglikelihood | -21229 | (pseudo) loglikelihood | -23242 |
| N(countries) | 29 | N(countries) | 25 | N(countries) | 27 |
| <i>N</i> | 124251 | <i>N</i> | 99540 | <i>N</i> | 118643 |
| Model 4d | | Model 4e | | | |
| Married | 0.153 [*] (0.067) | Married | 0.091 ^{***} (0.017) | | |
| Social protection | 0.037 ^{**} (0.012) | Divorce rate | 0.008 [*] (0.003) | | |
| Married x Social protection | -0.004 (0.004) | Married x Divorce rate | -0.002 ⁺ (0.001) | | |
| GDP (per capita) | 0.000 ^{***} (0.000) | GDP (per capita) | 0.000 ^{***} (0.000) | | |
| Married x GDP (per capita) | 0.000 ^{**} (0.000) | Married x GDP (per capita) | 0.000 ^{**} (0.000) | | |
| (pseudo) loglikelihood | -23967 | (pseudo) loglikelihood | -23086 | | |
| N(countries) | 28 | N(countries) | 27 | | |
| <i>N</i> | 115715 | <i>N</i> | 101214 | | |

Note: Standard errors in parentheses. Models also include controls for educational attainment and age. ⁺ $p < 0.10$, ^{*} $p < 0.05$, ^{**} $p < 0.01$, ^{***} $p < 0.001$.

Sensitivity analyses

To ascertain the robustness of the findings, we performed several sensitivity checks. The results of the multilevel regression models remained substantively the same when the additional individual level controls for occupation and industry were included, although both

the main effects and the interaction effects were somewhat smaller. The results of these models are available upon request. As we noted earlier, the results were not affected by including an additional control for the presence of underage children in the household. Neither did the results change substantively when we accounted for the fact that wages were measured as net levels in some of the countries rather than as gross levels.

Discussion and Conclusion

Scholarly work on the male marriage wage premium has neglected influences of the country context. In this paper we built upon earlier studies in several ways. First, we better explicated the theoretical framework on the role of macro-level conditions. Second, we examined the MMWP in a larger and more diverse group of countries. Third, we focused on a larger number of country characteristics and used more accurate macro-level indicators.

In the majority of countries under consideration, married men have an earnings advantage, which is only partially attributable to background characteristics accounting for selection into marriage. Our findings are in line with a comprehensive literature review (Ribar 2004) and a recent meta-regression analysis (De Linde Leonard and Stanley 2015) which show that selection generally only explains part of the MMWP. Marriage actually seems to affect men's productivity, and their earnings advantage is quite substantial. One way to quantify the premium of 7% (our lowest average estimate) is by the number of hours that unmarried men would have to work more to earn the same sum of money. The premium of 7% amounts to an unmarried man working 43 hours per week compared to a married man working 40. There are substantial variations across countries, however, and the premium is far from universal, at least less so than in the 70s and 80s (Schoeni 1995). There are countries where married men make as much as 25% more than unmarried men, while in other countries there is no evidence of a marital status difference in men's earnings.

We sought the explanation of country differences in the MMWP in terms of the pressure for men to be breadwinners. The pressure exhibits itself in different ways: as the husband's perceived sense of responsibility (the desire to be a "good provider") or as the economic necessity to provide for dependents in the absence of public safety nets.

The Gender Empowerment Measure (GEM) was one of the two country level indicators that accounted for cross-national differences in the MMWP: in countries where both women and men actively participate in economic and political life and in decision-making, married men are less likely to have an earnings advantage. Breadwinner pressure is likely reduced when women and men perform on a more equal footing, but we cannot rule out that other mechanisms are at work. For example, married men might also enjoy less favoritism on the part of employers in gender egalitarian societies. Unraveling whether married men behave differently at work in high GEM societies or are treated differently by employers, is an issue for future research. Nevertheless, our findings have important policy implications, as they show that gender equality, and measures enhancing it, also promotes equality among marital status groups, for men at least.

Results also showed that the MMWP was negatively related to the country's divorce rate. Following Datta Gupta and colleagues (2007) we argued that marital instability reduces intra-household specialization, as it becomes a more precarious strategy. A related reason why marital instability may shape the MMWP is that, with divorce looming, married men feel less responsible to provide for their families. Marriage entails a long-term commitment, and more strongly so if there are children. In high-divorce societies, husbands and fathers might be more risk averse.

A number of country conditions which we assumed were linked to breadwinner pressure did not, however, account for variation in the MMWP. Contrary to the study carried out by Jakobsson and Kotsadam (2013), we did not find an association between the MMWP

and the female labor force participation rate. As the authors suggested, their findings might be driven by omitted national characteristics. To avoid this problem, we controlled for GDP. Of course, the inconsistency in results might also be attributable to differences in the samples of countries. Their study was based on 12 Western and Southern European countries. Ours covered a wider range of countries, representing a more stringent test of the hypothesis.

The generosity of social protection provisions was not related to the MMWP either. Drawing on the work of Datta Gupta and colleagues (2007), we expected that public provisions would shape breadwinner pressure by decreasing intra-household specialization and the sense of responsibility that married men have. A focus on only public provisions might not be sufficient. We suggest that future research should also consider market-provided services and income replacements. The mix of public and market arrangements for social risks is likely to provide better insight into conditions shaping breadwinner pressure. More particularly, insight will be gained into the necessity of having two household incomes.

Finally, our indicator of gendered cultural norms did not account for cross-national variation in the MMWP. Although there is evidence that cultural norms shape intra-household specialization (Fuwa 2004), we do not find any implications for the MMWP. Note, however, that our chosen indicator, which enquired into whether “husband and wife should both contribute to income”, has its limitations. Agreement need not necessarily imply that the respondent feels that spouses should be equally responsible for income generation. Given that we find a negative association between the Gender Empowerment Measure and the MMWP, we cannot disregard the importance of gender differences at the societal level.

Apart from the possible shortcomings in our measurements, the current paper has other limitations that warrant mentioning. Although we included several individual and country level control variables in our analyses, selection into marriage may still play a role in our results. Also, we cannot entirely account for reverse causality between marriage and

earnings. Longitudinal data would better account for these issues. Unfortunately, longitudinal data on a large number of countries are not available as yet. Alternatively, instrumental variables are generally considered a good procedure to account for endogeneity in cross-sectional studies. Recent research on the MMWP suggests, however, that models including instrumental variables do not lead to substantively different results (Maasoumi, Millimet, and Sarkar 2009). Nevertheless, our results should be interpreted with some caution. Another issue concerns our inability to disentangle marriage from cohabitation. As the literature suggests that cohabiting men earn a lower earnings premium (Mamun 2012), we may be underestimating the MMWP by combining cohabiting and married men in the same group.

In spite of these limitations, the current paper advances the state of knowledge on the MMWP. Most importantly, we show that studying the MMWP from a single-country perspective obscures influential structuring conditions. The country context shapes the pressure for men to be breadwinners, which we argue is the key mechanism underlying the MMWP. We provide evidence for at least two influential factors (gender empowerment and the divorce rate) that contour the inequality in earnings between married and unmarried men.

Endnotes

1 The reason why this estimate is still higher than the average calculated across the single country regression models, is that the effects of educational attainment and age are fixed across countries and they slightly change the estimates of the MMWP. A T-test shows that the average MMWP does not differ between the multilevel model with random slope and the single country analyses.

2 Although a p-value below .10 is sometimes considered marginally significant, the effect sizes in our study and the relatively small N at the country level justify an interpretation of these effects.

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