The Love Revolution: Decline in Arranged Marriages in Asia, the Middle East and Sub-Saharan Africa

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Abstract

Arranged marriages have existed in many societies throughout time, they have acted as a mechanism that allows two families to enter into an informal contract (for example, informal insurance arrangements) that will provide benefits to their members: create political alliances, ensure consumption smoothing, facilitate economic transactions, consolidate power, increase wealth, among others. In Europe, they disappeared towards the 12th century, remaining popular only among the wealthy class finally disappearing after the Industrial Revolution. In the East (Asia and Africa), they remained to be the most popular marriage institution until the middle of the 20th century. This paper documents a striking decline in arranged marriages in Asia, the Middle East and Sub-Saharan Africa. It also documents the patterns of the transition, finding that women in arranged marriages tend to live in rural areas, have lower education, belong to agricultural households, and being engaged in non-paid activities. These findings allow me to suggest one main hypothesis regarding the causes behind their disappearance: the decline in the net benefits of arranged marriages relative to an (increasing) outside option. I propose and discuss several of economic changes that could lead to shift in this margin: increase in income covariance, change in type of risk (mean and variance of income), availability of substitutes, increase in asymmetric information and limited commitment, change in bargaining power of children, and alternative explanations related to changes in marriage markets. Finally, I briefly analyze some potential welfare consequences of the transition by focusing on measures of domestic violence. I find that women having an arranged marriages are more prone to support domestic abuse.

JEL: J12, N35

1 Introduction

Until recent decades, arranged marriages had been the dominant marriage institution in most countries of Asia, Africa and the Middle East; however, arranged marriages have existed in most societies at some point in time. In Europe and America - or the West -, they disappeared relatively early in time becoming prevalent only among the wealthy class, finally disappearing towards the beginning of the twentieth century. In the East - Asia and Africa -, they remained deeply rooted until recent decades.

Anthropologists, sociologists, ethnologist, evolutionary psychologists and, more recently, economists have been interested on understanding the role of arranged marriages in these societies. According to these scholars, arranged marriages have served as a way of creating alliances among two families. They are used by two groups - clans, tribes, or families - as a mechanism to enter into an informal contract that allows their members to attain political objectives, ensure and smooth economic transactions, consolidate power, preserve social status, keep property within the group, among others.

This paper has five main objectives. First, I discuss the anthropological and ethnographic evidence on arranged marriages, summarizing the main hypotheses for their existence. I also briefly examine the research in economics related the marital institutions identified by anthropologists. Second, I discuss the patterns of arranged marriages across different areas. For the case of Europe and America, I rely once more on anthropological and historical evidence, which suggests that arranged marriages were common in the Ancient Civilizations but disappear after the Catholic Church gained power. For Asia and Africa (Turkey, Saudi Arabia, Israel, Japan, Korea, China, Taiwan, Indonesia, Malaysia, Cambodia, Vietnam, Sri Lanka, Nepal, Togo, and Ghana), I collect information from several studies and I use micro-data for 10 countries to show that there is an ongoing transition towards the disappearance of arranged marriages. The third goal is to establish the patterns correlated with the movement away from arranged marriages. I show that arranged marriages have decreased slightly faster in urban areas and that the transition is highly correlated with increasing schooling; and, finally, I also show that arranged marriages are more prevalent among agricultural households and inversely related to employment outside the household or wage jobs. Fourth, I use the evidence presented to propose and discuss several potential explanations for their disappearance: (i) change in the type and exposure to risk; (ii) availability of substitutes; (iii) increase in asymmetric information across households; (iv) increase in migration which worsens limited commitment problems;

(v) changes in relative bargaining power of children; and (iv) alternative explanations.

And finally, I briefly explore some of the welfare consequences of this transition. I focus on measures mainly related to domestic violence and household decisions. First, I find that women in arranged marriages are more likely to accept domestic abuse and exhibit a stronger preference for sons.[1] Second, I discuss the literature in psychology (and several recent media reports) which has recently documented a high rate of suicide among females in Asia. Most of the case studies analyzed by mental health literature suggest that domestic violence plays an important role in the decision to commit suicide. Some of these researchers have further concluded that arranged marriages worsen mental distress since they prevent women from leaving abusive relationships.

2   Evidence from Anthropology and the Economics of Arranged Marriages

2.1   Anthropological and Ethnographic Evidence on Arranged Marriages

The study of marriage institutions has been closely related to the study of kinship, succession and inheritance. Anthropologists, ethnographers and sociologists have traditionally leaded the study of marriage from descriptive and theoretical perspectives trying to understand differences and common features across societies. Within anthropology there has been an ongoing debate regarding the main function of marital institutions throughout history. On one hand, the British anthropologists, followers of the structural functionalism, with Radcliffle-Brown as their main proponent, study the kinship system as a field of rights and obligations. In summary, kinship and marriage functioned to produce descent which is closely related to inheritance and succession, and to the supply of non-market goods, for instance, old-age care of parents. This view was challenged by the French anthropologist Lévi-Strauss who defined kinship systems as methods of organizing marriage relations between groups. From this perspective, marriages are considered as a mechanism to create alliances between groups and the difference between kinship systems lays in the different ways of "moving" women around in the system. A more comprehensive view of kinship and marriage has arisen from both schools of thoughts.

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[1]Chung and Das Gupta (2007) find a similar pattern for Korea.

Anthropologists, however, acknowledge that kinship and marriage are fluid institutions that evolve due to biological, psychological, ecological and social factors.[2] On one hand, "the incest taboo" or the prohibition of mating with nuclear or close family imposed rules of exogamy for finding mates. On the other hand, the need of finding mates outside the local groups gave rise to different systems of descent and post-marital living arrangements.[34] The exogamy and descent rules combined with geographic restrictions and gender division of labor gave rise to a continuum of kinship and marital organizations, where parents or the kinship group have traditionally had a larger weight on choosing the partner of their children. These common characteristics across several groups gave rise to the "alliance theory" of marriage, which has ranged from a hostage theory of exogamy (marry the daughters of our enemies to secure survival) to a theory of dynastic marriages (to settle a treaty or an international alliance).

The theory of alliance asserts that marriages arranged by parents or kinship have evolved to serve several purposes. They create linkages across clans to avoid wars, allow them to enter into political and productive alliances, reinforce commitment between groups which facilitate transactions and strengthen social ties, set clear rules on inheritance, succession and post-marital residence, and weaken the marital bond between spouses securing old-age care for parents. Anthropologists further distinguish between two main systems of marriage: elementary systems of exchange and complex systems. The former is characterized by positive marriage rules, whom you should marry, and it is prevalent in Southeast Asia, South and North America. The latter appears mostly as societies grow and become stratified, it primarily imposes negative rules of marriage, whom you should not marry, and it is common in Africa and Indo-European countries. In complex societies, these scholars have tried to uncover systematic patterns, trying to isolate territorial and class mobility that allows them to establish the direction and nature of alliances, for instance, royal marriages in Europe established a negative rule of marriage: "marry outside your own clan and set perpetual relationships."

In this context, this strand of anthropology also explains the appearance of bride-price as an institution that allowed clans to cancel out debts. In principle, a direct exchange of women would allow groups to

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[2]For instance, Goody (1983) states that in Europe and the Middle East, rich and powerful landowners were instrumental, and the settled agriculturalists tended to be more bilateral in inheritance and succession. While clan organizations, giving a greater emphasis to branching agnatic kinship, were found in the less accessible regions.

[3]Matrilineal, patrilineal, ambilineal or cognatic, bilateral, or double descent.

[4]The most common post-marital living arrangements are matrilocal (near the parents of the wife), patrilocal (near the parents of the husband), ambilocal (near either set of parents) and neolocal (establishment of a new, independent household).

obtain wives to create alliances and prolonged descent. However, as sex-ratio imbalances might have limited the direct exchange, clans provided goods that allowed the members of other clans to obtain wives in a different group. Table 1 uses data from Murdock's Ethnographic Atlas to construct some summary statistics for around 860 societies showing the prevalence of some of the marital institutions discussed above.

2.2 Economics of Marriage and Kinship in Developing Countries

Economists have joined the effort to study household formation, recognizing that marriage has benefits and costs and that living arrangements are economic decisions. Gary Becker's Treatise on the Family is the first comprehensive study of several marital institutions. His analysis mainly focuses on Western institutions; however, he extended the analysis to study payments at the time of marriage (dowry and bride-price) and polygamous marriages. His research also acknowledges the marriage and kinship arrangements have evolved through time as markets appear and families no longer supply goods and services previously unavailable. Despite this brief analysis on kinship, Becker focuses on the Western experience where the transition away from arranged marriages and towards the self-choice nuclear family happened a long time ago.

More recently the literature in development economics has recognized and studied the economic benefits of kinship and extended family. Postner (1980), Bates (1990), and Fafchamps (1992), among others, discuss the institutional features that allow kinship systems to supply goods and services for which markets are not existent. Repeated interactions minimize coordination problems and groups have found ways to minimize moral hazard (ex-ante and ex-post) through the use of signals and monitoring; the creation and maintenance of social networks also allows to reduce transaction costs and achieve efficient outcomes by setting a system of punishments and rewards and taking advantage of altruism across family members; even in societies where wealth asymmetries arise, groups might develop institutions that provide benefits to its members, for instance, share-cropping or clientelism. A large literature has emerged investigating the theoretical and empirical benefits of these institutions, relying heavily on the anthropological evidence.[5] Therefore, development economists have recognized the importance of these institutions which

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[5]Cox and Fafchamps (2008) summarize and discuss the current literature on extended family and kinship networks and

influence the growth of developing countries, but also acknowledging that they evolve in rapidly changing societies. One of the main challenges has been to collect data and design of empirical strategies that allows distinguishing causality. Identification issues are a key in the design and implementation of policies in these countries; it will inform organizations and governments about the best design and the potential consequences of welfare programs, industrialization policies, among many other issues.

Despite this large literature within economics, and perhaps surprisingly given the large evidence from anthropology and sociology, there are only a few papers studying arranged marriages, an institution still prevalent in several regions of the world. The economics literature has focused mostly on studying the role and evolution of payments across families: dowry and bride-price. Anderson (2007) discusses and summarizes the prevalence of marriage payments and the main economic explanations in the literature. Although, she acknowledges that these payments are closely related to arranged marriages since it involves a negotiation between groups, there is no further exploration of the role and evolution of arranged marriages. Fafchamps and Quisumbing (2008) review the economic literature on household formation focusing on rural areas of developing countries. They emphasize the role of insurance, savings, investment and capital accumulation as having a bigger role determining the formation of households, and they briefly discuss the that parental involvement has a larger weight in marriage decisions.

In the development economics literature, there are a few papers that have studied some of the specific marital institutions described by the anthropological work summarized in this paper. Rosenzweig and Stark (1989) show that arranged marriages are used as a consumption smoothing mechanism in an agrarian society in India. Their analysis shows that families engage in a sophisticated exchange of offspring through marriages in order to mitigate negative economic shocks generated by weather fluctuations. Jacoby and Mansuri (2010) study "exchange marriage" in Pakistan, a marriage practice considered as an "elementary system of exchange" by anthropologists, which usually involves the simultaneous marriage of brother-sister pair from two households. They propose and empirically test a model where parents are altruistic towards children, the emergence of exchange marriage helps to solve commitment problems in a society where husbands usually have coercive power over their wives, through physical and emotional abuse. In this context, the threat of retaliation should deter marital discord. They find support in favor of this model, finding that the likelihood of discord is substantially lower in "exchange marriages" as compared to

discuss several open lines of research.

"conventional" marriages. Do, Iyer and Joshi (2013) study the economics of consanguineous marriages in Bangladesh, another country where arranged marriages still represent more than 95% of total marriages. Their paper proposes a rationale for consanguineous marriages through an agency model where marriage is a joint project where families invest on the marriage of their children through dowries. However, since there is a possibility of dissolution and contracts are incomplete, consanguineous marriages minimize problems of time-inconsistency. They test their model using the 1996 Matlab Health and Socioeconomic Survey, finding that women in consanguineous marriages are between 6% and 7% less likely to bring dowry at marriage, and 4% more likely to receive any form of inheritance.[6] Jacoby (1995) tests the hypothesis that polygamy is related to female productivity using data from Cote d'Ivore, finding that marked geographic diversity in cropping patterns leads to regional variation in female labor productivity. He also finds that, conditional on wealth, men do have more wives when women are more productive, that is, cheaper. Finally Luke and Munshi (2006) analyze the evolution of marriage institutions in urban Kenya. They argue that the Luo tribe uses exogamous marriages to strength and extend network ties and create new ones. Marriage is traditionally arranged by family, friends or a matchmaker and the ethnographic evidence suggest that it is used to share risk across households. They show evidence supporting the hypothesis that kinship networks have been transplanted to the city, changing the nature of their traditional function. In the city, their primarily function is to provide jobs for their members and other support to new comers.

Overall, the evidence from the economics literature is consistent with the literature from anthropology. Marital institutions have served to mitigate commitment problems across households and they have served to bring closer families and kinships for different purposes.

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[6]Their paper does not address, however, the fact that dowry is a recent phenomenon in Bangladesh, where bride-price or mehr has been the common practice. Amrbus, Field and Torero (2010) propose an explanation for changes in dowry levels. They suggest that dowry ex-ante compensates the groom for the cost of the mehr, which serves as a barrier to leave the marriage.

3 The Patterns in Arranged Marriages

3.1 Arranged Marriages in Europe and America

According to anthropologist Jack Goody (1983), arranged marriages were common in Ancient Greece, Egypt, Israel, the Roman Empire and among the German and Anglo-Saxon tribes. His research suggests that families tended to marry their children within members of the extended family in order to keep the property intact and preserve social status. The clan or lineage was, therefore, a very important institution. Apostolou (2010) collected information for sixteen historical societies (Egyptians, Babylonians, Jews, Greeks, Romans, Byzantines, Medieval German and Arabs, Renaissance Venetians and Florentines, Aztecs, Incas, Mayas, Pre-Victorian English and Edo Japanese) and asserts that historical records suggest that arranged marriages were the dominant form of marriage. Goody (1983) suggests that the break-down of the Roman Empire and the rise of the Catholic Church marked the transition towards love marriages in Western Europe.

The transition from sect to Church involved the consolidation of doctrines regarding individual and family behavior. Goody draws from different historical documents finding that towards the 4th century, the Church started formalizing its position and doctrines regarding marital choices and family formation. The transition was a slow process, however, around the 12th century the main doctrine had permeated most regions and social classes. The doctrine stressed the individual consent for marriage, forbidden close kin marriages, discourage adoption, polygamy, concubinage, divorce, and remarriage among other practices widely accepted in the past.

Goody hypothesizes that the Church's desire to accumulate wealth in the form of land shaped its marriage doctrine. The Church, thus, set rules with two underlying objectives. First, to limit the number of legitimate offspring - increasing the Church's likelihood of receiving the inheritances -; and, second, to avoid the concentration of land among certain families - by encouraging love marriage, families lost the ability to form alliances and increase their landholding -. Greif (2006) points out that the evolution towards love and monogamous marriages was not monotonic, nor geographically or socially uniform. But by the late medieval period, the nuclear family, monogamy and self-choice marriage were dominant. In contemporary societies, Christianity is significantly correlated with the absence of lineage and clans

(Korotayev, 2003) and consanguineous marriages account by less than 1 percent of total marriages in Europe, as opposed to Asia and Africa where they account for 20 to 50 percent of marriages (Bittles, 1994).

Edlund and Lagerlöff (2004) discuss in more detailed the transition from arranged marriages to self-choice marriages during this period and extent the hypothesis posed by Goody (1983). Self-choice marriage was possibly further reinforced by the appearance of the European Marriage Pattern (Hajnal, 1965) in the Anglo-Saxon countries. According to Hajnal and other historians, both adolescent boys and girls were encouraged to work outside the household until they raised enough money to establish an independent home. The adolescents delayed marriage until they were 25 years old or beyond.

In spite of the huge transformation during that period, arranged marriages remained common among the wealthy or landed class. Slater (1976), among other historians (Stone, 1979; MacFarlane, 1986; Perkin, 1989), claims that for the wealthy class arranged marriages offered the beginning of "family life with expanded familial connections; these families served also as credit institutions, levers of power, arbiters of education and professional advancement, an institution for transmission and distribution of property, enhancement of political and social influence, etc.". Dorothy Marshall (1973) summarizes the view of marriage for this class, "emotions came and went: land remained". Stone (1964, 1979) documents a small change in arranged marriages in the seventeen century. His research shows a modest increase in the "veto" power of children, he concludes that arranged marriages changed to require at least a passive consent of the spouses. He claims that such changes were the result of the widening of the marriage markets which increased the social contacts of children and of legal changes in settlement of families that facilitated the rebellion of the offspring. Despite these changes, it was not until the Industrial Revolution (Goode, 1965) that arranged marriages finally disappeared among the landed class.

Goode (1965) suggests that the industrialization of Europe was the main cause for the disappearance of arranged marriages and the consolidation of the conjugal family. Land ceased to be the main source of income and wealth. Moreover, occupational position was not longer in the hands of the elder. Goode (1965) further claims that since land was no longer the only source of wealth, families lost control over the lives of their children. At the same time, credit and financial markets emerged, and thus, the extended family connection also lost another of its functions. However, it is unclear whether it was an increase in

the power of children or a decrease in the incentives of families which cause the change. Interestingly, the change was not limited to Europe, Smith (1973) documents a similar transition in marriage patterns in the United States among wealthy families. His study shows a monotonic decline in parental power in the choice of mates for their children during the eighteenth and nineteenth centuries. Whereas he does not pose a hypothesis to explain such changes, the transition coincides with the industrialization of the country.

3.2   Arranged Marriages in Asia and Africa

While arranged marriages disappeared in Europe centuries ago, they remained deeply rooted in most countries of Asia and Africa (Goode, 1965). Despite its prevalence, in the last half century there has been a monotonic decline on arranged marriages and a rise of love marriages in many of these countries. Younger cohorts are having higher decision power in the choice of their mate. The transition is currently ongoing in many of these countries and the trend is strong: the East is experiencing a "love" revolution.

This paper draws from several studies and micro-data that focus primarily on women, their decisions and their welfare; however, similar patterns are found for males when the information is available. The first two tables establish the patterns of change. Table 2 shows trends for birth or marriage cohorts for several countries of the Middle East (Turkey, Saudi Arabia, Israel), Asia (Japan, Korea, China, Taiwan, Indonesia, Malaysia, Cambodia, Vietnam, Sri Lanka, Nepal), and Africa (Togo, Ghana). Table 3 presents a separate analysis for South Asia (India, Bangladesh and Pakistan).

The transition varies greatly by country and it depends on the sample considered. In some countries such as Japan, Indonesia, Vietnam and urban China, arranged marriages represent 20% or less of all marriages in the youngest cohort. Other countries have achieved a sizable change but they seem to be in earlier stages of the transition, for example, Taiwan and Korea have quickly moved from a position of practically no self-choice marriages to 50% love marriages among the youngest married women. Other countries (Turkey, Cambodia, Sri Lanka and Malaysia) have moved in some medium range, from 20-25% love marriages to 50%-70%. These patterns contrast sharply with the marriage institution in South Asia (India, Pakistan and Bangladesh). In this region, around 95% or more of all marriages are still arranged

by the families. The data, however, shows a small increase in self-choice marriages.

The transition also appears to be gradual in the degree of freedom of choice; marriages initially move to a point between self-choice and arranged marriages. For some of the countries studied in this paper there is very detailed information on marriage arrangements where individuals have reported how the selection of spouse took place. Two intermediate cases are often found in these countries, suggesting that the transition has different stages. In the first stage, the family or matchmaker finds a suitable match and, then, they look for the consent of the potential mates. Some examples are India, Malaysia, Turkey, and Vietnam. For these countries there is a category of women who report having an arranged marriage with their previous approval, which suggest that the offspring initially obtains a veto power over the final decision of the spouse and/or the timing of the marriage. The second stage is self-choice marriage with consent of the family. In these cases, potential spouses meet, interact and seek the approval of their parents. And finally, at the other extreme in these continuum of marriage arrangements, we find love marriages where partners report choosing their own mate regardless of the family approval. Usually, men tend to report a higher decision power than women at every stage of the transition period.

3.3   Patterns of the transition

This section organizes and analyzes the information contained in the studies described in tables 2 and 3. In addition, I use micro-data for ten countries (Cambodia, Indonesia, India, Togo, Vietnam, Turkey, Taiwan, Japan, China and Korea) to explore the characteristics of individuals by type of marriage and understand the patterns associated with movement away from arranged marriages. According to the World Bank development indicators, all the countries included in this study have experienced some degree of urbanization and industrialization. The movement towards cities and away from agriculture has been accompanied by an increase in education and the incorporation of women into occupations outside the household. All these variables are correlated with the transition to self-choice marriages.

Table 4 summarizes the samples used by country; it contains the information of the surveys included, the years considered, sample size and summary statistics of some of the main variables of interest. In particular, I focus on education level, age, residence and labor market characteristics (labor force partic-

ipation, work status, and main occupation).

Tables 5 and 6 present the regression coefficients of the following equation:

$$AM_{i,p,t} = \beta_o + \beta_1 fem_{i,p,t} + \beta_2 age_{i,p,t} + \beta_3 urban_{i,p,t} + \beta_4 ed_{i,p,t}$$
$$+ \beta_5 lfp_{i,p,t} + \beta_6 status_{i,p,t} + \beta_7 industry_{i,p,t} + \gamma_p + \delta_t + \varepsilon_{i,p,t}$$

Where $AM_{i,p,t}$ is a dummy variable that takes the value of 1 if individual i in province p and survey year t has an arranged marriage, $fem_{i,p,t}$ takes the value of 1 if the individual is a female (for the samples with information on both genders), $age_{i,p,t}$ represents the age of the individual, $urban_{i,p,t}$ is a dummy variable taking the value of 1 if the individuals resides in an urban area, $ed_{i,p,t}$ refers to the years of schooling, $lfp_{i,p,t}$ takes the value of 1 if i is in the labor force, $status_{i,p,t}$ is a variable that classifies work status into three categories: employee, self-employed or unpaid family worker; the omitted category is unpaid family worker; finally, $industry_{i,p,t}$ classifies occupations three categories: agriculture, manufacture or services; the omitted category is agriculture. In addition, γ_p is a set of provinces fixed effects and δ_t is a set of survey year fixed effects when more than one cross-section is used. Table 5 reports the results for Cambodia, Indonesia, Turkey, Vietnam, Togo and India. For the case of Togo, the Demographic and Health Survey does not report information on work status or occupation, I rely instead on information on whether women worked before being married and whether they could use their wages for personal purposes. Table 6 summarizes separately the results for Taiwan, Japan, China and Korea. It reports the coefficients for cohort of birth instead of age since the East Asian Social Survey reports information on age groups instead of current age.

The results show that for all the countries included in this analysis younger cohorts and males are more likely to choose their spouses. The tables also show that urban residence is negatively correlated with the probability of having an arranged marriage, except for Turkey, Vietnam, Taiwan and Korea. The magnitude indicates that the probability of having an arranged marriage is between 0.38 to 4.6 percentage points lower for individuals residing in urban areas. In the case of Taiwan and Korea, the samples come mostly from urban areas (95% and 99%, respectively), not allowing to compare across residence. For Vietnam and Turkey the effect of urban areas is captured by the province fixed effects;

without controlling for province of residence, the coefficients from Vietnam and Turkey would imply a reduction of 8.2 and 1.27 percentage points in the probability of having an arranged marriage.[7] This result is consistent with Munshi and Rosenzweig (2009), they find that arranged marriages in rural areas have not changed and only around 5-6% of women report being in a love marriage. However, in their sample for Mumbai, love marriages increased from 2% to 12%. Interestingly, the transition to self-choice marriages is not exclusive of urban areas, adding an interaction between age (or cohort) and urban residence shows that rural areas are following the same pattern of transition (not shown in table).

The effect of education on the probability of having an arranged marriage is also negative for most of the countries of the sample except for Cambodia and Japan. The marginal effect of an addition year of schooling varies between 0.147 and 3.37 percentage points. The largest effects are found in Turkey, Vietnam, Indonesia and Korea. The smallest effects correspond to India, China and Togo. For Cambodia, the effect of schooling is small and not statistically significant. The case of Cambodia requires further analysis since the results might be the consequence of the Khmer Rouge regime between 1975 and 1979, which followed a policy similar to the Cultural Revolution of China, targeting professionals, especially teachers, and anything deemed Western.

The case of labor force participation is ambiguous. Female labor force participation typically has a u-shaped relationship with economic development (Goldin, 1995): women in poorer regions tend to have high economic participation as non-paid family workers or self-employed in family business, female labor force participation decreases with industrialization, and then it increases again when white collar occupations become available. In fact, for many of the countries studied, women in arranged marriages have higher (although not always statistically significant) labor force participation but they are concentrated in non-

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Even though urbanization is correlated with self-choice marriage, traditional structures have evolved and coexisted with new industrialized economies. Some of these countries that have experienced urbanization at an accelerated rate, such as Korea and Japan. After the World War II and the Korean War, South Korea and Japan experienced a rapid transformation of the economy and an accelerated urbanization process. Ethnographic studies from both countries (Vogel, 1961; and Kendall, 1996) suggest that the rapid changes in the economy encouraged the use of matchmakers in urban areas. In the case of Japan, the matchmaker (nakohdo) played an important role until recent years. The nakohdos substituted the families in the process of finding a suitable match. They were in charge not only of finding a potential mate, but also of investigating the background of each family, keeping detailed records to show to the interested parties, participate in the negotiation of the marriage arrangement, and finally, take responsibility for an unsuccessful match. The case of Korea is similar. Laurel Kendall (1996) describes the arrangement of dates in "modern" Korea, where matchmakers have played an important role. Nonetheless, in both countries, the use of this intermediate figure seems to be decreasing (Applbaum, 1995), possibly both the rise of love marriages and online dating services have contributed to their disappearance.

paid jobs.

In addition to labor force participation, I used information on the work status and occupation. In the first case, I classified individuals into self-employed, unpaid family workers and employees (receiving a salary and/or working outside the household). In the second case, I used information on occupation to classify individuals into agriculture, manufacture or services. The omitted categories are unpaid family worker and agricultural activities, respectively. The results suggest that being an employee is negatively correlated with the probability of having an arranged marriage, except for the Chinese sample and one of the samples of Taiwan. Being an employee reduces the probability of having an arranged marriage between 0.6 and 9.6 percentage points. The estimated coefficients for the 2006 sample of Taiwan show a positive but small and not statistically significant effect. A similar conclusion is drawn from the sample of China; the coefficient is slightly larger than the estimated for Taiwan, but it not statistically significant either. The results on self-employed are less conclusive regarding the sign of the correlation; however, it might be due to an ambiguous classification between family workers and self-employment. A better way to assess this relationship would be to refine the definition on work status. Finally, a similar result is found for the controls on type of occupation. With the exception of Japan, having job in manufacture is also negatively correlated with the probability of having an arranged marriage relative to being engaged in agriculture. The coefficients show a 0.17 to 10.5 percentage points reduction in the probability of having an arranged marriage. In the case of services, the results are again ambiguous, possibly the result of larger fractions of population engaged in informal trade.

Finally, table 7 briefly studies the correlation between arranged marriages and a few additional variables. The main objective of the table is to support the anthropological evidence discussed in section 2 on living arrangements of married couples. Arranged marriages are a bundle of a partner and a geographic location after marriage. Depending on the society, married individuals usually live with or close to their parents or their parents-in-law. Therefore, arranged marriages restrict social and geographic mobility. Table 7 indeed shows that couples having an arranged marriage are less likely to move away for Turkey, Cambodia, Vietnam, India and Indonesia, the only countries of my sample that have information on post-marital living arrangements.

3.4   Evidence from other studies

Some of the studies summarized in table 2 have performed their own analysis regarding the characteristics associated with the movement away from arranged marriages. In this section, I have organized the information to complement the regression analysis.

In the case of Thailand, Pakistan and Malaysia the nature of the data available on current residence does not allow me to analyze the dynamics by cohort, but only the aggregate characteristics. Figures 1 displays love marriages by urban and rural residence. The conclusion remains unchanged, urban areas have a higher proportion of women in love marriages, although the difference is small for Thailand, where love marriages are high in all the regions, and for Pakistan, where arranged marriages comprise around 96% of all marriages.

Figure 2 shows the percentage of women in love marriages by education level for Sri Lanka, Pakistan and a different sample of Turkey.[8] For these countries we are not able to disentangle the cohort effect from the education effect. In the three countries, higher percentage of love marriages are reported among women with higher education, in Turkey only 20% of women with primary or less education are in a love marriage, whereas 51% of women with more than primary education are in a love marriage. In Sri Lanka, the percentage of women in love marriages grows from 40% to 68% when moving from no education to education above 9th grade. And, even in Pakistan, where arranged marriages appear to be resilient to changes, 12.4% of women with completed secondary education report to have "some say" in marriage compared to only 2.3% of women with no education.[9]

Figure 3 plots the coefficients and odd ratios estimated and reported by different studies for Taiwan, China, Thailand and Central Java in Indonesia. Table 11 in the appendix reports the same coefficients with standard errors or t-statistics when available, and in addition, it reports the results for Ghana and Nepal which were analyzed including a single dummy for education and a continuous variable for years of education, respectively. Figure 3 shows that for Taiwan and China, the trend is monotonic. In the case of Taiwan, I am plotting the unadjusted mean of an ordered variable where zero corresponds to arranged marriages and two to self-choice marriages. For China, the coefficients plotted correspond to the

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[8]The other sample for Turkey comes from the study of Fox (1975) who collected his data in 1966.

[9]We should note that the sample from Pakistan is less affected by the cohort effect since the survey was conducted only among young women (ages between 15 and 24 years old).

outcome of a linear regression and thus we can interpret them as the marginal effects. For Thailand and Indonesia (secondary axis), I calculated the odd ratios using the coefficients reported in a logit regression, their trend also seems smooth and monotonic with the exception of rural Indonesia for which there is a drastic increase for women in the highest level of education. In table 11, the results for Ghana point in the same direction, women with more education are more likely to select their partners than women with no education. For Nepal, however, education does not impact the selection of partner (after controlling for other variables, see table 8), the odd ratio is 0.99 but it is statistically insignificant. However, women enrolled in school at the time of the survey are more likely to report a greater decision power in the selection of their spouses.

The last piece of evidence is organized in table 12 in the appendix, which shows the coefficients from regression analysis performed by the studies compiled in this paper for Thailand, Taiwan, China, Nepal, Central Java, Ghana and Togo. In general, the main purpose of those studies has been to understand how arranged marriages respond to economic changes; however, they have also explored how background characteristics affect the effect of such changes.

Thornton, Chang and Sun (1984) do an extensive analysis of the changes in the Taiwanese society for cohorts born between 1930 and 1959. They are interested in understanding how background characteristics deter or boost the transformation. They are particularly concern with the role of father's occupation and father's education. They find that more educated fathers and non-farmers are more likely to have daughters in a self-choice marriage. Cherlin and Chamratrithirong (1988) study Thailand. Similar to Thornton, Chang and Sun (1984), they are interested on how marriage patterns evolve through time and how this evolution is affected by the socioeconomic status of the families. They find an increase in love marriages especially for women with higher education. The transition towards love marriages is, nevertheless, negatively affected by "high" socioeconomic status of parents. The authors classify families into high status if they own land in rural areas or if the household head is engaged in a white collar occupation in urban areas. Their findings are consistent with the evidence discussed above, ownership of land is negatively correlated with arranged marriages for daughters. Malhotra (1991) conducts research in Central Java with objectives similar to those of Cherlin and Chamratrithirong (1988) and Thornton, Chang and Sun (1984). The bulk of his results support a similar story to the cases of Taiwan and Thailand.

The two exceptions are regarding land ownership and employment in rural areas. For the first variable, they find a slightly negative effect of belonging to a "landless farming" family on love marriages, relative to belonging to a "landed farming" family. Although the coefficient is not statistically significant. In the second case, having a paid farm job also has a small negative effect although not statistically significant either. Ghimire et al. (2006), for Nepal, include information about wage employment of mothers and education of both parents, among others. They find that only the coefficient for wage employment of mothers is statistically significant. However, the coefficients on parental education are both positive, the higher the education of the parents, the more likely children will choose their partners. Zhang (2008), in his analysis of the determinants of arranged marriages in urban China, also includes controls for father's education and one dummy variable for father's occupation (state worker). In his study, Zhang (2008) does not find a significant relationship between parental education and arranged marriages.

4   The Causes of the Transition

As discussed in section 2, anthropologists, sociologists and evolutionary psychologists suggest that arranged marriages originated as a strategy for families to form alliances with other kinship groups, clans or extended families. Their evidence suggests that the alliances may be used to increase or secure political power, keep social status, increase wealth, and/or smooth economic transactions, mainly in the form of informal risk sharing.

The transition to love marriages, therefore, should be the outcome of a change in the benefits and/or the cost of the economic links across families. The recent economic transformations in these countries have possibly modified the margins that determine the decision to enter into informal insurance arrangements across households. The analysis performed in the previous section suggests that there has been a decline in the net benefits of these informal arrangements relative to an outside option, captured by the option to freely move geographically and socially. This relative decline in benefits might lower the incentives of parents to arrange the marriage of their offspring, or the incentives of children to accept the arranged marriage.

In support of this general hypothesis, a recent paper by Munshi and Rosenzweig (2009) show that low

mobility in rural India –defined as inter-caste marriages and migration to urban centers- is the consequence of informal insurance arrangements across households. Marriage arrangements increase social ties acting as a mechanism to sustain cooperation; while low migration to urban areas is a signal of commitment within the network. As the benefits of the social network decline, the members are more likely to move away and marry outside the caste. They also suggest that urban centers are witnessing a faster change; however, the nature of their data does not allow them to explore it formally.

Based on the evidence presented, I classify the explanations into four main sets of hypotheses: (i) decrease the value of the economic benefits (higher income covariance and availability of substitutes); (ii) increase the cost of insurance (increase in asymmetric information and limited commitment problem); (iii) increase in bargaining power of children; (iv) alternative explanations (parents acting as matchmakers, children's education as new insurance strategy and changes in marriage laws).

4.1 Changes in incentives of Parents

This section considers the economic changes that modify the incentives of parents to arrange marriages for their children and briefly discuss their potential scope explaining the transition to love marriages. These changes might decrease the value of entering into informal insurance arrangements or they might increase the cost of belonging to a network, or both.

4.1.1 Decrease in the value of insurance and other economic links

The evidence presented by Rosenzweig and Stark (1989) and Munshi and Rosenzweig (2009) suggests that arranged marriages might be used as a mechanism to smooth consumption across households. Their main assumption is the existence of a social network formed by the clan, kinship, extended family, or caste. Members of the social network interact with each other in times of distress by aiding in consumption smoothing; a key problem in this consumption smoothing mechanism is commitment among members of the social network. Theoretical and empirical research shows that if the outside option -exclusion from

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the group- is high enough, members of the social network will not reciprocate the help received in past periods and will move out of the network. The limited commitment problem is exacerbated by asymmetric information and moral hazard problems. Therefore, by marring their children with other members of the social network, the families achieve three objectives: (i) they enter into an informal arrangement with the best members (lowest risk covariance); (ii) they strengthen social ties (reducing the limited commitment problem), and; (iii) they increase flow of information across the households (mitigating the asymmetric information and the moral hazard problems).

As already discussed, the evidence collected and organized in this paper suggests that arranged marriages are mainly found in agrarian societies, where economic shocks are often related to weather variability. Informal social networks become vital in these situations since the loss of crops would imply the starvation of families when governments do not intervene. However, as societies develop and industrialization takes place, there is a movement away from agriculture. The economic transformation is usually characterized by an increase in employment in manufacturing and services, migration to urban areas, population growth across all areas, emergence of social security programs, and development of financial institutions.

As families move to industrial activities, i.e. work in factories, *the type and exposure to risk change.* Consumption shocks are no longer related to weather variability; instead, they are related to unemployment and health shocks. The new market activities increase the covariance of risk among members of the network, and arranging marriages no longer might help to mitigate consumption shocks.[10] Parents lose the incentives to marry off their children to members of the social network. The new economic environment does not prevent households from belonging to social networks, but it might change the formation of those networks and the interactions across households.

As countries develop, governments also become more organized and taxation of formal employment increases public income allowing the implementation of *social security programs.* There is a large range of programs implemented that typically target the most vulnerable sectors of the population: pension systems, other old-age support programs, cash transfer programs, temporary employment programs for

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[10] Coate and Ravallion (1993) propose a simple model of informal insurance arrangements across households. In their model, the higher the income covariance across households, the lower the value of belonging to the social network. Rosenzweig and Stark (1989) empirically find that the covariance in weather fluctuations is low across members of the social network.

seasonal workers, unemployment insurance, and others. Welfare programs might act as substitutes for the aid of social networks, decreasing the demand for informal insurance across households. Furthermore, if the implementation of these programs are tied to individual negative shocks (unemployment insurance or temporarily relief programs), then families will have less incentives to enter into an insurance agreement with other families since welfare programs do not require reciprocation of help from households. However, the wide range of countries studied in this paper suggests that is unlikely that all of them have established well-functioning social security programs; in particular, in the case of developing countries, where welfare programs suffer many problems of implementation in their early stages. Therefore, it seems unlikely that the expansion of welfare programs is the main cause behind the transition, although they could have contributed to mitigate the demand for informal insurance. In addition, at least two conditions might be needed in order to make it the main explanation. First, a large percentage of the relevant population should have information about the availability of the program and should be eligible to participate. Second, individuals should credibly expect to have access to the social security programs. If households are uncertain about the future transfers of the program, they will not modify their behavior until uncertainty is resolved. A more concrete example could be the establishment of an old age programs targeting poorer households. After the establishment of the program, parents will not stop arranging marriages for their children. Once the first cohorts receive the social security benefits, younger generations of parents may start modifying their choices. These two conditions might be met by a handful of these countries, whereas the rest of them are in earlier stages of their design and implementation.

Finally, another characteristic of economic development is the introduction and expansion of *financial and credit institutions*, which reduce the demand for informal loans from family and friends. In these societies, loans can serve two purposes. On one hand, social networks might not only offer aid in time of bad shocks, but might also provide loans and other facilities to invest in productive activities, for example, loans before planting. On the other hand, Udry (1990) uses data from Nigeria to show that informal loans can be used as a form of social insurance. He shows that borrowers and lenders dynamically determine the amount and dates of repayment depending on the shocks that each of them faces. The economics literature has further shown (Kaboski and Townsend, 2011) that the introduction of credit institutions helps households to smooth consumption over time. Therefore, the development of credit markets might

also contribute to weaken the need for informal networks. However, an argument similar to the case of social welfare programs might be made for credit and financial institutions. Economic development is highly correlated with penetration of financial systems; therefore, the emergence and spread out of these institutions should be lower in countries in earlier stages of development and, even in those countries, it should be higher in urban areas while it might be low or non-existent in rural areas. In addition, we should also expect that the pool of agents qualifying for loan's application is small in developing nations where formal jobs are scarce and income from informal sources is subject to a great deal of volatility. Therefore, the relevant population might not be exposed to them during this period.

4.1.2   Increase in the cost of insurance

All the changes discussed so far might have contributed to lower the value of informal social networks by increasing the covariance and variance of income across households or introducing substitutes that mitigate the need of informal networks. However, the cost of informal insurance might have also increased in the past decades. This subsection focuses on the effects of migration and urbanization.

In this context, the population growth has had two main consequences. First, urbanization has a direct impact in the reputation or information stock of every potential member of the social network. In villages, older generations had accurate information about the assets and other characteristics of the members of their social networks. Finding the right mate for their children was likely the outcome of a search process among these members (Geertz, 1961). Candidate families must met certain requirements; for example, belong to the same social class, being located in distant villages, etc. It is also possible that other characteristics were preferred by households, for instance, a mate belonging to a hard working family would have been preferred to other candidates. In small communities information regarding the type of each family could be easily spread out through repeated interactions and reputation was possibly built through actions and sustained by many generations of the same family. As villages grew, repeated interactions become limited and information regarding the type of each family has been more difficult to obtain. This lack of information might have had a direct impact on the expected cost of informal insurance by increasing the probability of being matched with a low or bad type.

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The second direct consequence of population growth has been the large scale migration from rural areas to urban centers. Migration has a direct impact on the limited commitment problem faced by households that belong to informal insurance networks. In the simplest economic model, each period households have to decide whether to enter the informal arrangement conditional on expecting other members to participate.[11] The massive migration across areas might lower the incentives of families to enter into an insurance arrangement if they believe that their social network partners will leave the network in the following periods and they will not reciprocate the aid received in the past.

The combination of reduction in the reputation stock and the large scale migration across areas is a feasible explanation to understand the patterns of change. The key is to determine whether the timing of urbanization and migration is plausibly correlated with the transition to love marriages.[12]

4.2   Changes in the incentives of Children

The previous section suggested several explanations for changes in parent's incentives. This section looks at transformation that may have shifted the bargaining power from parents to children. The hypothesis discussed in this section assumes some degree of conflict between parents and children in the objective function that they maximize: children have lower valuation for informal insurance arrangements.

Educational attainment has increased in all the regions analyzed in this paper as documented in the graphs presented in the previous section.[13] Employment outside the agricultural sector (or outside the household) also has grown in these countries and both men and women have responded by shifting their labor supply towards new occupations in a more formal employment economy. Younger cohorts are

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[11]Coate and Ravallion (1993) incorporate this feature through the discount rate (probability of playing the game in the future).

[12]

Although there is also another possibility. The change could have started in urban areas and spilled-over to rural areas. Fogli and Veldkamp (2011) propose a model where female labor force participation increases as women "observe" and adjust beliefs about the effect of maternal work on children's outcomes. The change is initially slow since few women participate in the labor force. As more women enter the labor market, information spreads out faster and female labor force participation converges in all regions. The transition to love marriages can be modeled in a similar way. Women start the transition in urban areas, but agents in rural areas slowly learn the effect of love marriages on the relevant outcomes (consumption smoothing, social status, etc.). The change is accelerated in turn by the presence of mass media which disseminates information faster across regions.

[13]This change in educational attainment has been the outcome of both an increase in demand and supply of schooling.

therefore better educated and earn wages outside agriculture, parents are no longer the only potential source of income for the future - by offering inheritance of land or apprenticeship of other skills. The development of labor markets, therefore, has potentially changed the distribution of power within the household and children have gained bargaining power relative to their parents through their incorporation into the new labor markets.

Most of the societies with arranged marriages share another institutional feature. At the time of the marriage, there is an exchange of gifts between the family of the bride and the family of the groom. These gifts can be either a bride-price (from the family of the groom to the family of the bride) or a dowry (from the family of bride to the family of the groom). Anderson (2007) discusses the changes through time and societies on the prevalence of these payments. However, they seem to be closely related to arranged marriages since they involve negotiation between families. As suggested by Edlund and Lagerloff (2006), the shift of resources from parents to children would free children from the power of parents. As owner of their wages, children would be able to "buy" their own partners. If the institutions of bride-price and dowry are preserved, children will become able to afford their brides or grooms.

4.3   Other explanations

The hypotheses discussed above assume that arranged marriages are a response to incomplete markets. Families look for a mechanism to strengthen social ties with their social networks and smooth economic transactions through time. In this section I discuss three alternative hypotheses.

The evidence presented so far shows a high correlation among agricultural settings, land ownership and arranged marriages. This correlation might have a different interpretation. Rural areas have low population density and both parents and children interact with a small number of agents, marriage markets in rural areas are small or non-existent. If parents are altruistic, they will look for a partner for their children using their social connections. As cities grow, parents are relieved of this function. The cost of search in love marriage markets decreases for younger generations. However, in order to be the main driving force, the search cost should substantially decrease also in rural areas.

An alternative explanation for the observed increase in schooling and employment outside the house-

hold is that parents continue to have all the bargaining power and they "own" their children's wages. If this is the case, parents might change their insurance strategy. Instead of selecting a suitable partner for their children, they invest in their children's education, collect their children's wages, postpone marriage decisions until a later age and finally let their children choose their partners. Jensen (2012) conducts a randomized experiment in India aiming to understand if labor market opportunities change marital choices of women. He finds that indeed women marry older when they are presented with formal employment possibilities. Unfortunately, his data does not allow him to study who makes the marriage choice, parents or children. This alternative hypothesis requires that children care about their parents after marriage and enter into an insurance agreement with them through the exchange of goods and loans after they leave home; or that parents have an alternative source of income after children marry.

Lastly, the change in marriage patterns may be the outcome of changes in Marriage and Family Laws. All the countries in this study have enacted family laws with the goal of regulating marriage, inheritance and succession. The validity of this hypothesis depends crucially on the enforceability of the laws and the absence of reverse causality. Table 8 summarizes the year of law enactment or law modification for the countries studied and there are two patterns observed. For one group of countries (Turkey in 1926, Taiwan in 1930 and 1937, Korea in 1948, Japan in 1947 and China in 1950) the laws changed in the early 20th century but they were not enforced. Arranged marriages persisted for several decades after the laws were passed and they have just recently began to disappear. Moreover, some of these countries such as Korea, Turkey, Taiwan and China have amended their laws during the last decades to accommodate changes in the marriage markets, but these amendments are more likely the outcome of reverse causality. A second group of countries (Vietnam 1959, Nepal 1963, Indonesia 1974, Malaysia 1976, Thailand 1976, Cambodia 1989) has more recently passed their first Marriage Laws regulating marriage and forbidding arranged marriages. However, the timing of the laws suggests that they are the response to large changes in marital decisions rather than the cause. Moreover, these laws seem to be non-binding for the majority of these countries.

The explanations explored above suggest that technological change and economic development in these countries has caused the decline in arranged marriages through: (1) a decrease in the net benefits of arranged marriages relative to an (increasing) outside option; or (2) a change in the in marriage markets.

5 Welfare consequences

Perhaps more important than the causes of the transition are the consequences of this change. Welfare implications might be changes in the ability to smooth consumption or other behavioral consequences. Regarding consumption smoothing, Rubio (2014) finds evidence in Indonesia suggesting that households that households that have an arranged marriage are better able to smooth consumption through time.

For the rest of this section, I will focus on other outcomes. In particular, I am concerned with the welfare of women and children. Are women (and their children) better off when they choose their spouses? Since women in love marriages have different observable characteristics than women in arranged marriages, I expect to observe different characteristics on their partners by type of marriage (unless the objective function, information set and pool of suitable matches of parents and children are exactly identical). Therefore, it is possible that most of the results of this section are driven by the selection of women into love marriages; however, these results might be suggestive of the type of welfare gains or losses we should expect when these regions reach the new marriage equilibrium.

Moreover, focusing on other outcomes may be as important as studying consumption smoothing measures in these countries. Most of the societies considered in this paper are patrilineal, women tend to have a lower position in the social hierarchy and, typically, they also have lower economic value. This social organization has given rise to a strong preference for sons over daughters which is often reflected in differential investment in care, health, education, among others, for boys and girls. Croll (2000) studies China, Korea, Taiwan, Vietnam, India, Bangladesh and Pakistan during the early 90s calculating that there are between 0.5 and 29.1 millions of "missing" girls at birth. Further evidence has been presented showing that indeed there are many millions of "missing" girls and that the main cause is the strong preference for sons. The transition towards love marriages might contribute to mitigate this problem and increase the welfare of girls and women.

In this section I use self-reported measures of domestic violence and other household decisions to study if women in love marriages seem to be better off. Table 9 presents suggestive evidence on domestic violence differences by type of marriage. I use data from Cambodia, Turkey and India, the only countries that report some measures on domestic violence. And table 10 analyses household decisions for China, Japan, Korea and Taiwan. For both analyses, I controlled for the variables used in tables 5 and 6 (age, residence,

education, labor force participation, work status, occupation, and province and survey year fixed effects). Overall the results show a robust and significant correlation between arranged marriages and domestic violence. Women in arranged marriages support being beaten under a several circumstances: if they burn the food or do not cook properly; if they go out without asking permission to their husbands; if they are suspected of neglecting their children; and if they refuse to have sexual intercourse. They also agree with the ideas that men are wiser than women and that most decisions should be taken by the males of the household. These women also exhibit a stronger preference for education of sons. The evidence presented in table 9 is also found in other studies, for example Chung and Das Gupta (2007) study the evolution of the preference for sons in South Korea finding that among women with arranged marriages there is a stronger preference for sons over daughters. They conclude that the transition to love marriages has contributed to the decline of son preference, therefore decreasing the strongly skewed sex-ratio. The results on table 10 for East Asia are less conclusive. In general, women respond to have lower decision power the education of children, and perhaps for the decision of purchasing expensive items; however, a multinomial logit analysis show that they report higher marital satisfaction. Finally, the last row of table 7 shows that even after controlling for several observable characteristics (age, residence, education, labor force participation, work status, occupation, province and survey year fixed effects), individuals are more likely to marry between 0.2 and 1.3 years younger.

The media has recently documented an increase in suicides among women who are forced into marriage (Iran, Morocco, India, etc). The literature of psychology and the World Health Organization (WHO) have been interested in this question for a long time. They have numerous studies analyzing the causes of mental stress that lead to the high rate of female suicide in Asia and the Middle East. Unfortunately, most of them are case studies conducted in small areas due to the low quality of data at the national or regional level; in several of these countries suicide is not reported since it carries a negative stigma for families.[14] The WHO has recognized the deficiencies in the quality of data and it has developed a 4-level rating system to assess it when available. Using correction methods, they have calculated national measures by age group and gender, concluding that Asia has one of the highest rates of female suicide (using Europe as a benchmark). The case studies for India, Pakistan, Bangladesh, China and Sri Lanka (Gujarat et al., 2004; Khan et al., 2009; Ahmed et al., 2004; Phillips et al., 2002; Marecek, 2006) provide insights into

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[14]In some Muslim countries it is penalized. In Pakistan, families have to pay a fine if any of their members commits suicide.

the determinants of this high suicide rate. Their findings suggest that domestic violence, especially in situations where women cannot leave their partners (for example, in arranged marriages), is one of the main contributing factors to the female suicide in these areas. Nevertheless, the evidence is not conclusive. Some scholars have presented evidence from China suggesting that women in arranged marriages have higher support from families (Meng, 2002), claiming that women in self-choice marriages have higher risk of mental distress and suicide.

6   Conclusions

This paper has extensively documented an ongoing love revolution in Asia, Sub-Saharan Africa and the Middle East (the exception being South Asia). Drawing from numerous studies in many disciplines and constructing my own statistics for a selected number of countries, I have shown that these regions are experiencing a huge transition in marriage arrangements. One of their main institutions, arranged marriages, is vanishing. Understanding the role of arranged marriages in these societies, the causes for their disappearance and the welfare implications are certainly important for the design of welfare programs. As urbanization and industrialization take place, institutions evolve, but so the needs of individuals and the role of the government.

After showing that the decline in arranged marriages is correlated with urbanization, education and work outside agriculture, I proposed and discussed several hypotheses aimed to explain the transition: (i) Changes that decrease the value of insurance (higher income covariance and availability of substitutes); (ii) changes that increase the cost of insurance (increase in asymmetric information and limited commitment); (iii) increase in bargaining power of children; (iv) alternative explanations (parents acting as matchmakers, children's education as new insurance strategy and changes in marriage laws).

Finally, I explored some of potential welfare consequences of this phenomenon, finding that women in arranged marriages are more likely to be in abusive relationships. I also presented suggestive evidence of arranged marriages as a contributing factor to the high suicide rate among women in Asia.

Overall, numerous questions are put forward in this paper and some potential answers are sketched. More work is needed in order to understand better the patterns documented here. In particular, future

work should be focused on providing causal evidence on the transition. An empirical strategy that allows to generate exogenous variation in arranged marriages can be furthers used to study its effects on consumption smoothing and other welfare measures (domestic violence, health and education of women and children, and others).

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7 Tables

Table 1: Ethnographic Evidence

Table 1. Ethnographic Evidence

Marriage Mode	Obs.	%	Family Organization	Obs.	%
Bride price	550	63.95	Extended family	428	50.06
No exchange	205	23.84	Independent nuclear family	247	28.89
Dowry	23	2.67	Independent polygamous family	180	21.05
Gift exchange	55	6.4	*Total*	*855*	*100*
Bride-exchange	27	3.14	**Descent**		
Total	*860*	*100*	Patrilineal only	395	45.9
Cousin Marriage			Matrilineal only	120	14
Forbidden/Not encouraged	475	62.34	Bilateral descent	34	4
Favored	287	37.66	None	311	36.2
Total	*762*	*100*	*Total*	*860*	*100*
Exogamy			**Residence**		
None	470	59.27	Matrilocal	149	17.63
Exogamy	254	32.03	Ambilocal, neolocal or none	104	12.31
Endogamy	69	8.7	Patrilocal	592	70.06
Total	*793*	*100*	*Total*	*845*	*100*
			Class categories		
Inheritance			Complex stratification	64	7.81
			Dual (hereditary aristocracy and lower class)	182	22.22
By children of either sex or both	51	8.25	Elite stratification	18	2.2
Both, daughters receive less	29	4.69	None	391	47.74
Matrilineal by sister's sons	16	2.59	Wealth distictions	164	20.02
Matrilineal heirs precedence over sister's sons	35	5.66	*Total*	*819*	*100*
None	177	28.64	**Caste Categories**		
Patrilineal by sons	56	9.06	Complex stratification	20	2.45
Patrilineal heirs precedence over sons	254	41.1	One or more out-castes	74	9.06
			Ethnic Stratification	17	2.08
Total	*618*	*100*	None	706	86.41
			Total	*817*	*100*

Table 2: Arranged Marriages by Country and Cohort

Table 2. Arranged Marriages by Birth Cohort/Marriage Cohort

Country	Author	Year of Survey	Project/Place	Sample Size	Birth Cohort	Arranged	Love	Veto Power
Turkey	Fox (1975)	1966	Ankara city	754 married couples	<1921	80.7	19.3	
					1936-1922	71.9	28.1	
					>1937	71.2	28.3	
Turkey	Calculated by the author	1993, 1998, 2003	Turkey Demographic and Health Survey	1993: 5,820 women	1944-1953	74.6	19.4	
				1998: 5,581 women	1954-1963	65.3	30.3	
				2003: 7,479 women	1964-1973	57.7	38.3	
					1974-1983	45.6	49.3	
Israel	Al-Haj (1988)	1988	Shefar 'Am Arab community	2586 married couples	All Cohorts	15	52	33
Saudi Arabia	Alsuwaigh (1989)	1989	City of Damman, Eastern province of Saudi Arabia	62 women	<1934	94	0	6
					>1954	45	19	36
Taiwan	Thornton, Chang and Sun (1984)	1973, 1980	Taiwan Provincial Institute of Family Planning Surveys	4313 married women	1930-1934	77.1	5.2	17.7
					1935-1939	69.1	8	22.8
					1940-1944	48.4	12.1	38.9
					1945-1949	32.3	18.9	48.4
					1950-1954	25.8	28.3	45.3
					1955-1959	15.1	33.3	51.4
Taiwan	Calculated by the author	2006	East Asian Social Surveys: Families in East Asia	2040 individuals	1927-1936	36.3	63.7	
					1937-1946	22.3	77.7	
					1947-1956	15.5	84.5	
					1957-1966	7.5	92.5	
					1967-1976	7.9	92.1	
					1977-1986	0.6	99.4	
China [1]	Whyte (1995)	1987	Chengtu City, Szechwan: Urban Area	586 ever married women	1933-1948	68	17	15
					1949-1957	27	40	33
					1958-1965	0	55	45
					1966-1976	1	59	40
					1977-1987	2	57	41
China	Zhang (2008)	2005	Urumchi, the capital city of the Xinjiang Uyghur Region	1583 married women	<1950	34.6	65.4	
					1950-59	20	80	
					>1959	12.6	87.4	

[1]Marriage Cohort

Table 2. Arranged Marriages by Birth Cohort/Marriage Cohort

Country	Author	Year of Survey	Project/Place	Sample Size	Birth Cohort	Arranged	Love	Veto Power
China	Calculated by the author	2006	East Asian Social Surveys: Families in East Asia	3110 individuals	1937-1946	17.3	82.7	
					1947-1956	10.0	90.0	
					1957-1966	8.3	91.7	
					1967-1976	5.7	94.3	
					1977-1986	3.6	96.4	
Japan [1]	Takahashi et al. (2003)	1977, 1982, 1987, 1992, 1997	Nationally Representative: Japanese National Fertility Survey	1997: 7,069 ever-married women 1992: 8,627 ever-married women 1987: 8,348 ever-married women 1982: 7,803 ever-married women 1977: 8,314 ever-married women	1930-39	69	13.4	17.7
					1940-44	69.1	14.6	16.4
					1945-49	59.8	21.4	18.9
					1950-54	53.9	33.1	13
					1955-59	54	36.2	9.8
					1960-64	49.8	41.1	9.1
					1965-69	44.9	48.7	6.4
					1970-74	33.1	61.5	5.4
					1975-79	30.4	66.7	2.9
					1980-84	24.9	72.6	2.5
					1985-89	17.7	80.2	2.1
					1990-94	12.7	84.8	2.5
Japan	Calculated by the author	2006	East Asian Social Surveys: Families in East Asia	1555 individuals	1917-1926	30.3	69.7	
					1927-1936	14.4	85.6	
					1937-1946	14.4	85.6	
					1947-1956	7.3	92.7	
					1957-1966	4.3	95.7	
					1967-1976	2.7	97.3	
Korea [1]	Kong et al.(1990)	1990	National Fertility Survey	---	1950s	96.3	3.7	
					1960s	82	18	
					1970s	64.3	35.7	
					1980s	49.1	50.9	
Korea	Calculated by the author	2006	East Asian Social Surveys: Families in East Asia	1555 individuals	1917-1926	68.2	31.8	
					1927-1936	60.2	39.8	
					1937-1946	46.9	53.1	
					1947-1956	20.0	80.0	
					1957-1966	16.9	83.1	
					1967-1976	8.5	91.5	
					1977-1986	4.6	95.4	
Sri Lanka [1]	Caldwell et al. (1989) Caldwell (1996)	1985, 1987	Coastal Sri Lanaka, district of Colombo	1,817 with completed marriage history	1940-1949	70	30	
					1950-1954	63	37	
					1955-1959	66	34	
					1960-1964	60	40	
					1965-1969	43	57	
					1970-1974	37	63	
					1975-1979	29	71	
					1980-1985	32	68	

[1]Marriage Cohort

Table 2. Arranged Marriages by Birth Cohort/Marriage Cohort

Country	Author	Year of Survey	Project/Place	Sample Size	Birth Cohort	Arranged	Love	Veto Power
Nepal [1]	Ghimire et al. (2006)	1996	Chitwan Valley, Nepal	2788 ever-married women	1936-1945	100	0	
					1986-1995	50	50	
Cambodia	Calculated by the author	2000, 2005	Cambodian Demographic and Health Survey	2000: 1,954 women	1951-1960	74.9	25.1	
				2005: 3,568 women	1961-1970	65.1	34.9	
					1971-1980	62.3	37.7	
					1981-1990	50.8	49.2	
Vietnam	Calculated by the author	1995	Vietnam Longitudinal Survey	1,938 ever-married females	1930-1934	65.3	34.7	
					1935-1944	53.0	47.0	
					1945-1954	21.6	78.4	
					1955-1964	18.8	81.2	
					1965-1974	19.8	80.2	
Malaysia	Chang and Jones (1990)	1981	Kelantan, Pahang, Penang, Negeri Sembilan, Melaka, Selangor, and Kuala Lumpu	2310 currently married women	<1936	41	14	44
					1937-46	36	24	40
					1947-56	17	61	22
					1957-66	18	64	18
Indonesia	Calculated by the author	1993	Indonesia Family Life Survey	6620 ever-married women	1933<	56.8	43.2	
					1934-1943	47.3	52.7	
					1944-1953	40.4	59.6	
					1954-1963	28.8	71.2	
					1964-1978	19.6	80.4	
Ghana	Takyi et al. (2003)	1992-1993	Southern Ghana	909 women	All cohorts	6.49	66.78	26.73
Togo [1]	Meekers (1995)	1988	Togolese Demographic and Health Survey	1968 ever-married women with one marital union	<1970	45.6	8.7	45.6
					1970-1979	30.7	10.9	58.4
					1980+	24.4	13.1	62.5

[1]Marriage Cohort

Table 3: Arranged Marriages by Country and Cohort: South Asia

Table 3. South Asia

Country	Author	Year of Survey	Project/Place of Survey	Birth Cohort	Arranged	Love
India	Calculated by the author	2004	India Human Development Survey	1954-1958	96.1	3.9
				1959-1963	95.1	4.9
				1964-1968	95.7	4.3
				1969-1973	95.2	4.8
				1974-1978	94.5	5.5
				1979-1985	94.2	5.8
Bangladesh	Calculated by the author	1996	Matlab Health and Socioeconomic Survey	<1931	99.2	0.8
				1932-1941	99.6	0.4
				1942-1951	99.5	0.5
				1952-1961	99.4	0.6
				1962-1971	97.7	2.3
				1972-1981	96.2	3.8
Pakistan	UNICEF, Pakistan	2001-2002	Adolescents and Youth Survey	1977-1981	96	4
				1982-1986	96.9	3.1

Table 4: Samples used for each country

Table 4. Samples used by country

Country	Dataset	Years	Observations	AM	Age	Urban	Education	Female
Cambodia	Demographic and Health Survey	2000 and 2005	5474 women	0.65 (0.48)	33.85 (8.63)	0.19 (0.40)	3.01 (2.94)	
Indonesia	Indonesia Family Life Survey	1993 wave retrosp. inf.	11579 men and women	0.28 (0.45)	42.06 (13.53)	0.46 (0.50)	5.06 (4.26)	0.56 (0.50)
Turkey	Demographic and Health Survey	1998	5832 women	0.63 (0.48)	32.87 (8.49)	0.68 (0.47)	4.91 (3.83)	
Vietnam	Vietnam Longitudinal	1995 wave retrosp. inf.	3607 men and women	0.25 (0.43)	39.47 (11.22)	0.19 (0.39)	7.85 (2.92)	0.54 (0.50)
Togo	Demographic and Health Survey	1988	2609 women	0.87 (0.34)	30.75 (8.56)	0.30 (0.46)	1.74 (2.96)	
India	India Human Development	2005	32018 women	0.96 (0.20)	33.00 (8.00)	0.36 (0.48)	4.57 (4.80)	
Taiwan	East Asian Social Survey*	2006	1929 men and women	0.13 (0.33)	3.22 (1.63)	0.95 (0.22)	10.65 (4.69)	0.50 (0.50)
Korea	East Asian Social Survey*	2006	1406 men and women	0.21 (0.41)	3.14 (1.46)	0.99 (0.08)	11.95 (4.47)	0.57 (0.49)
China	East Asian Social Survey*	2006	3056 men and women	0.08 (0.28)	2.88 (1.28)	0.68 (0.47)	8.34 (4.24)	0.55 (0.50)
Japan	East Asian Social Survey*	2006	2088 men and women	0.09 (0.28)	3.86 (1.66)	0.88 (0.32)	12.28 (2.56)	0.55 (0.50)
Taiwan	Province-Wide Fertility Survey**	1973 and 1986	9850 women	0.42 (0.49)	43.36 (6.79)		2.26 (1.07)	

*The East Asian Social Survey reports age group instead of current age. The groups are: 1 = 20-29 years old; 2 = 30-39; 3 = 40-49; 4 = 50-59; 5 = 60-69; 6 = 70-79; 7 = 80-89.

**The Knowledge, Attitudes, and Practice of Contraception in Taiwan: Province-Wide Fertility Survey reports education in groups: 1 = none; 2 = some primary; 3 = some junior high; 4 = some senior high; 5 = some college; 6 = some university.

Table 5: Country regressions: Cambodia, Indonesia, Turkey, Vietnam, Togo and India

Table 5. Regressions by country

	Cambodia	Indonesia	Turkey	Vietnam	Togo	India
Female		0.111***		0.00245		
		(0.00951)		(0.0136)		
Age	0.00241**	0.00666***	0.00533***	0.00875***	0.00115	0.000672***
	(0.00109)	(0.000301)	(0.000823)	(0.000681)	(0.000766)	(0.000150)
Urban	-0.0187	-0.0316***	0.00472	0.0633*	-0.0144	-0.00382
	(0.0207)	(0.00917)	(0.0157)	(0.0327)	(0.0197)	(0.00340)
Education	0.00159	-0.0123***	-0.0337***	-0.0227***	-0.00394	-0.00147***
	(0.00272)	(0.00105)	(0.00208)	(0.00285)	(0.00284)	(0.000312)
LFP	0.0463**	0.000411	-0.239**	0.142***	0.0257	
	(0.0226)	(0.0102)	(0.101)	(0.0415)	(0.0162)	
Employee	-0.0544*	-0.0269***	-0.0233	-0.0880**		-0.0206***
	(0.0303)	(0.00998)	(0.0336)	(0.0406)		(0.00302)
Self-employed	0.00535	0.0355***	0.0308	-0.166***		
	(0.0187)	(0.0125)	(0.0379)	(0.0367)		
Manufacture	-0.105***	-0.0161	-0.0915**	-0.0931***		-0.00169
	(0.0360)	(0.0122)	(0.0390)	(0.0199)		(0.00337)
Services	-0.00812	7.04e-05	-0.144***	0.0557		-0.00156
	(0.0210)	(0.0116)	(0.0395)	(0.0481)		(0.00360)
Keep wages					-0.0338**	
					(0.0168)	
Parter Agric					0.0268	
					(0.0179)	
Constant	0.736***	-0.0705***	0.820***	0.0962*	0.833***	0.950***
	(0.0508)	(0.0255)	(0.108)	(0.0527)	(0.0319)	(0.0144)
Obs	5,474	11,579	5,832	3,607	2,609	32,018
R-squared	0.166	0.222	0.146	0.213	0.038	0.027

Table 6: Country regressions: Taiwan, Korea, China and Japan

Table 6. Regressions by country

	Taiwan	Korea	China	Japan		Taiwan
Female	0.0808***	0.0507**	0.0222**	0.0543***	Female	
	(0.0160)	(0.0235)	(0.0104)	(0.0146)		
Cohort 2	0.0571**	0.0334	0.00832	0.0273	Age	0.0131***
	(0.0237)	(0.0359)	(0.0157)	(0.0248)		(0.000756)
Cohort 3	0.0519**	0.115***	0.0353**	0.0408	Education 1	-0.157***
	(0.0234)	(0.0356)	(0.0159)	(0.0249)		(0.0122)
Cohort 4	0.110***	0.121***	0.0441***	0.0719***	Education 2	-0.296***
	(0.0260)	(0.0417)	(0.0170)	(0.0240)		(0.0178)
Cohort 5	0.152***	0.356***	0.119***	0.141***	Education 3	-0.390***
	(0.0335)	(0.0498)	(0.0196)	(0.0257)		(0.0190)
Cohort 6	0.294***	0.478***		0.148***	Education 4	-0.447***
	(0.0387)	(0.0588)		(0.0296)		(0.0350)
Cohort 7	0.290***	0.511***		0.314***	Education 5	-0.470***
	(0.0519)	(0.0965)		(0.0397)		(0.0401)
Urban	-0.0130	0.137	-0.0476***	-0.0306		
	(0.0324)	(0.130)	(0.0173)	(0.0188)		
Education	-0.00559**	-0.0130***	-0.00232	0.00509*		
	(0.00218)	(0.00312)	(0.00155)	(0.00283)		
LFP	0.0420	0.0285	-0.0244	0.0285	LFP	-0.165
	(0.0379)	(0.0524)	(0.0559)	(0.0508)		(0.226)
Employee	0.0183	-0.0166	0.0101	-0.0964***	Employee	-0.00602
	(0.0288)	(0.0595)	(0.0393)	(0.0365)		(0.0213)
Self-employed	0.0192	-0.0186	0.0176	-0.116***	Self-employed	-0.0634***
	(0.0352)	(0.0619)	(0.0410)	(0.0407)		(0.0199)
Manufacture	-0.0568	-0.0473	-0.0191	0.0237	Manufacture	-0.0516*
	(0.0491)	(0.0550)	(0.0207)	(0.0405)		(0.0293)
Services	-0.0436	0.0138	-0.00456	-0.00176	Services	-0.0794***
	(0.0488)	(0.0547)	(0.0196)	(0.0400)		(0.0297)
Constant	0.0425	0.0449	0.104	-0.0160	Constant	0.279
	(0.0794)	(0.167)	(0.0718)	(0.0837)		(0.231)
Obs	1,929	1,406	3,056	2,088	Obs	9,850
R-squared	0.131	0.202	0.042	0.082	R-squared	0.163

Table 7: Other measures

Table 7. Other measures

	Turkey	Cambodia	Vietnam	India	Indonesia
Living with parents or close to them	-0.000771	0.0250*			0.116***
	(0.00317)	(0.0145)			(0.0214)
Living with parents-in-law	0.0653***	0.00309			
	(0.00986)	(0.0106)			
Living on their own house			-0.0721***	-0.0897***	
			(0.0144)	(0.00647)	
Spouse is blood relative	0.0516***			-0.0242***	
	(0.00860)			(0.00817)	
Age at first marriage	-0.638***	-0.199	-1.278***	-0.343***	-1.050***
	(0.0763)	(0.125)	(0.151)	(0.0856)	(0.119)

Table 8: Marriage and Family Laws

Table 8. Laws Regulating Marriage

Country	Year of Law	Law	Addition to the Law
Turkey	1926	*Abolishion of Shariah Law*	Forbade polygamy, instituted civil marriage, allowed the initiation of divorce proceedings by either partner, and guaranteed equality of women before the law. Age at marriage changed from 9 to 15 for girls, from 11 to 17 for boys.
	2001	*New Civil Code*	Among others: minimum age at marriage was raised to 18 for both genders; and minor and adult women pressured to marry are allowed file for an annulment.
Taiwan	1930	*Taiwanese Civil Code*	Adopted male-female equality from German law.
	1937, 1947	*Reform Taiwanese Civil Code and Constitution of the Nationalist government*	Women obtained the right to vote, run for public office, inherit property, obtain education, and to enter into contracts. Both partners in a marriage have equal voice and women can initiate a divorce.
	1996, 1998	*Reform to Family Law*	Father/husband and mother/wife are equal with regard to parental rights, child custody and domicile.
Japan	1947	*Japanese Constitution*	Established minimum age at marriage to 18 for males and 16 for females, and requiered mutual consent of partners.
Korea	1948	*Korean Constitution*	Guaranteed the equality of all citizens and prohibited political, economic, and social discriminationo n accounto f sex, religion, and social status.
	1960	*Korean Civil Code*	The law contained many male-dominant provisions in marriage, divorce, and inheritance.
	1977	*Revision of Korean Civil Code*	The family law maintained the patrilineal family system designating the eldest male as the head of the family. Also limited the wife's role in adoption proceedings, parental authority, division of property, and divorce
	1991	*Revision of Korean Civil Code*	It greatly limited the family head's power and changed the inheritance of the family headship to a succession system.
China	1950	*Chinese Marriage Law*	Prohibited child betrothal and interference in choosing one's spouse, among others. Set minimum age at marriage to 20 for men and 18 for women.
	1980	*Reform of Marriage Law*	Reaffirmed the previous provisions but added the imperative that birth control should be used. Changed legal age to 20 for females and 22 for males.
India	1955	*Hindu Marriage Act*	Established age at marriage to 15 for females and 18 for males.
	1978	*Child Marriage Restraint Act*	Increased minimum age at marriages to 18 for females and 21 for males.
Vietnam	1959	*Family Law*	Ended arranged marriages and polygamy. Brought equality between men and women and protected the basic rights of women and children.
	1986	*Reform of Family Law*	Strenghten and clarified the previous provisions.
	1994	*Reform of Family Law*	
Nepal	1963	*Civil Code*	Child marriage is prohibited under the Nepali law. Minimum age at marriage set at 20 years old. However, it perpetuated the gender segregation.
Indonesia	1974	*Indonesia Family Law*	Set minimum age to 19 for men and 16 for women. Required consent of spouses.
Malaysia	1976	*Malaysia Family Law*	Abolishes polygamy and and sets minimum age at marriages to 18 for males and 16 for females.
Thailand	1976	*Thailand Family Law*	Arranged marriages are forbidden and bans engagements before the age of 17 for both genders.
Cambodia	1989	*Cambodian Family Law*	Minimum age of 20 for males and 18 for females, and required consent of spouses.

Table 9: Domestic Violence

Table 9. Domestic Violence

	Turkey	Cambodia	India
Decisions should be made by men	0.0672***	0.0344*	
	(0.00955)	(0.0182)	
Married women should not work		0.0572***	
		(0.0170)	
Wife has the right to express her opinion		-0.0255**	
		(0.0116)	
Better to educate sons	0.0446***	0.0394**	
	(0.00832)	(0.0179)	
It is ok the beat wife if:			
Food is late or burn	0.00932*	0.0173	0.0276**
	(0.00482)	(0.0116)	(0.0116)
Goes out without permission		0.0583***	-0.00227
		(0.0164)	(0.0122)
Neglects children/house	0.0503***	0.0498***	0.0349***
	(0.00876)	(0.0170)	(0.0120)
Argues	0.0571***	0.0299*	
	(0.00942)	(0.0155)	
Refuses to have sexual intercourse	0.0455***	0.0212*	
	(0.00758)	(0.0128)	
Suspects cheating			0.0236***
			(0.00868)

Table 10: Household Decisions

Table 10. Household Decisions

	China	Japan	Korea	Taiwan
Children's education				
AM	0.0321	0.0637	0.0859*	-0.00196
	(0.0433)	(0.0584)	(0.0497)	(0.0545)
Female	0.0631***	0.374***	0.328***	0.167***
	(0.0167)	(0.0258)	(0.0345)	(0.0288)
AM*Female	-0.0656	-0.121*	-0.170***	-0.0739
	(0.0542)	(0.0707)	(0.0626)	(0.0677)
Support to parents				
AM	0.0718	0.0823	-0.0332	0.0748
	(0.0525)	(0.114)	(0.0653)	(0.0746)
Female	0.000487	0.192***	0.166***	-0.0810***
	(0.0200)	(0.0341)	(0.0361)	(0.0312)
AM*Female	-0.0240	-0.120	0.00230	-0.0821
	(0.0673)	(0.128)	(0.0791)	(0.0899)
Expensive purchases				
AM	-0.0728	0.0124	0.0961**	-0.0188
	(0.0472)	(0.0647)	(0.0469)	(0.0582)
Female	-0.0601***	-0.0677**	0.152***	-0.0913***
	(0.0181)	(0.0275)	(0.0322)	(0.0305)
AM*Female	0.0450	-0.0329	-0.129**	-0.100
	(0.0593)	(0.0776)	(0.0590)	(0.0724)
Allocation of living expenses				
AM	-0.0275	0.0165		0.0648
	(0.0452)	(0.0635)		(0.0604)
Female	0.0650***	0.548***		0.170***
	(0.0175)	(0.0276)		(0.0316)
AM*Female	0.0385	-0.0670		-0.129*
	(0.0569)	(0.0767)		(0.0751)
Marital Satisfaction	-0.261*	-0.0910	-0.442***	0.190
(1 = highest, 3 = lowest)	(0.150)	(0.172)	(0.158)	(0.165)

8   Appendix

Figure 1. Percentage of Love Marriages by Urban and Rural Areas for all cohorts: China, Thailand, Malaysia and Pakistan.
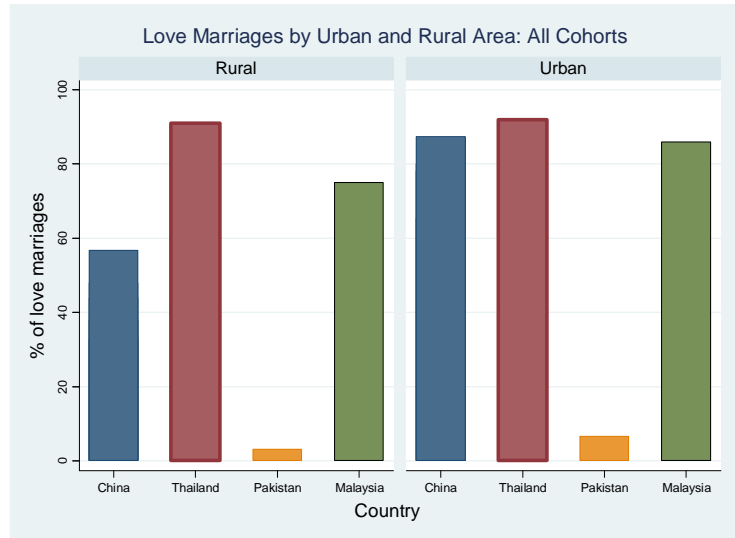

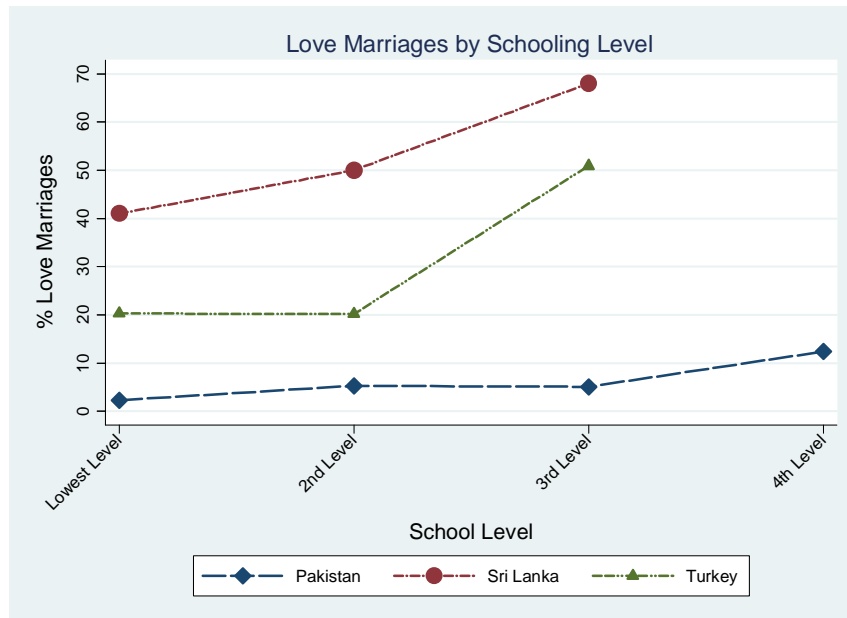**Figure 2.** Percentage of Love Marriages by Schooling Level: Pakistan, Sri Lanka and Turkey.

Figure 3. Odd Ratios and Regression Coefficients for Taiwan, Thailand, China and Indonesia.
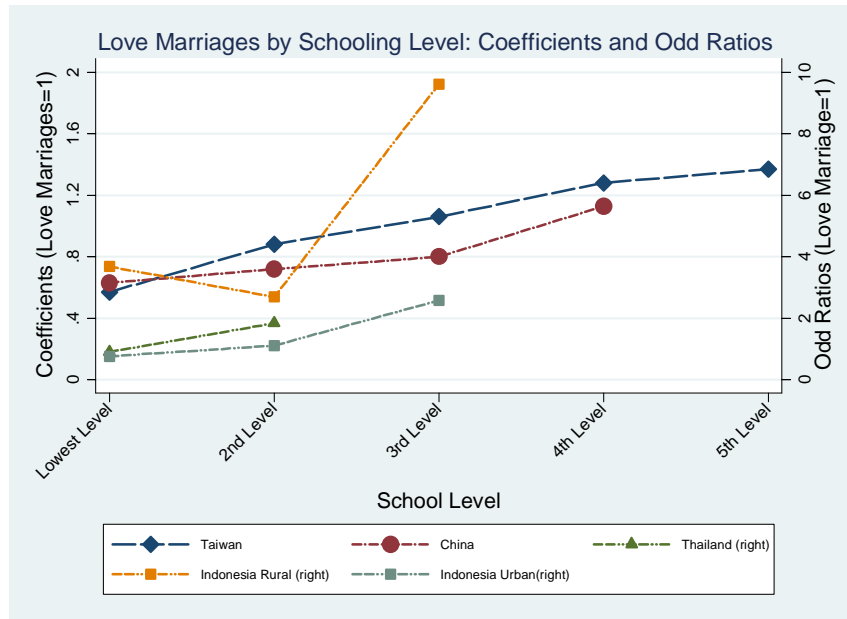
Table 11: Coefficient and sign on education variables

Table 11. Coefficient/sign on education variables

Country	Year of Survey	Type of Analysis	Dependent Variable	Additional Controls	Education Variable	Coefficient	Odd Ratio	t-stat/ std error
Thailand	1978-1979	Logistic Regression	Arranged Marriage	Age cohort, Socioeconomic Background (see Tables 1 and 4)	**Years of education**			
					4	0.105	1.111	(0.53)
					5	-0.61*	0.543	(2.40)
Taiwan	1973, 1980	Mean Value of Dependent Variable	**Ordered Variable** 0 = Arranged	Unadjusted means	None	0.57		
			1 = Intermediate		Primary	0.88		
			2 = Love		Junior high	1.06		
					Senior high	1.28		
					College/university	1.37		
China	2005	Linear Regression	Arranged Marriage	Age Cohort, age at marriage, gender, state worker, father's education, father's state worker, ethnicity	Primary school	-0.630**		(0.214)
					Junior high school	-0.719**		(0.224)
					Senior high school	-0.800**		(0.247)
					University	-1.128**		(0.289)
Ghana	1992-1993	Logistic Regression	Love Marriage	Urban, working, earned income, religion, matrilineal kinship, age, previously married	Educated (=1)	0.51**	1.67	
Nepal	1996	Ordered Logit	Degree of participation in selection of first spouse	Non-family work, ever living away from home, media exposure, age at marriage, participation in youth clubs, gender, family background (see table 4), ethnicity, birth cohort	Enrolled in School	1.06	1.06	(0.38)
					Years of schooling	0.99	0.99	(0.85)
Indonesia	1979-1980	Multinomial Logit	Love Marriage	Birth cohort, family background (see table 4), premarital work (table 4), premarital residence	**Rural Sample**			
					<Primary	1.304	3.68	
					Primary	0.989*	2.69	
					Secondary	2.263***	9.61	
					Urban Sample			
					<Primary	-0.274	0.76	
					Primary	0.105	1.11	
					Secondary	0.946*	2.58	

Thailand: 0-3 years of schooling is the omitted category; t-statistics reported. *Taiwan:* values closer to 2 imply love marriage. *China:* "Less than primary" is the omitted category; standard errors reported. *Ghana* and *Indonesia:* no education is the omitted category; no standard errors or t-statistics were reported. *Nepal:* "arranged marriage" is the reference category for the dependent variable; t-statistics reported.

Table 12: Other Background Characteristics

Table 12. Other Background Characteristics

Country	Year of Survey	Type of Analysis	Dependent Variable	Variable	Coefficient	Odd Ratios	t-stat/ std error
Thailand	1978-1979	Logistic Regression	Arranged Marriage	**Father's occupation**			
				Landed farmer	0.199	1.22	1.08
				Landless farmer	*-0.614****	0.54	*2.11*
				Laborer	0.037	1.04	0.12
Taiwan	1973, 1980	Mean Value of Dependent Variable	**Ordered Variable**	**Father's Occupation**			
			0 = Arranged	Farmer	0.83		
			1 = Intermediate	*Non-farmer*	*1.07*		
			2 = Love				
				Father's Education			
				None --illitterate	0.76		
				None -- can read	0.96		
				Japanese --NA	1.01		
				Primary	1.02		
				Junior High	1.19		
China	2005	Linear Regression	Arranged Marriage	**Father education**			
				Primary school	-0.148		(0.172)
				Junior high school	-0.199		(0.303)
				Senior high school	0.225		(0.282)
				Father state worker	-0.712		(0.199)
Nepal	1996	Ordered Logit	Degree of participation in selection of first spouse	**Family background**			
				Mother's no. of children	0.98		(1.29)
				Mother's work for pay	1.21**		(1.72)
				Mother's education	1.22		(0.70)
				Father's education	1.11		(0.88)
				Residential moves	1.05		(1.12)
Indonesia	1979-1980	Multinomial Logit	Love Marriage	**Family Background: Rural**			
				Professional/business	0.049	1.05	
				Laboring	0.804**	2.23	
				Landless farm	-.252	0.78	
				Family Background: Urban			
				Professional/business	2.349***	10.48	
				Laboring	1.659**	5.25	
				Landless farm	1.540*	4.66	
				Premarital Work: Rural			
				Farm family	0.592	1.81	
				Other family	-1.722*	0.18	
				Farm paid	-0.163	0.85	
				Blue-collar	0.307	1.36	
				Premarital Work: Urban			
				Farm family	-0.690	0.50	
				Blue-collar	0.546	1.73	
Ghana	1992-1993	Logistic Regression	Love Marriage	Working	0.26	1.3	
				Earned Income	-0.61	0.55**	
Togo	1988	Logistic Regression	Love Marriage	**Premarital Wage**			
				For Family	-.3537	0.7	
				For Respondent	0.4278*	1.5	

Thailand: "white collar" is the omitted category; t-statistics reported. *Taiwan:* values closer to 2 imply love marriage. *China:* "Less than primary" is the omitted category; standard errors reported. *Indonesia:* "landed farm" is the omitted category for the family background dummy variables and "no work" is the omitted category for the premarital work dummy variables; no standard errors or t-statistics were reported. *Nepal:* "arranged marriage" is the reference category for the dependent variable; t-statistics reported. *Ghana* and *Togo:* no standard errors or t-statistics were reported..