Marriage and Power:

A cursory look at age at first marriage in developing countries and the variables that explain its variations

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Draft

Section 1: Introduction

"Forget China, India and the internet: economic growth is driven by women."

The Economist¹

Women represent half of the world's population, yet in different cultures and different ages the "fairer" sex has found itself on the receiving end of discrimination, and has frequently been left without a voice both on the political scene and the domestic front. The counterpart of this is that male dominance is an almost universal phenomenon, although the degree to which it is practised and the form it takes varies from culture to culture.² However the issue of how to measure female empowerment in a historical context is a complicated one. Nowadays the World Bank and the United Nations use such indicators as the Gender Empowerment Measure and the Gender-related Development Index. These are composite variables, involving the calculation of various inequalities between men and women compounded into one. This paper will take a different approach, exploring age at first marriage for women and the difference in ages between spouses as an indicator of variations in the women's position of power, and attempting to establish which of a selection of variables play a role in determining this dependent variable for 78 developing countries, from 1950 to the present day. The dataset used has been collected from United Nations, World Bank, Demographic Healthy Surveys, and national censuses. Although not a perfect measure of female empowerment, age at first marriage does give an indication of the position of power of women in a given society, as will be explored in Section 1. The influence of urbanisation, female education, family type and an indicator of the influence of an Islamic population on marriage

¹ April 15, 2006

² Todd, E., (1985) *The Explanation of Ideology*

patterns will be explored. These variables are selected on the basis of theories suggesting they may influence the role of women in society, as will be discussed in Section 2. The central question addressed here is: How are marriage patterns, as a proxy for female empowerment, influenced by a series of variables for a dataset of developing countries?

Section 2: Female Agency and Marriage

Amartya Sen in his book *Development as Freedom* discusses the multifaceted approach that should be taken to promote an environment conducive to economic development. In his approach he makes a convincing case for the promotion of the agency of women as a conduit for social change.³ Women, he argues, should not be seen as the passive recipients of help to enhance their welfare, but as active agents of change: "the dynamic promoters of social transformations that can alter the lives of *both* women and men."⁴ An essential element of this is giving women time and opportunities to build up their own capital both in terms of financial wealth, and education, be it formal or on the job education. A substantial body of recent empirical work has demonstrated the statistical significance of female education and female workforce participation in improving the gender bias that often exists in infant survival opportunities. The gender bias occurs as a result of female infants are losing out in the intra-family division of food division of food and healthcare, therefore more likely to die prematurely.⁵

The burgeoning interest in such facets of economic development as Sen brings to light can be seen in the multiple World Bank, United Nations and World Economic Forum projects that seek to measure and address gender inequality as a way of promoting economic development. Indeed the 3rd Millennium Development goal is literally "to promote gender equality and empower women". At least four of the other goals (universal education, reduction of child mortality, improving maternal health and combating HIV infection) can be linked to women's issues or targeted through increasing female agency. As a result of the realisation amongst the development community that women are key assets in striving for development projects such as the World Bank's "Gender Equality as Smart Economics" seek to move to the foreground women's specific economic issues and illustrate how gender-focused development initiatives can be beneficial to the economy as a whole, beyond just assisting women.⁶ This body of literature also illustrates how development can affect different societies in fundamentally different ways. Development can be very gender specific in its impact, in some cases significantly worsening the plight of women.

It is therefore widely agreed amongst the development community that female agency is important and something that should be examined. However a problem remains as to how to measure such agency. One approach is to look at marriage patterns, which represent an observable bond between man and woman and as such can reflect larger trends within a society. This paper is devoted to using such measures of agency and looking at what variables are important in their determination to come to a number of general conclusions as to what it is that influences female agency.

³ In Sen's usage the word agency means the power women have to make decisions as regards their own lives) ⁴ Sen, A. *Development as Freedom*, p.189

⁵ For example: Murthi, Mamta; Guio, Anne-Catherine; Dréze, Jean "Mortality, Fertility and Gender Bias in India: A District Level Analysis" *Population and Development Review*, 21 (December 1995). This is a "softer" form of female infanticide which is a phenomenon with a long history in some areas of the world. ⁶<u>http://go.worldbank.org/A74GIZVFW0</u> and <u>http://go.worldbank.org/HBLTTGNP00</u>

Another reason for exploring female agency is that it has links to a central issue in economic history, the question of why Europe forged ahead economically leaving the rest of the world in its wake with the dawn of the Industrial Revolution. The academic camp divides in two over this question, with those who argue that the occurrence of the Industrial Revolution in Europe was purely a matter of luck (i.e. that Europe is not particularly special) and those who put forward the notion that Europe had a longer history of specific factors that combined to contribute to its eventual economic growth spurt. It can nevertheless be convincingly demonstrated that by the 16th century Western Europe was richer and more productive than the rest of the world and that this gap was only to widen over the next four centuries.⁷ This growing gap is likely to have come about as a result of underlying structures and institutions in European societies and economies. One of the underlying causes, which ensured that Europe differed from the rest of the world, was that changes had taken place in a key institution in society, namely the family. Most noticeably in Europe's case there had been a change in marriage patterns and the role of women, particularly in terms of labour force participation and household formation.⁸

Europe, and particularly Western Europe, has been held up as an example of an exceptional marriage pattern. Hajnal first succinctly identified a marriage pattern specific to Western Europe, west of the St Petersburg-Trieste line. The distinctive features of this marriage pattern were high ages at first marriage (above 25), a small gap between male and female age at first marriage, and a high percentage of women who never married, between 10 to 15 percent. This is in strong contrast to, say, the Chinese marriage pattern where practically 100 percent of girls married at very young ages.⁹ Similarly in Islam the practice of taking child-brides remained prevalent until the 1950s.¹⁰ Tine de Moor and Jan Luiten van Zanden explored the early emergence of the European marriage pattern in their article "Girl power: the European marriage pattern and labour markets in the North Sea region in the late medieval and early modern period".¹¹ As the title suggests their article delves into the relationship between marriage pattern and women's labour market opportunities. They show that as early as the 14th century women in Europe were in a position of some considerable power as demonstrated by later age at marriage and high permanent celibacy rates, which were in turn a result of a relatively high degree of equality between men and women as a result of greater labour opportunities and inflated remuneration.

The power relationship between men and women as it relates to marriage can be analysed in different ways. One can take anecdotal evidence of the power dimension of males versus females, or look at legal institutions, i.e. the laws of inheritance and divorce. Another way of analysing marriage is to look at the age of first marriage for men versus women. These ages can be informative in two ways. The first is that a large age gap between men and women at time of marriage would generally indicate that the younger partner has less power and less say in the relationship, in Sen's words less

⁷ Landes, 1998 and Maddison, 2001

⁸ Hajnal, J., 'European marriage in perspective', (1965), pp. 101–43 and Moor, T. de, and Zanden, J.L. van, (2010) "Girl power: the European marriage pattern and labour markets in the North Sea region in the late medieval and early modern period." pp.

⁹ Maynes, M.J. and Walter, A. (2001) Women's Life-Cycle Transitions in a World-Historical Perspective, comparing marriage in China and Europe

¹⁰ Prothro, E. T. and Diab, L.N. *Changing Family Patterns in the Arab East,* Table III-4

¹¹ Moor, T. de, and Zanden, J.L. van, (2010) "Girl power: the European marriage pattern and labour markets in the North Sea region in the late medieval and early modern period." The Economic History Review, 63, 1, pp. 1-33

agency, in Emmanuel Todd's words (to be discussed below) an absence of liberty. The general pattern is that one finds the average age of men at first marriage is higher than the average age of women at first marriage. The more extreme this gap the more safely one can say that the female probably had little power over deciding the terms of the union. However this is not the only factor influencing agency. The second way that age at marriage can be informative is in looking at the actual average age at which people marry. If women marry in their mid- to late twenties (even if their spouses are considerably older) then they have some time, between puberty and married life, to mature and build up their knowledge base and human capital investments, as opposed to girls who marry and enter their spouses' households in their early teens.

An important point to be addressed is what exactly is meant by the term "marriage". In his text book on sociology Anthony Giddens defines marriage "as a socially acknowledged and approved sexual union between two adult individuals."¹² The social acknowledgement is an essential element, as is the concept of "adult" the definition of which varies across time and culture. Seen at its most practical level marriage is a contractual agreement to create a legal entity, the married couple. The longevity of this central unit of the family depends on the cultural norms that prevail and as such the institution of marriage is not fully comparable across the globe, but for the sake of this research it is similar enough not to pose significant difficulties. For this research the ceremony of marriage represents a similar epoch in the couple's formation, i.e. the start of cohabitation.

Another unusual feature of the European marriage pattern which Hajnal, and de Moor and van Zanden discuss involves the nature of this cohabitation. The Western European Marriage Patterns stands out for its creation of a separate family unit that occurred once a couple were wed; the formation of the neolocal household. In most other parts of the world the married couple would correside with the parents of one of the partners, most often those of the groom. All in all historically the Western European Marriage Pattern is substantially different from that found in other parts of the world. But what of the latter day situation? Graph 1 addresses this question.

Graph 1 has data points for every country of the world for which there is data on SMAM of women and GDP per capita (taken as a rough indicator of development) with trend-lines added for the different regions. Here groupings used in Maddison's dataset have been used as well as an overarching category West (which includes Western Offshoots and Western Europe).

¹² Gidden, A. *Sociology*, 6th Edition, p. 331



Graph 1: World Marriage Patterns

Looking at the graph the data suggests that Western Europe is still leading the way in terms of later age at first marriage and has the highest correlation between GDP per capita and female SMAM.¹³ This graph shows clearly the curious behaviour of the Western Offshoots group, which is the only region for which the trend line is downward sloping. The United States behaves in a particularly peculiar way, with one of the highest GDP per capita but a rather low SMAM. The presence of the group of Western Offshoots in the category "the West" decreases the r-squared of the trend line substantially from 0.0842 to 0.6658.

When analysing Graph 1 the values, particularly the very high values to be seen in Western Europe and its offshoots, must be looked at in light of "modern" norms and values. In our changing world of more liberalised sexual relationships, marriage no longer represents the sluice gate on fertility and female work outside the house that it once did. Over recent years the number of children born out of wedlock in Europe has increased significantly. Indeed in some countries such children now represent the majority of births (Iceland, Scandinavia excluding Denmark, and France).¹⁴ Since recent European data is likely to be heavily biased by the liberal sexual mores, and therefore not suitable for statistical analysis this paper focuses on marriage patterns in developing countries over the past fifty years.

One thing that stands out when examining Graph 1 is the very low fit of the linear relationship in West Asia. Latin America is also noteworthy but removing the extreme outlier of Jamaica improves the r-squared dramatically. West Asia covers a grouping of countries this paper is interested in, therefore it is interesting to note that the relationship between GDP per capita and SMAM is not as straight forward in this part of the world as in others. This suggests some underlying institutional form is affecting the marriage systems of the countries involved.

The underlying institutional form may well be that of the family. The family is the basic unit of all societies. How this family unit operates and has altered over the course of history is a multi-faceted topic and one which has important impacts on economic growth and development. The institutional arrangements which regulate family life are of great importance to societal development as a whole. One author who has developed this idea in his writings is Emmanuel Todd. In his book, *The Explanation of Ideology*, he eloquently expounds upon the idea that on a global

¹³ Often census data does not provide data on the average age at which people married but instead records tables dividing the population into age bands and marital status. For the use of such data Hajnal proposed a method of measurement known as Singulate Mean Age at Marriage (from here on in referred to as SMAM). The method works as follows: Using the never married category percentages single can be calculated for every age band, and by weighting these by the number of years in each age band the mean age of the transition between single and married can be calculated. One subtracts the number of years spent single by those who never marry so as ensure that their numbers do not bias the result upwards.

Two issues with this calculation arise. Firstly the SMAM takes a single point in time and calculates the age at marriage by looking at the whole range of marital experiences of the population aged between 15 and 50. This can be very different from the true mean age of marriage which can be a cohort specific measure. Where marriage patterns are changing rapidly and therefore the older generation experienced a very different marriage pattern than that of the youngest cohort this difference can be significant. The second issue arises due to the retrospective nature of the calculation that SMAM represents. This means the SMAM results are influenced by age and marriage specific mortality and by any in or out migration. It is important to keep these issues in mind, yet SMAMs remain a way to provide a useful index of marriage patterns where there is an absence of alternative data. It is also important to note that as SMAM ignores the permanent celibates, these too must be considered if one wishes to gain a complete picture of marriage patterns.

¹⁴ http://www.oecd.org/dataoecd/38/6/40278615.pdf

scale the appearance of different political systems can be explained by the development of different ideals of equality and liberty within the family sphere, projected on to the governmental level. The family unit is where children first learn about authority and liberty, rights and obligations (and therefore also where values associated with women are transmitted). Throughout the history of political thought there runs a thread which has touched the works of many theorists: family relations between parents and children and between husband and wife form the model for political systems, and serve to define the relationship between the individual and authority.¹⁵ This paper will not explore the ideological systems of each country in detail but will use the typology put forward by Todd as an explanatory variable, as his framework for analysis also draws heavily on the relationship between generations and to some extent upon the freedom of women. This framework and its implications for marriage patterns will be expounded upon in Section 2.3.

Marriage is an institution which has developed in many different cultures, in many different guises. The ceremonial tying together of a mated pair in a socially recognisable way has been an intrinsic part of life for many people throughout history.¹⁶ But what does marriage mean for the economy, the partners involved and particularly for the women involved? Marriage for women often meant their removal from the labour market as they found themselves obliged to stay at home, sometimes as much due to the pressures of social convention as those of child-bearing/rearing and housekeeping. The disappearance of married women, or conversely the presence of a large group of single women can have a fundamental impact on the labour market, and on the powers and rights that women have available to them. Here we are interested in what marriage can bring to light about empowerment of women.

Turning now to spousal age gap what one often sees as countries develop, or as women's rights improve is a fall in the difference in age between husband and wife. Graph 2 below shows a general snapshot the most recent men's and women's SMAM on a world-scale, for each country graphed against the country's 2008 GDP which is at this point used as a very rough indicator of development.¹⁷

¹⁵ Todd, E. (1985) *The Explanation of Ideology*, p. 6

¹⁶ Marriage is not, however, universally practised and the line between married and unmarried can be blurry (CITATION)

¹⁷ Jamaica has been removed as it represents a substantial outlier in both datasets in terms of the overall pattern and in terms of countries in its vicinity



Graph 2: Male and Female SMAM

Graph 2 illustrates the narrowing of the age gap and the overall increase in SMAM that is seen as one moves from the countries with the lowest GDP to those with the highest. It supports the suggestion that economic growth goes hand in hand with an increase in the age at which people choose to marry and a decrease in the age gap between brides and grooms. The general trend is observable, as is the fact that the increase in SMAM as GDP increases across the sample is less marked for men than for women (this causes the narrowing of the spousal age gap). This implies that economic growth has a greater impact on the female experience of marriage than on that of men.

Presuming that illegitimacy is not rife, later ages of first marriage also put a limit on fertility. Waiting until an older age to get married restricts the number of children a woman can expect to have.¹⁸ This basic fact was clearly acknowledged by such early economic thinkers as Thomas Malthus. His theory on the relationship between wages and population growth relies heavily on the postponement of marriage as a preventative check on fertility. Economists including Gary Becker have argued that the possibility of constraining fertility means that parents face a trade-off between the quantity of children they choose to produce and the quality of said children (i.e. how much they invest in their education and development).¹⁹ The opportunity cost of having more children is a lower investment in their "quality". Therefore another aspect of later marriage limiting fertility is that it should lead to greater human capital in the population: lower fertility as a cause of improvements in education as the lower number of children are on the receiving end of higher investments in their "quality". Improved human capital is of key importance to endogenous growth theories which purport that the driving factor behind economic growth is technological progress based on the foundations of increased human and physical capital within a population. Enhancements to the education of children will likely prove beneficial to society at large as they increase the chance of innovation and technical progress. However this relationship is reciprocal. Paul Schultz in an article entitled "Demand for Children" found that the most important factor in explaining decreased fertility in developing countries was increased education of women; more

¹⁸ Having fewer children may well in itself be indicative of greater female agency.

¹⁹ Becker, G. (1992) "Fertility and the Economy" Journal of Population Economics

educated women have fewer children and the cost of educating children to a higher level leads to having fewer children.²⁰ This indicates that there is an element of reverse causality in this relationship – higher education leads to fewer children but fewer children also leads to higher education.

The economic analysis of marriage in this paper stems from these observations of the importance of age at first marriage but looks at them not from a fertility perspective but from the perspective of what they say about the position of women. Using regression analysis, this paper explores what the determinants of female age at first marriage and the spousal age gap are, using a number of variables inspired by different disciplines. First, however, let us turn briefly to the development over time of trends in age at first marriage found in a subset of the lesser developed countries database which will be employed for the regression analysis.

2.2. Time trends of Age at first Marriage in Developing countries

The following two graphs provide an idea of the trends over time to be observed in lesser developed countries of the Middle East and North Africa in the last century:



Graph 3: Time trends in female SMAM for selected MENA countries

²⁰ Schultz

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Graph 3 shows female SMAM increasing from under 15 in 1925 in Syria and Jordan to over 25 by the end of the period. Egypt has made steady and less significant gains while Lebanon, having started just below Egypt now comes out as the second highest Middle Eastern country in this sample.

Graph 4 shows more clearly a divergence that seems to have occurred at a specific point in time. From the late 1960s onwards the age at which women were marrying seems to have been steadily increasing for all the countries graphed. However some countries have experienced far greater increases than others. Algeria, for example, has shot ahead of the rest of the pack and now has a SMAM for women close to that of Western European countries. This trend seems to have started around 1967 and continued as a steady, almost linear trend, over the intervening years. Yemen, Sudan, Iran, Turkey and Egypt meanwhile have experienced much smaller although still notable increases in their SMAM. What factors underlie these differences? Why do some countries in the Arab region have such high age at first marriage (indeed that of Algeria is almost equal to the SMAM observed in the United Kingdom for the same year) while others lag behind? This graph presents just a handful of countries in one region but the same questions can be asked of a larger set of developing countries. The analysis below will seek to address these questions first by running regression analyses of female SMAM on a series of explanatory variables. In the section below the scope is expanded to include a set of 77 developing countries with panel data for the last 60 years.

Section 3. Model Specification

The model specifications to be used in this section are: $SmamFemale = \beta_1 Urbanisation + \beta_2 Average years of schooling female 15 + \beta_3 Percentage Islam$

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+ $\beta_4 exogamous community$ + $\beta_5 asymmetrical community$ + $\beta_6 authoritarian$

+ $\beta_7 egalitariannuclear$ + $\beta_8 absolutenuclear$ + $\beta_9 anomic$ + $\beta_{10} a frican$

$$\begin{split} SmamFemale &= \beta_{1}Urbanisation + \beta_{2}Average years of schooling female 15 + \beta_{3}exogamous community \\ &+ \beta_{4}asymmetrical community + \beta_{5}authoritarian + \beta_{6}egalitarian nuclear \\ &+ \beta_{7}absolute nuclear + \beta_{7}anomic + \beta_{9}africa + \beta_{10}Islam 1950 + \beta_{11}Islam 1955 \\ &+ \beta_{12}Islam 1960 + \beta_{13}Islam 1965 + \beta_{14}Islam 1970 + \beta_{15}Islam 1975 + \beta_{16}Islam 1980 \\ &+ \beta_{17}Islam 1985 + \beta_{18}Islam 1990 + \beta_{19}Islam 1995 + \beta_{20}Islam 2000 + \beta_{21}Islam 2005 \end{split}$$

The same three models but with spousal age difference as the dependent variable will be also be analysed. The family variables are encoded as dummies with the endogamous community family omitted from the regression as the reference category. The endogamous community family is the dominant family type in the Middle East and North Africa. The effect of Islam is measured both through a straightforward percentage (given as a decimal in the data set) Islam variable and in the third model specification using a time series variable, whereby the percentage Islamic population is interacted with a dummy variable for time period.

When it comes to choosing variables to explain female agency there are many options. This section will explain why specific variables were chosen and what their hypothesised effect are on the two dependent variables (female SMAM and spousal age gap). Firstly urbanisation will be examined, secondly the female education variable, thirdly the family type classification system and finally the percentage Islam variable.

3.1. Urbanisation:

Urbanisation is a phenomenon that is intrinsically bound up with modernisation and societies undergoing a process of development. As societies shift from agricultural to non-agricultural pursuits agglomeration in cities becomes economically efficient. The 2009 World Development Report highlights the process of urbanisation as a source of growth, integration and specialisation. The basic premise of the report is that economic density is attractive. This stems from the fact that agglomeration allows for greater scale economies. The generation and presence of scale economies in the mode of production is also a reason for the increasing importance of urban settlements over time. This is observed by one of the heavyweights in the study of political history, Charles Tilly, when he defines urbanisation as "a collective term for a set of changes which generally occur with the appearance and expansion of large-scale co-ordination activities in a society".²¹

Although one should not overemphasise the link between urbanisation and modernisation, as cities have been around since a very early stage in history, there has obviously been a massive increase in the percentage of population living in urban conurbations in the last three centuries.²² This process is at its most advanced stage in the developed countries while it is a process that is still in an intermediate phase in many other parts of the world. The link between urbanisation and economic productivity can also be empirically underpinned.²³ As such, the inclusion of the variable urbanisation in the model specification is justified as a proxy of sorts for the larger process of "modernisation".

What, however, does theory suggest the link between urbanisation and age at first marriage partners will be? This question has two answers. Firstly it is possible that the increase in people living in cities (and it is particularly the younger population groups who migrate) creates a larger marriage

²¹ Tilly, C. (1964), The Vendée

²² Jan de Vries (1990) "Measurement Description and Analysis", p.56

²³ Malanima, P. (2005) Urbanisation and the Italian economy during the last millennium"

market. This larger marriage market in turn increases the opportunity young people have to meet a suitable partner thereby resulting in lower ages at first marriage. A further lowering of the marital age may stem from the fact that urbanisation can significantly alter the sex ratio of cities. Often it is young males who migrate thus swinging the ratio of marriageable males to marriageable females to a situation where men outnumber women thus also depressing the age at which women in cities get married.²⁴ The second possible effect is that young people moving to the cities break from the traditions of their original homes and/or the sphere of parental influence. This increases their opportunities both in terms of more casual relationships and in terms of labour force participation. This effect would logically have the effect of delaying marriage and therefore higher SMAM. Overall it is hard to predict which effect will be strongest. As to the difference in age between spouses one would expect that both the larger marriage market and the break with parental authority would result in a lower age gap between spouses.

3.2. Female Education:

In Gary Becker's analysis of marriage couples wed young and universally if they can offer each other complementary inputs. This complementary nature of the union means that utility is generated by forming a household. If the position of women within a society improves in such a way that their wage rates relative to that of their male counterparts increase then the gains from marriage for women are eroded.²⁵ One way in which women can gain a more equal footing in the job market is through increased education. This set of observations entails that increased education is likely to lead women to marry later and less universally as their benefits from marriage diminish (or rather the opportunity cost of marriage and child-bearing increases). The graph below confirms this point:



Graph 5: Education and Female SMAM

Graph 5 above presents female SMAM graphed against average years of schooling for females at the age of 15 as presented in the Barro and Lee dataset (which will also be used in the regressions

²⁴ Jan de Vries (1990) "Measurement Description and Analysis", p.56

²⁵ Becker, G. (1973/1974) A Theory Of Marriage Part I & II

below). One can observe a relationship of sorts between the two variables, a positive correlation is clearly present. Female education is widely seen as being a way in which women can be empowered. In evaluating its third millenium goal, that of the promotion of gender equality, the UN uses ratios of girls to boys enrollment rates in education. These ratios constitute not only the measure of gender equality but also the tool that they recommend using in order to achieve gender equality. It is rather logical that, if the tool being used to foster gender equality is the increase of the ratio of girls to boys in education then as this policy is put into action the measure of gender equality also improves.²⁶ It is rather self-serving to use the same variable as the tool and the measure of gender inequality. This is why it is important to look at other measures of female agency. The UN does look at other variables but the ratios of girls to boys in education is neatly straightforward to examine and more easily controlled than other measures of female empowerment. These observations lead to the more general point that when looking at this variable there is a problem of reciprocity. It is likely that more educated women do indeed have more agency and can therefore influence their marriage to a greater extent. However it is also the case that marrying later (and the possible greater agency this reflects) gives women time to build up their human capital. The two effects likely feed each other so any correlation found in the regression analysis must be interpreted keeping this in mind.

3.3. Family Type:

Families around the world differ in their approach to marital relations, intergenerational power relations, inheritance laws and co-habitation. One of the important impacts of a family system is the way in which it influences the power balance between men and women, parents and their offspring. One scholar who has explored different modes of family as they relate to these power balances in detail is Emmanuel Todd (mentioned above). Todd used these differences in marital relations, intergenerational power, inheritance law and cohabitation to divide the countries of the world into regions dominated by certain practices. These practices are cohabitation of parents and their adult children, division by inheritance on an egalitarian, non-egalitarian or indifferent basis, and the frequency and degree to which marriage within the family is practiced (endogamy). He divides the world into 8 family types (however the 8th family type, the African family system is left as an anomaly, not classifiable using the same system as used for the other 7). Todd's typology has been examined for the European case by a group of sociologists who found that the structure has lasting impacts on a series of demographic, educational, social and economic indicators.²⁷ Although this does not prove that Todd's typology still holds for the global set it gives us an indication that there is a strong possibility that it may still be relevant in determining social phenomena. The table below presents stylised facts about each family type and its defining characteristics; I have added an extra column to indicate the hypothesised influence on marriage patterns:

²⁶ See appendix for example of UN data on this topic

²⁷ Duranton, G., Rodríguez-Poseb, A. and Sandall, R. "Family types and the persistence of regional disparities in Europe"

Table 1: Todd's typology

Family Type	Liberty	Symmetry	Endogamy	Marriage Patterns
Endogamous Community Family	Marriage defined by custom	Symmetry	Permitted	Low age of marriage
Exogamous Community Family	Marriage determined by parents	Symmetry	No marriage between the children of two brothers	Low age of marriage
Asymmetrical Community Family	Marriage defined by custom	Asymmetry	Permitted	
Egalitarian Nuclear Family	Free choice	Symmetry	Obligatory exogamy	High age at marriage
Absolute Nuclear Family	Free choice	Indifference	Obligatory exogamy	High age at marriage
Authoritarian Family	Marriage determined by parents	Asymmetry	Little or no marriage between the children of two brothers	Higher number of permanent celibates
Anomic Family	Free choice	Indifference	No obligatory exogamy	Low spousal age gap
African Family			Generally strong prohibitions of consanguinity	Marriage as a more fluid institution – frequently changing partners

To elaborate upon the above and explain where the different characteristics come from the following table explains, in single sentences (the majority of which are in Todd's own words), the key characteristics of each family type with reference to each of the distinguishing variables:

Table 2: Todd's typology expanded

Characteristics of endogamous community family
 Cohabitation of married sons with their parents Equality between brothers established by inheritance rules Frequent marriage between the children of
brothers 4. Low age of marriage as no need to establish separate household
Characteristics of the asymmetrical community family
 Cohabitation of married sons and their parents Equality between brothers laid down by inheritance rules
 Prohibition on marriages between the children of brothers, but a preference for marriages between the children of brothers and sisters Should not be significantly different from endogamous community family
Characteristics of absolute nuclear family
 No cohabitation of married children with their parents No precise inheritance rules, frequent use of wills No marriage between the children of brothers Age at marriage should be high and spousal age gap low
 Characteristics of African systems: 1. Instability of the household 2. Polygyny 3. Marriage is looser – hard to predict what this will mean in terms of age of marriage –marriage as less of a permanent commitment so possibly lower age at marriage for women

To give an impression of the geographic spread of the family typology a scan of the map Todd provides is included in the appendix.

The dataset employed in this analysis is not even in its coverage of family types. Certain family types are represented by only one country.²⁸ At this point these regions are left in the dataset however when looking at the results of the regressions this must be kept in mind. Running the regressions without the categories for which this is true does not change the significance levels of the other results.

Lastly the following table shows Todd's hypothesis regarding age at first marriage under the three general categories of family type:

Family Type	Low	Middling	High
	(before age 19)	(19-24)	(over 24)
Nuclear family	NO	YES	YES
Community family	YES	YES	NO
Authoritarian family	YES	YES	YES

Table 3: Todd's predictions of age at first marriage

As mentioned above the endogamous community family is used as the base category in Section 3.

3.4. Percentage Islamic Population:

Women in Islam is a difficult subject, one which evokes much debate around the world, mostly revolved around standpoints to do with veiling and women's rights that lack nuance. The variable of the percentage of the population practicing the Islamic faith in each country is included here to see what the effect of a higher percentage of Muslims in a country is on the average age of marriage. Initially this variable is just used as given. However, an alternative approach is adopted in later regressions where an interaction variable between time period and percentage Muslim is examined. This interaction variable gives the effect of the presence of Muslims within a population as it changes over time on the dependent variable. The hypothesis is that, based on ideas of the suppression of women's rights in Islam, this variable will depress age at first marriage for women and result in a larger spousal age gap. As to the time series variable it is hard to predict the outcome. On the one hand recent years have seen a spike in Muslim fundamentalism which may depress female age at first marriage and increase the influence of Islam on female age at marriage.²⁹ On the other hand processes of globalisation, education and new found oil wealth in many Islamic countries may well erode the influence of the Muslim faith and put upward pressure on female age at first marriage.³⁰ It remains to be seen which mechanism will prove more influential. This variable is coded as a decimal number taking values 0 to 1 in order to make interpretation of the coefficient easier.

Section 4: Results

The results of the regression using the variables from section 2 to explain female agency are presented in the tables below:

²⁸The authoritarian family only occurs in Korea, India is the only representative of the asymmetrical community family and South Africa is the only country which at least partially represents absolute nuclear families.

²⁹ Shehadeh, L. R. (2003) The Idea of Women in Fundamentalist Islam

³⁰ Bahramitash, R. (2003). Islamic Fundamentalism and Women's Economic Role: The case of Iran

Independent Variables	Dependent Variables					
	SMAM female,	SMAM female,	xtreg SMAM female,	Difference in age	Difference in age	xtreg Difference, re
	robust	robust	re	between spouses	between spouses	
Urbanisation (%/100)	0.70011	1.53167	2.60015	-0.97702	-0.83398	-1.92654
	(0.46652) ***	(0.48)*	(0.71)*	(0.2746)*	(0.311)*	(0.53)*
Average years of schooling for	0.6974018	0.5837697	0.7473659	-0.2796061	-0.2334728	-0.2337
females at age 15	(0.05053)*	(0.04586)*	(0.0445)*	(0.02671)*	(0.02844)*	(0.0335)*
Percentage Population Muslim	0.9543943	-0.6522606	-0.2643382	0.59741	0.8853731	1.2496
(%/100)	(0. 213763)*	(0.2770)**	(0.5789)	(0.1535)*	(0.2679)*	(0.4346)*
Exogamous Community		-2.696165	-2.1847		-0.5799	-0.690223
		(0.40208)*	(0.9550)**		(0.30476)**	(0.7141)
Asymmetrical Community		-0.2616	0.1384		1.014162	1.06304
		(0.40423)	(1.7260)		(0.25166)**	(1.2933)
Authoritarian		-0.4505	-0.6607337		0.7247475	1.14079
		(0.2760)	(1.5512)		(0.1929)*	(1.1621)
Egalitarian Nuclear		-1.9617	-2.156589		0.3534748	0.7414
		(0.20953)*	(0.6079)*		(0.17484)**	(0.4545)
Absolute Nuclear		2.9160	2.155088		-1.768931	-1.5962
		(0.38730)*	(1.5427)		(0.23879)*	(1.1490)
Anomic		-0.1302	0.1587551		-0.2887	-0.3534221
		(0.18017)	(0.5287)		(0.12898)**	(0.3946)
African		-1.1881	-0.3687732		0.9141521	1.007662
		(0.23403)*	(0.5789)		(0.2495261)*	(0.3414)*
Constant	18.4751	19.8140	18.29		5.082028	5.358842
	(0. 2075447)*	(0. 2557)*	(0.4609)*		(0.1987)*	(0.3414)*
R ²	0.4843	0.5857	0.5701	0.38	0.44	0.44
F	187.24	82.7		104.39	41.01	
Number of observations	596	596	596	517	517	517

Table 4:

*Significant at 1% level

**Significant at 5% level

*** Significant at 10% level

The results from the regressions are close to those predicted by theory. Urbanisation has a small but significantly positive effect on female SMAM, and a small but significantly negative effect on the difference in ages between spouses. It seems that the break with parental authority outweighs the enlarged marriage market effect.

The education variable is robustly significant at the 1% level, contributing to an increase in female SMAM and a decrease in the spousal age gap. Although the reciprocal effect of this variable discussed above must be kept in mind at the present stage the analysis reveals that educating women increases their age at marriage and decreases the age gap between husband and wife thus likely contributing to greater female agency.

The percentage Muslim population variable is surprising. In the first model specification it has a positive value suggesting that contrary to standard perspectives on women in Islam a higher percentage of Islamic practitioners may well increase age at first marriage for women. This positive effect of Islam disappears however with the inclusion of family type in the model. This suggests that the positive effect of Islam on female SMAM over other developing countries is largely subsumed by characteristics intrinsic to the predominant family type in Islamic countries (the endogamous community family).

Surprisingly, the exogamous community family has significantly lower ages at marriage than the endogamous community family but also significantly lower spousal age gaps. In this dataset exogamous community families occurs in China, India, Cuba and Nepal (Mongolia and Russia also have this family type but are not currently in the sample, but on inspection they have very similar age at marriage as the other four representatives). A possible explanation for this might be found in the study of endogamy. The incidence of endogamous marriage in the Arab world has remained high. A 2008 article by Alexander Weinreb cites the lowest level of endogamous, which he refers to as consanguineous, marriage in the region as being that of Algeria, where 23% of all unions are endogamous. At the other end of the spectrum Iraq, Jordan, Kuwait, Pakistan, Saudi Arabia and the UAE demonstrate a level of endogamous marriages of over 50%.³¹ Why does endogamy remain an attractive prospect? And could this help explain the significant difference found between exogamous and endogamous community families? Following Weinreb there seem to be three mechanisms which are at work to make endogamous marriage an appealing proposition. These are the woman's position, economic factors and limited local cultural factors. The first of these factors is directly related to women's agency. The attraction of endogamous marriage in this context arises from two factors; namely the legal position of women in Islam and the manipulation of kinship ties.³²

The legal position of women in Islam is often said to be characterised by a dichotomy between the public and private sphere. Within the confines of the household women have a degree of agency and have the right to move freely. Outside the household this is not the case. The resulting institutional situation gives rise to the second factor, i.e. that women use the resources available to them, which in this case entails the manipulation of kinship ties. Endogamous wives in this setting are in a more powerful position as they have married into their own family and therefore have a more accessible network for influencing decisions made in their immediate environment. How this translates to higher age at marriage is not immediately clear. Possibly as there is reciprocity and

³¹ A.A.Weinreb, (2008) "Characteristics of Women in Consanguineous Marriages in Egypt, 1988-2000"

³² For the time being I will ignore the limited local cultural factors

close ties between the two families the pressure to get married young is less than in exogamous community families, which rely on incoming females for household chores. ³³ The lower spousal age gap in the exogamous community family however suggests that men are also getting married younger as well, although this value was not significant using the panel data specification. The asymmetrical community family is not significantly different from endogamous community family as predicted, apart from the OLS specification for spousal age gap which sees the asymmetric community family pushing the spousal age gap to a higher level than that found in the endogamous community family.

The egalitarian nuclear family in this dataset is represented largely by South American countries. Todd puts forward that one effect of the symmetrical treatment of brothers (as compared to the absolute nuclear family) in this family type is to create an ideal of male solidarity which in turn leads to a macho society whereby men are held to be superior to women.³⁴ This may to some extent explain the lower age at marriage, although the community family also reinforces the bonds between brothers therefore should also lend itself to a more "macho" society. Another point that must be made about South America is that marriage is not a universal institution. Historical studies of marriage in South America have found remarkably high numbers of single mothers and femaleheads of household.³⁵ This could suggest that those who get married are a distinct group within the population with different characteristics. One such study found that the age at first child birth was lower for those who got married than those who had children out of wedlock.³⁶ However more recent studies of Latin American marriage support the idea of near universal marriage at a young age as an important family institution in times of economic turbulence.³⁷ Other studies explore the additional phenomenon of the coding of marriage in Latin America which is confused by the presence of large groups of individuals in consensual unions.³⁸ The difference between the female SMAM of the endogamous community family and the egalitarian nuclear family is however substantial and significant at the 1% level.

The female SMAM of the anomic family is not significantly different from the endogamous community family. This is somewhat surprising as the anomic family is meant to encourage greater equality between the sexes. The spousal age gap using an OLS model specification is significantly different from that of the endogamous community family, and lower indicating greater equality, however this disappears when a random effects specification is used. Finally the African family type has a significant negative effect on female SMAM using OLS regression (this significance disappears in a random effects estimation) and has a consistently significant and positive effect on the spousal age gap. The regression results including the time trend for the effect of Islam are presented on the next page:

³³ Note to self - When the parents of both partners are related if the two are promised to each other I can imagine there is less pressure to formalise the wedding than in a system where the two households are relative strangers – easier to enforce the promise between family members? – value of belonging to a community – enforcement mechanism

³⁴ Todd, p.111 – personally I'm not a fan of this line of reasoning of Todd's but at the moment I have found no other explanation

³⁵ Silva, N. (1980), Nuptiality Estimates and Consensual Unions: The Brazilian Case and Ramos, D. (1991), Single and Married Women in Vila Rica, Brazil, 1754 - 1838

³⁶ Ramos, D. (1991), Single and Married Women in Vila Rica, Brazil, 1754 - 1838

³⁷ Fussell, E. and Palloni, A. (2004) Persistent Marriage Regimes in Changing Times

³⁸ Martin, T.C. (2004) Consensual Unions in Latin America: Persistence of a Dual Nuptiality System.

Independent Variables	Dependent Variables				
	SMAM female	Xtreg SMAM female, re	Difference in age between spouses	Xtreg difference, re	
Urbanisation	1.42664	0. 53857	-0. 79227	-0. 87758	
	(0.40850)*	(0.7007)	(0.332)**	(0. 5473)	
Average years of schooling for	0.4567534	0.5503387	-0.188549	-0.1672437	
females at age 15	(0.0414)*	(0.4279)*	(0.0328)*	(0.0350)*	
Exogamous Community	-2.854949	-2.356611	-0.5503548	-0.5350312	
	(0.3493769)*	(0.9557)**	(0.2863)***	(0.6808)	
Asymmetrical Community	-0.4856502	-0.4485216	1.120818	1.32803	
	(0.6080)	(1.73394)	(0.5080)**	(1.2334)	
Authoritarian	0.2234182	0.2283158	0.601554	0.7440005	
	(0.5531)	(1.5567)	(0.4613)	(1.1092)	
Egalitarian	-1.946127	-1.376844	0.3450454	0.4493	
	(0.2411)*	(0.6054)**	(0.1959)***	(0.4358)	
Absolute Nuclear	3.283133	2.944904	-1.911084	-2.057348	
	(0.5528)*	(1.5485)***	(0.4099)*	(1.0965)***	
Anomic	-0.1300522	0.0059272	-0.2800	-0.2118271	
	(0.2022)	(0.5292)	(0.1619)***	(0.3774)	
African	-1.492381	-0.642743	1.03618	1.365843	
	(0.2167)*	(0.4548)	(0.1760)*	(0.3307)*	
Interaction Islam 1950	-2.326472	-2.661059	1.627563	2.387816	
	(0.6268)*	(0.6450)*	(0.5254945)*	(0.4858)*	
Interaction Islam 1955	-2.18452	-2.494032	1.69497	2.454162	
	(0.6274)*	(0.6467)*	(0.5260)*	(0.4871)*	
Interaction Islam 1960	-2.496489	-2.082788	1.517996	2.351879	

	(0.5122)*	(0.6168)*	(0.4940)*	(0.4804)*
Interaction Islam 1965	-2.379515	-1.80859	1.525419	2.26342
	(0.4949)*	(0.6147)*	(0.4901)*	(0.4805)*
Interaction Islam 1970	-2.124923	-1.489925	1.420579	2.070385
	(0.4576)*	(0.6095)**	(0.3999)*	(0.4612)*
Interaction Islam 1975	-1.7789	-1.044802	1.6242	1.731438
	(0.4500)*	(0.6095)***	(0.3575)*	(0.4484)*
Interaction Islam 1980	-1.424524	-0.6619886	1.2174	1.376649
	(0.4315958)*	(0.6043)	(0.3381)*	(0.4413)*
Interaction Islam 1985	-0.8431906	-0.0910193	0.8150894	0.993529
	(0.4173)**	(0.5997)	(0.3233)**	(0.4360)**
Interaction Islam 1990	-0.0067853	-0.7066566	0.5250173	0.6686305
	(0.4120)	(0.5977)	(0.3238)	(0.4343)
Interaction Islam 1995	0.517983	1.19032	0.3647542	0.6935029
	(0.4074)	(0.5956)**	(0.3160)	(0.4307)
Interaction Islam 2000	0.4863032	1.155802	0.7258903	1.097438
	(0.4091)	(0.6012)***	(0.3606)	(0.4493)**
Interaction Islam 2005	0.5715729	1.12809	0.1838868	0.9173781
	(0.4928)	(0.6123)***	(0.4323)	(0.4600)**
Constant	20.52544	19.92972	4.825525	4.519689
	(0.2548)*	(0.4603)*	(0.2058)*	(0.338277)*
R ²	0.62	0.6162	0.4488	0.4620
F	47.86		21.01	
Number of observations	596	596	517	517

*Significant at 1% level

**Significant at 5% level

*** Significant at 10% level

Looking at the time series variable there is an initially strong and significant negative effect of larger Islamic population on age of female first marriage. Similarly in 1950 the effect of percentage Islamic population upon the spousal age gap was significant and positive. Over the subsequent 30 years the negative impact of Islam on female SMAM declines until in 1980 the effect becomes insignificant. By 1995 a new pattern emerges of higher percentage population Muslim having a positive effect on female age at first marriage. However the effect on spousal age gap, having become insignificant in the 1990s increases and becomes significant again in the new millennium thus suggesting that this proxy for of female empowerment has not seen a consistent improvement as a result of the influence of Islam.

The inclusion of the time trend makes insignificant the impact of urbanisation in a random effects specification (although for the model specification with spousal age gap as the dependent variable urbanisation is very close to being significant at the 10% level). The family type variables keep largely similar coefficients and significance apart from the absolute nuclear family which is now significant for all regressions.

The somewhat surprising result of this third model specification is that at least as far as the last decade goes Islam does not seem to have had a negative impact on female age at first marriage. In fact on the contrary, it may even have a positive effect. This provides some basis for undermining the conventional view that Islam is not compatible with women's rights.

Section 4: Conclusion

This paper hopes to contribute towards the theoretical framework surrounding the determinants of marriage patterns (and related to this those of female agency). What has been found is that there is a consistent upward trend in female age at first marriage for many countries of the world but that within this upward trend there is still significant variation in the speed at which age at first marriage increases (and spousal age gap declines). Variables were used to empirically analyse what causes these variations. Although of course these variables are not complete and cannot explain all the variation in female SMAM and spousal age gap several variables were consistently significant. Women's education in particular proves to be a consistently significant, having a positive influence on female SMAM and playing a role in reducing the spousal age gap. Urbanisation also has a small and consistently significant effect on increasing female SMAM and decreasing the spousal age gap.

Controlling for percentage population Muslim had some surprising results with the time trend indicating that in the past decade Islam has had a positive influence on female SMAM. A simple regression of SMAM female on urbanisation, education and percentage Muslim showed Islam having a significantly positive effect on female SMAM. All in all this lends itself to the presentation of a more nuanced picture of Islam than that of a religion which damages female agency.

The African family type and the egalitarian nuclear family have the most robust impact on spousal age gap and female SMAM with the endogamous family as the reference category. The African family type consistently depresses female age at first marriage and increases spousal age gap. The egalitarian nuclear family also depresses female age at first marriage and in some of the

regressions increases spousal age gap significantly. For these two family systems it seems that Todd's framework provides an interesting variable to test. The exogamous community family proves significantly different from the endogamous variant in its influence on female SMAM. Its effect is to depress female age at first marriage, an effect that is somewhat surprising although may be explained through the nature of endogamy.

Future research will seek to empirically evaluate Todd's family system to see if it is relevant and/or accurate in view of the latter day situation, and use the separate variables that his framework is made up of as independent variables. I hope to expand the database to include additional countries in Central Asia and Eastern Europe to see how this affects the analysis.

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Appendix



Todd Map of Family Types

GOAL 3: Promote gender equality and empower women

DATA: Ratio of girls to boys gross enrolment ratios KEY TARGET: Eliminate gender disparity* in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015



Source: UN

*achieving a ratio between 97 and 103

Gender gaps in education have narrowed, but remain high at university (tertiary) level in some developing countries because of poverty. Employment for women has improved but there are still many more women than men in low-paid jobs. There have been small gains for women in political power. 39

³⁹ http://www.bbc.co.uk/news/world-11364717