# Global trends in marital instability from 1970 to the present*

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**ABSTRACT**

Using newly developed integrated census micro data from IPUMS-International, this paper analyzes global trends in marital instability from 1970 to the present. Following the methodology of Ruggles (1997), I analyze multiple countries over time and identify factors associated with the probability of being separated or divorced. I find that the percent of married female labor market participation in a local geographic region is associated with an increase in the probability of being divorced for both men and women, and associated with a decrease in separation for women and an increase in separation for men. Those with less than a high school education are more likely to be separated and less likely to be divorced than those with the equivalent of a high school education. And, finally, local economic development plays a role. Higher development in a local geographic area is associated with an increase in both divorce and separation.

## INTRODUCTION

This purpose of this study is to show general trends in marital instability overtime and across countries and identify factors associated with these trends. It advances the literature on marital instability by assuming that around the world divorce and separation occur for different reasons for both men and women and, therefore, analyzes each phenomenon separately by sex. Many factors influence the decision to divorce or separate. Some reasons commonly discussed in the literature include individual preferences, age, gender, cultural norms and social customs, economic opportunity, and institutional rules, e.g. family policies of marriage and divorce.

Economic theory states that individuals enter marriage when their utility from being married (in other words, their benefit to being married) outweigh their utility (benefits) of being single (Becker 1981). Becker argues that by specializing in particular spheres of the household, e.g. domestic work for women and bread winner for men, individuals will receive higher utility from being married because economies of scale and efficiencies are achieved. Economic theory also predicts that individuals will choose separation or divorce when the utility (benefits) of separating or divorcing outweighs the utility of being married. Therefore, as women start working more or men start participating more in household chores, there is less incentive to remain married because the efficiencies originally gained by the division of labor is reduced, and divorce or separation will increase. These economic arguments, however, do not acknowledge the power or role that access to resources play in the decision making process.

There is a difference between wanting to divorce or separate from ones spouse and having enough resources to actually act on this desire. I hypothesis that if the aggregate desire to divorce or separate from ones spouse is higher than the aggregate availability of resources, as resources become more accessible, divorce and separation will increase. In this way,

employment patterns, economic opportunity, and development indicators play a role in divorce and separation around the world.

Until now, it has been nearly impossible to analyze factors influencing global trends in marital instability because of the simple fact that the data is not easily available. This study takes advantage of newly available integrated census micro data from the IPUMS-International project to analyze global trends in marital instability. The IPUMS-International project harmonizes micro-level census data over time and countries, significantly reducing the amount of time individual researchers must invest in data collection and cleaning.

Using the marital status variable, I first identify those individuals who are currently married, separated (but legally married), or divorced. I then show trends in marital instability (divorce and separation) of ever married adults aged 20 to 59 from 1970 to the present in eleven countries. I construct a model to analyze factors associated with these trends by updating Ruggles (1997) model of marital instability to account for global differences in separation and divorce. My results show that having more education (secondary versus less than secondary) and female labor market participation is associated with an increase in the probability of being divorced and a decrease in the probability of being separated (compared to being married) for women.

**LIT REVIEW**

Ruggles (1997) analyzes trends in marital instability in the United States from 1880 to 1990. He advances the analytical tools for analyzing marital instability by generating local geographic variables of labor market conditions and economic opportunity for men and women. Ruggles identifies five variables for his model that describe local labor markets: married female labor market participation, married male labor market participation, low economic opportunity

for married women, low economic opportunity for married men, and nonfarm employment. Each of these variables, together with core demographic variables and census year fixed effects, create the model used in his analysis.

By using these aggregated variables, he avoids the perpetual problem of causality in the relationship between ones marital status and employment status. While it is impossible to know if one becomes employed because of the necessity that occurs when a couple divorces or separates or if one was able to divorce or separate because they have employment and access to resources, this dilemma is avoided by uses aggregated local geographic variables to identify local labor market conditions and economic opportunity for men and women. The percent of married women in market labor or seeking work represents societal norms of women's work. It would be difficult to argue that an individual's decision to divorce or separate influences this type of aggregated variable, while the opposite is not true. A man or woman deciding to divorce or separate will be influenced by societal norms of work and access to resources. In this way, Ruggles is able to identify a relationship between local labor markets and marital instability. However, as he argues, a model using aggregate labor market conditions is far from perfect, and he is still unable to answer the question of whether changes in marital instability trends occur because of changes in women (or men)'s work or because of shifts in societal norms regarding female employment, divorce, and separation.

He finds that local labor market conditions are associated with changes in divorce and separation trends. Higher rates of female labor force participation is associated with an increase in marital instability, while higher rates of male labor force participation is associated with a decrease in marital instability. Additionally, "…for men, low economic opportunity had the expected positive association with the probability of divorce or separation…low economic

opportunity for women, however, had little impact before 1990…[and], nonfarm employment is strongly associated with the probability of being divorced or separated in all census years (460)."

Oppenheimer (1997) and Preston (1997) both commented on Ruggles' analysis. The main critiques relate to model specification and whether Ruggles is measuring what he says he is measuring. Preston, unable to entirely interpret the significance of the percent in nonfarm labor, suggests the addition of particular variables to better understand the effects of economic development. He suggests adding local geography variables of the ratio of manufacturing to services, some measures of size of place, and sex ratios. Additionally, he argues that the omission of educational attainment and the income of females are significant omissions that may contribute to some of his general misspecification questions. Finally, to reduce the effect of remarriage on the dependent variable, he suggests adding variables such as age at marriage, widowhood, and cohabitation.

Oppenheimer questions what effect differences in state policies regarding the ease or difficulty of achieving divorce might have on the probability of divorce or separation. She argues that much of the observed marital instability reflects unhappiness with specific marriages versus with the institution of marriage and that this, therefore, does not directly relate to the theory that there is a declining gain to marriage. However, she does not provide any evidence to support this alternative perspective.

Overall, the Ruggles (1997) analysis and comments by Oppenheimer (1997) and Preston (1997) provide ample opportunity to update the Ruggles model. Additionally, the availability of person and household level international census data from 1970 to the present provides a ripe area for further research on the dynamics of marital instability. The next version of this paper

will add relevance of the following articles to this paper: Martin & Bumpass (1989), Smock (1994), and Stevenson & Wolfers (2007).

Most of the literature studies separation and divorce as one phenomenon (CITATIONS). There is very little discussion of how rates in separation versus divorce might differ, let alone be driven by different factors.

**METHODOLOGY & DATA**

It is not possible to analyze the effects of employment on marital status because of endogeneity issues. It is unclear whether an individual finds employment because they are separating or divorcing their spouse or whether they are separating or divorcing their spouse because they have employment and resources to follow through with the separation or divorce. For this reason, instead of analyzing an individual's employment status, the proportion of individuals in a particular local region is used, with the understanding that one person's decision to separate or divorce will not influence a regional rate of employment.

IPUMS-International census micro data is a collection of census data from around the world that is harmonized across countries and overtime. The data contained individual person and household level data. I first construct regional variables using the smallest geography available for each census on persons aged 20 to 59. The regional variables are: percent of married women working, percent of married men working, percent of low female economic opportunity, percent of low male economic opportunity, percent of non-farm labor, ratio of manufacturing to services, ratio of females to males, and the percent of the population living in an urban area. Married women working is defined as only those working and does not include unemployed women. Low economic opportunity is defined by occupations identified as elementary occupations in the International Standard Classification of Occupation (ISCO).

Elementary occupations include basic jobs such as doorman, street vendor, laundress, or domestic help. In most countries, the proportion of women in these types of occupations is equal or higher than the proportion of men.[1] Non-farm labor is defined as any industry not identified as agriculture. The ratio of manufacturing to services is constructed using the industry variable. The percent of the population living in an urban area is created using the urban-rural variable.

All of these variables are aggregated at the lowest level of geography. Brazil, Mexico, Spain, and Venezuela are aggregated at the municipality-level, Costa Rica and Ecuador at the canton-level (similar to a county-level in the United States), Panama and Kenya at the district-level, the United States at the state-level, and Vietnam at the province-level.

Using the marital status variable, I identify individuals aged 25 to 39 who are married, divorced, or separated (legally married).[2] These individuals together, identified as ever-married persons, formulate the population for the regression analysis. Using a multinomial logistical regression, I regress marital instability on selected characteristics like age, educational attainment, local economic indicators (as listed above), and development indicators (as listed above), and include country and decade fixed effects. I conduct separate regressions for women and men, under the preface that marital instability manifests itself differently for men and women. A regression run with both genders together and adding an independent variable for sex produces a strongly significant coefficient on sex. It shows that women are more than twice as likely to be divorced or separated then men, implying that women who separate or divorce remain in that status for much longer than men.

[1] With the exception of the United States and XXXX, where the proportion of men in these occupations is higher than women.

[2] For simplicity of analysis, I exclude widows, who make up approximately one to three percent of any given census population aged 25 to 39.

While using a bivariate logistical regression for analyzing factors associated with historical trends in marital instability where divorce and separation are analyzed together makes sense for the case of the United States (as in the Ruggles paper), where separation is often just a stepping stone to divorce. However, in a multi-country analysis where local laws, policies, and customs drive the ways in which individuals experience marital instability, it becomes essential to analyze separation and divorce separately. Therefore, to truly understand factors influencing marital instability, I analyze divorce and separation in a multinomial logistic regression because, as shown in figures 1 and 2, there is no clearly identifiable link in the relationship between divorce and separation. In this way, trends in divorce and separation are separately compared to those individuals who are married.

Finally, based on comments from Oppenheimer (1997) and Preston (1997), I add educational attainment and three additional development indicators: the ratio of manufacturing to services, the ratio of females to males, and the population density, which I identify as the percent of individuals living in an urban area. Additionally, I control for decade and country.

**ANALYSIS**

Figure 1 shows trends in divorce for ever-married adults aged 20 to 59 for various countries from 1970 to the present. Divorce is increasing over time for most age groups. Brazil, Costa Rica, Portugal, and Spain show large bumps in the percent of adults divorced in 2000 compared to the previous census year. Is it possible that policy changes in marriage laws, societal norms, or advances in economic development influenced these large increases in the percent of adults divorced? Another interesting divorce trend is that Mexico, Panama, Venezuela, and the United States all show a decrease in the divorce rate for younger age groups

(20 to 24 and 25 to 29). Finally, the United States is obviously an outlier when it comes to divorce, showing rates that double, triple, and sometimes quadruple those of other countries.

Trends in separation do not follow a similar pattern. Figure 2 shows the percent of separated (legally married) ever-married adults aged 20 to 59. Here note that separation is not increasing for all countries as is divorce. It is decreasing in Brazil, Portugal, and Vietnam, all countries that showed an increase in divorce. All Latin American countries show an increase in separation as age group increases. This is evidence that marital instability is different around the world, especially when these trends are compared to the United States. In Portugal, Spain, and the United States, the percent of separated starts decreasing as age increases.

Table 1 shows the coefficients and their significance for three multinomial logistic regressions identifying factors associated with the probability of ever-married women ages 25 to 39 to be divorced or separated. The first model identifies basic demographic characteristics. The second model adds in the local economic indicators used in the Ruggles paper. The third, and final, model adds in additional economic development indicators suggested by Preston.

The addition of variables in models 2 and 3 does not change the results much, with most of the differences occurring in the local economic indicator variables. The final, and most complete, model shows all independent variables as significant for female divorce, except the percent of working men. Women in 2000 are more likely to be divorced than in any other decade. The United States has the highest rates of divorce, after controlling for other factors. Older women are more likely to be divorced, and women with a high school education are more likely to be divorced than women with other education levels. Probably the most interesting result for divorce is that a one percent increase in the percent of married women working

translates into a 47 percent increase in women being divorced. Low economic opportunity for men and women means that women are more likely to stay married than divorced.

Similar results can be seen for separation, with slight differences. Specifically, Panama has the highest rates of divorce after controlling for other factors. Women with lower levels of education are more likely to be separated than married. As the percent of married women and men working increases, women are less likely to be separated than married. Local trends in employment have a reverse relationship with separation than with divorce. As the percent of married individuals working increases, divorce is more likely and separation is less likely.

Development indicators matter for women's marital status. Non-farm labor is highly associated with divorce, with women being 353 percent more likely to be divorced with each one percent increase in non-farm labor and 19 percent more likely to be separated. If a region has more manufacturing and less services (implying it is a less developed region), both divorce and separation are less likely for women. The more women there are in a local area compared to men, the more likely are women to be divorced or separated, which makes sense since this analysis observes current marital status at the time of the census. Finally, more urbanization is associated with higher rates of both divorce and separation.

The result of the multinomial logistic regression for men has some similarities. Men are more likely to be divorced or separated than married in 2000 than any earlier decade. Men in the U.S. are more likely to be divorced or separated than any other country. As with women, less education implies higher rates of separation, and men with the equivalent of a high school education are more likely than any other to be divorced.

There are also differences in significance and direction for men compared to women. For men, the older one is, the more likely one is to be divorced; however, age does not matter for

separation. The percent of married men working is not significantly associated with divorce or separation. However, the percent of married women working is. A one percent increase in the percent of women working is associated with a 325 percent increase in the probability of being divorced compared to being married. Additionally, it is associated with a 139 percent increase in the probability of being separated compared to being married.

Finally, all development indicators are associated with separation, with the directions we would expect. As the percent of non-farm labor increases, so does separation. Less developed regions (identified as having more manufacturing than services) are associated with less separation (and less divorce). If there are more females than males, there will be fewer men who are separated, and more urbanization is associated with higher rates of separation. An increase in the percent of non-farm labor is associated with a 450 percent increase in the probability of being divorced, and less developed regions implies a lower probability of being divorced.

**CONCLUSION**

Trends in marital instability vary by country; however, a striking distinction is the difference in trends. I use newly developed integrated census micro data from IPUMS-International to analyze global trends of marital instability in over fifteen different countries since the early 1970s.

Many factors play a role in a couple's decision to separate versus divorce including cultural and social norms and economic opportunities for both sexes to name a few. Ruggles (1997) analyzes the rise of divorce and separation in the United States in the 20th century using explanatory variables such as age, sex, employment opportunities, and labor force participation. Similarly, this analysis uses relevant demographic and socioeconomic variables to explain differences in divorce and separation rates of the countries analyzed.

Overall, this paper attempts to provide a more comprehensive understanding of marital instability throughout the world. Not only are current and past trends discussed, but a more in-depth analysis of factors influencing those trends takes place. Relevant independent variables such as age, sex, employment, and education are analyzed in relation to marital instability for each country. Additionally, local economic indicators and development indicators are included in the analysis

I find that these factors influence the probability of being divorced or separated differently for men and women. In contrast to Ruggles' findings, where the percent of working women and men and the percent of low economic opportunity were significant and in the direction expected, I find that the percent of married men working is not significant (except for women's separation). The largest significant coefficients occur in the percent of married women working and the percent of non-farm labor. Both these variables represent not only what they appear to represent at face value, but also larger societal shifts in the way in which families live and interact with their surroundings. While it's possible that these variables actually predict the probability of being divorced or separated, it is also possible that variables not represented here, like changes in societal perceptions that influence both marital instability and women's work, are driving the results shown here. Either way, the factors driving changes in women's roles in society and advances in economic development appear to follow similar trends in marital instability.

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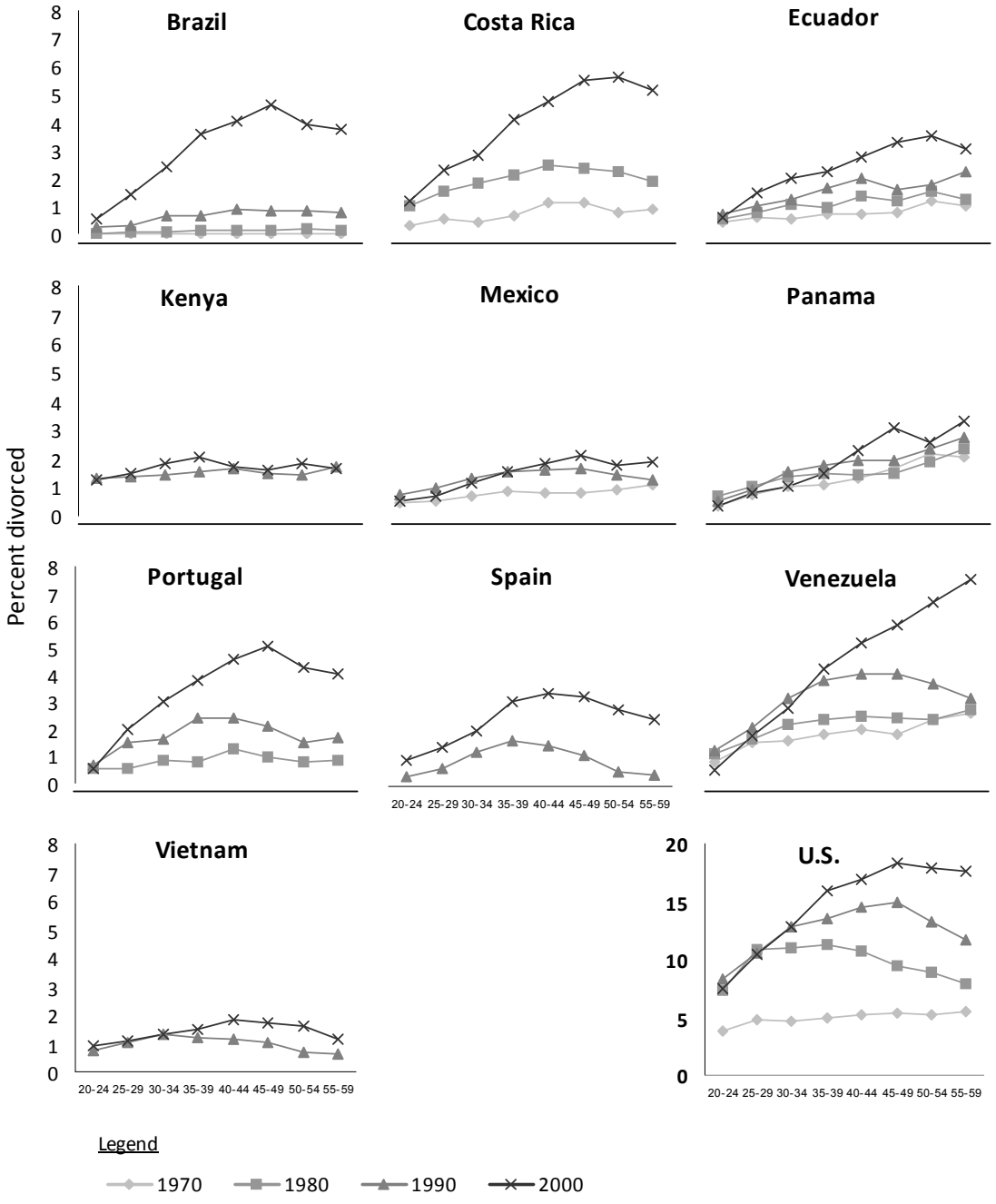
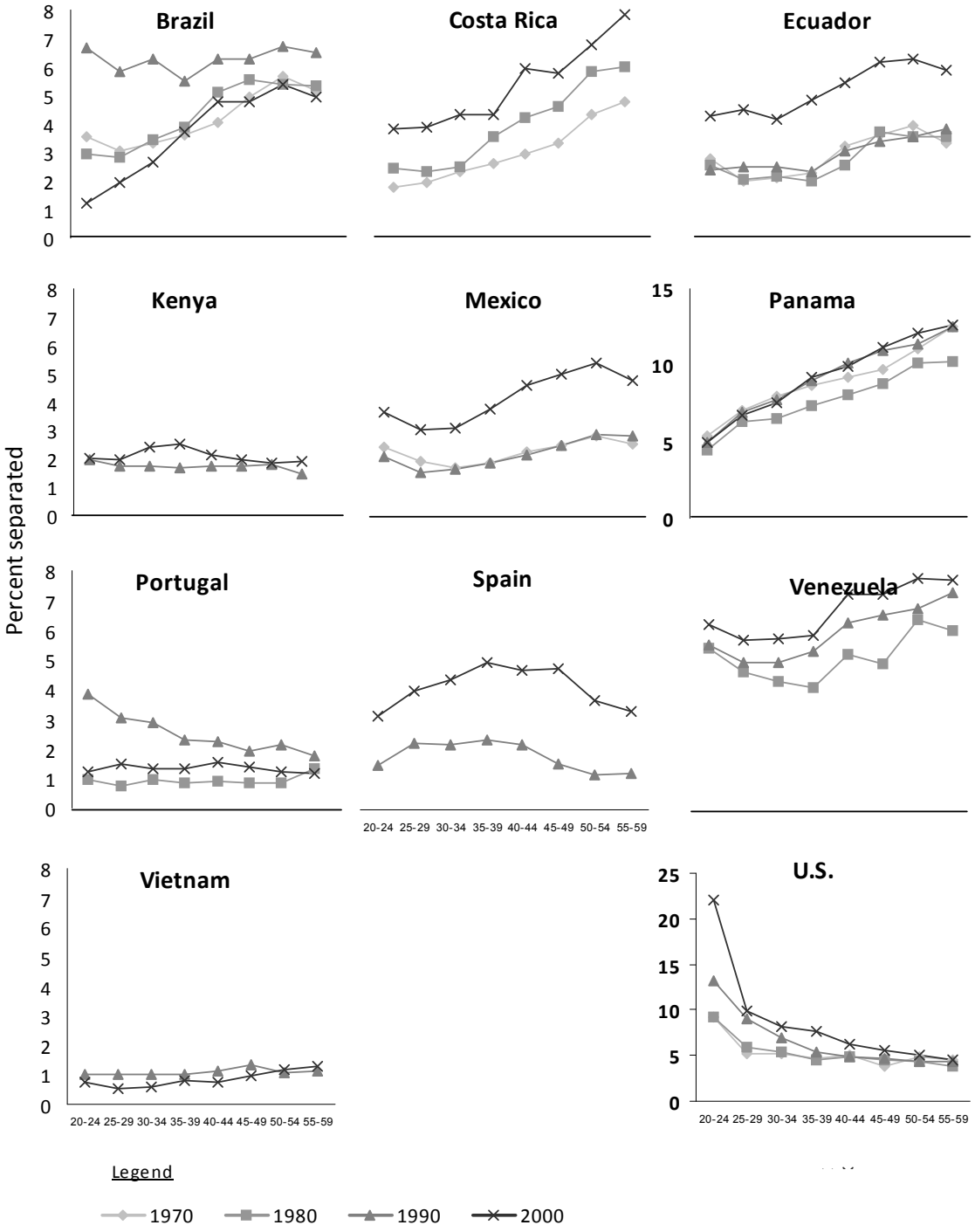
Figure 1. Percent divorced of ever-married adults aged 20 to 59 by country, age group, and decade (1970 to present)




Source: IPUMS-International (Minnesota Population Center 2008)

Figure 2. Percent separated (legally married) of ever-married adults aged 20 to 59 by country, age, and decade (1970 to present)




Source: IPUMS-International (Minnesota Population Center 2008)

Table 1. Multinomial logistic regression of marital instability on selected characteristics (odds ratios): Ever-married females ages 25 to 39

| | (1) | | (2) | | (3) | |
|---|---|---|---|---|---|---|
| | Divorced vs. Married | Separated vs. Married | Divorced vs. Married | Separated vs. Married | Divorced vs. Married | Separated vs. Married |
| Decade | | | | | | |
| 1970s | 0.46 *** | 0.77 *** | 0.45 *** | 0.72 *** | 0.47 *** | 0.75 *** |
| 1980s | 0.77 *** | 0.77 *** | 0.71 *** | 0.74 *** | 0.71 *** | 0.74 *** |
| 1990s | 0.93 *** | 0.96 *** | 0.88 *** | 0.94 *** | 0.88 *** | 0.94 *** |
| 2000s | | | | | | |
| Country | | | | | | |
| Brazil | 0.15 *** | 0.67 *** | 0.20 *** | 0.69 *** | 0.17 *** | 0.53 *** |
| Costa Rica | 0.32 *** | 0.54 *** | 0.55 *** | 0.61 *** | 0.51 *** | 0.50 *** |
| Ecuador | 0.20 *** | 0.50 *** | 0.31 *** | 0.54 *** | 0.26 *** | 0.41 *** |
| Kenya | 0.27 *** | 0.27 *** | 0.20 *** | 0.24 *** | 0.22 *** | 0.30 *** |
| Mexico | 0.19 *** | 0.41 *** | 0.28 *** | 0.43 *** | 0.25 *** | 0.32 *** |
| Panama | 0.17 *** | 1.63 *** | 0.25 *** | 1.78 *** | 0.22 *** | 1.46 *** |
| Portugal | 0.26 *** | 0.25 *** | 0.28 *** | 0.24 *** | 0.30 *** | 0.24 *** |
| Spain | 0.14 *** | 0.41 *** | 0.18 *** | 0.40 *** | 0.16 *** | 0.33 *** |
| United States | | | | | | |
| Venezuela | 0.40 *** | 0.85 *** | 0.53 *** | 0.84 *** | 0.45 *** | 0.65 *** |
| Vietnam | 0.17 *** | 0.12 *** | 0.43 *** | 0.17 *** | 0.40 *** | 0.14 *** |
| Age | | | | | | |
| 25 to 29 | 0.57 *** | 0.87 *** | 0.58 *** | 0.88 *** | 0.58 *** | 0.88 *** |
| 30 to 34 | 0.77 *** | 0.92 *** | 0.78 *** | 0.93 *** | 0.78 *** | 0.93 *** |
| 35 to 39 | | | | | | |
| Educational attainment | | | | | | |
| Less than primary | 0.29 *** | 1.01 | 0.37 *** | 1.18 *** | 0.37 *** | 1.18 *** |
| Primary | 0.62 *** | 1.22 *** | 0.67 *** | 1.27 *** | 0.67 *** | 1.27 *** |
| Secondary | | | | | | |
| Tertiary | 0.86 *** | 0.69 *** | 0.84 *** | 0.68 *** | 0.82 *** | 0.67 *** |
| Local economic indicators | | | | | | |
| % married women working | | | 1.58 *** | 0.95 | 1.47 *** | 0.66 *** |
| % married men working | | | 1.20 | 0.63 *** | 1.13 | 0.58 *** |
| % low female economic opportunity | | | 0.74 * | 0.99 | 0.63 ** | 1.02 |
| % low male economic opportunity | | | 0.62 ** | 0.92 | 0.60 *** | 0.86 |
| Development indicators | | | | | | |
| % non-farm labor | | | 6.41 *** | 2.26 *** | 3.53 *** | 1.19 ** |
| Ratio of manufacturing to services | | | | | 0.65 *** | 0.87 *** |
| Ratio of females to males | | | | | 1.28 ** | 1.91 *** |
| % living in urban area | | | | | 1.68 *** | 1.67 *** |

*** p < 0.01, ** p < 0.05, * p < 0.10

Source: IPUMS-International (Minnesota Population Center 2008)

NOTE: In next version, add N and R-square!

Table 2. Multinomial logistic regression of marital instability on selected characteristics (odds ratios): Ever-married males ages 25 to 39

| | (1) | | (2) | | (3) | |
|---|---|---|---|---|---|---|
| | Divorced vs. Married | Separated vs. Married | Divorced vs. Married | Separated vs. Married | Divorced vs. Married | Separated vs. Married |
| Decade | | | | | | |
| 1970s | 0.30 *** | 0.54 *** | 0.31 *** | 0.53 *** | 0.31 *** | 0.54 *** |
| 1980s | 0.63 *** | 0.54 *** | 0.61 *** | 0.52 *** | 0.61 *** | 0.52 *** |
| 1990s | 0.77 *** | 0.83 *** | 0.75 *** | 0.82 *** | 0.75 *** | 0.82 *** |
| 2000s | | | | | | |
| Country | | | | | | |
| Brazil | 0.08 *** | 0.25 *** | 0.13 *** | 0.27 *** | 0.13 *** | 0.28 *** |
| Costa Rica | 0.18 *** | 0.21 *** | 0.39 *** | 0.27 *** | 0.40 *** | 0.30 *** |
| Ecuador | 0.11 *** | 0.16 *** | 0.21 *** | 0.19 *** | 0.20 *** | 0.18 *** |
| Kenya | 0.10 *** | 0.11 *** | 0.07 *** | 0.09 *** | 0.07 *** | 0.09 *** |
| Mexico | 0.09 *** | 0.10 *** | 0.16 *** | 0.12 *** | 0.17 *** | 0.13 *** |
| Panama | 0.09 *** | 0.73 *** | 0.15 *** | 0.86 *** | 0.14 *** | 0.83 *** |
| Portugal | 0.16 *** | 0.11 *** | 0.17 *** | 0.11 *** | 0.19 *** | 0.12 *** |
| Spain | 0.11 *** | 0.25 *** | 0.15 *** | 0.26 *** | 0.15 *** | 0.27 *** |
| United States | | | | | | |
| Venezuela | 0.20 *** | 0.31 *** | 0.32 *** | 0.34 *** | 0.31 *** | 0.33 *** |
| Vietnam | 0.06 *** | 0.04 *** | 0.12 *** | 0.06 *** | 0.13 *** | 0.07 *** |
| Age | | | | | | |
| 25 to 29 | 0.72 *** | 1.01 | 0.73 *** | 1.01 | 0.73 *** | 1.01 |
| 30 to 34 | 0.86 *** | 0.97 | 0.86 *** | 0.97 | 0.87 *** | 0.98 |
| 35 to 39 | | | | | | |
| Educational attainment | | | | | | |
| Less than primary | 0.36 *** | 1.42 *** | 0.47 *** | 1.65 *** | 0.46 *** | 1.66 *** |
| Primary | 0.65 *** | 1.37 *** | 0.70 *** | 1.43 *** | 0.69 *** | 1.42 *** |
| Secondary | | | | | | |
| Tertiary | 0.70 *** | 0.61 *** | 0.68 *** | 0.61 *** | 0.68 *** | 0.60 *** |
| Local economic indicators | | | | | | |
| % married women working | | | 3.24 *** | 1.10 | 3.25 *** | 1.39 ** |
| % married men working | | | 0.63 | 1.16 | 0.62 | 1.02 |
| % low female economic opportunity | | | 0.70 | 1.00 | 0.65 | 0.95 |
| % low male economic opportunity | | | 0.72 | 0.66 ** | 0.67 | 0.49 *** |
| Development indicators | | | | | | |
| % non-farm labor | | | 5.11 *** | 2.05 *** | 4.50 *** | 1.72 *** |
| Ratio of manufacturing to services | | | | | 0.70 *** | 0.66 *** |
| Ratio of females to males | | | | | 1.05 | 0.53 *** |
| % living in urban area | | | | | 1.10 | 1.28 *** |

*** p < 0.01, ** p < 0.05, * p < 0.10

Source: IPUMS-International (Minnesota Population Center 2008)

NOTE: In next version, add N and R-square!