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ABSTRACT

This paper discusses some recent advances in the area of culture and economics and examines the effect of culture on a key economic outcome: female labor supply. To separate the effect of market variables and institutions from culture, I use an epidemiological approach, studying second-generation American women. I use both female LFP and attitudes in the women's country of ancestry as cultural proxies and show that both cultural proxies have quantitatively significant effects on women's work outcomes. The paper concludes with some suggestions for future empirical and theoretical research topics in this area.

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1 Introduction

Despite the fact that, for simplicity, we often model the economy as consisting of Robinson Crusoe on his island, most of us would agree with the ancient Greeks that man is a social animal. In what ways, however, if any, do we need to consider the social nature of man in order to study economic questions? This is the issue I (partially) address in this lecture by examining the role of culture in economics.

A definition of culture is often too broad to be very useful for analytical purposes. For instance, we may think of culture as a body of shared knowledge, understanding, and practice. For the purposes of what I will be discussing, a working definition that may prove more useful is to think of *differences* in culture as systematic variation in beliefs and preferences across time, space, or social groups. Note that there is nothing in this definition that considers culture as either irrational or static. Indeed, in some situations it may be useful to think about culture as the choice of equilibrium in a environment with multiple equilibria (this has been the traditional way to conceptualize it) or to model the evolution of culture as the intergenerational updating of beliefs in light of past experience.¹

Do we believe that culture matters to economic outcomes? I think that, at some vague level, most economists would probably agree that preferences and beliefs are endogenous and hence likely to vary across environments. Whether culture plays a quantitatively important role in explaining economic outcomes, however, is another question and here I think that, overall, economists would tend to be skeptical. This skepticism stems, in large part, from the absence of rigorous empirical work linking culture and economics. In fact, until fairly recently, the role of culture in explaining economic phenomena has been largely ignored by modern economics. When faced with variation in economic outcomes, across countries or individuals, the traditional strategy has been to explain this variation with differences in policies, institutions, and technology. In such an exercise, the distributions of agents' preferences and beliefs are taken as given (except in a rational expectations sense) and invariant to the environment. To seek to explain variation in outcomes with differences in beliefs or preferences is seen as unscientific.² And, in large part for good reason. There is no scientific rigor in invoking differ-

¹See Fernández (2007).

²The Stigler-Becker (1977) dictum—"de gustibus non est disputandum"—has in this sense cast a long shadow in economics.

ences in unobservables as a theoretical explanation. At the empirical level, running, say, cross-country regressions with a few (mismeasured) aggregate macro variables and calling the residual "culture" is equally unpersuasive.

Over the last few years a new body of work has emerged that has attempted to provide evidence on the effect of culture on economic outcomes. This evidence is of varying quality, conducted with various methodologies, and on a diverse set of questions. It ranges from the relationship of trust with outcomes such as trade (Guiso, Sapienza and Zingales (2005)) or trade union membership (Algan and Cahuc (2006a)), to the relationship of culture to effort (Ichino and Maggi (2000)), the links between religion and growth (Barro and McLeary (2003), Tabellini (2005)), as well as historical work on culture and institutions (Greif (1994, 2005)) or Jewish culture and occupational choice (Botticini and Eckstein (2005)). I will not attempt to give a survey of this work here (see Fernández (2006) for a partial review of this literature), but rather restrict the main focus of this paper to discussing and presenting evidence about the importance of culture for a key economic variable: women's participation in the formal labor market.

There are probably few transformations over the 20th century as radical as the change in women's role. As shown in Figure 1 for the United States, married female labor force participation was around 2% in 1880 and increased to around 73% in 2000.³ The reasons given for this increase are varied and to some extent dependent on the time period: the rise of the service sector, the diffusion of technology that allowed housework to become less time and energy consuming, and the wider availability of contraception (the pill) that allowed women to control their fertility are among the hypotheses entertained.⁴

A different hypothesis is that the gradual increase in women's labor force participation resulted in large part from the slow evolution in cultural beliefs about the appropriate role of woman in society. Indeed, as shown in the poll data presented in Figure 2, the percentage of individuals in the US who stated that they approve of a wife working if her husband can support her rose from 18 % in 1936 to over 80% in 1998. This evolution in attitudes may both have influenced and have been influenced by changes in female LFP over

³Calculations by author using U.S. Census data from 1880-2000. White married women, 25-45 born in the U.S., non-farm, non-group quarters with spouse present.

⁴See, for example, Goldin (1990), Goldin and Katz (2002), and Greenwood, Seshadri, and Yorukoglu (2005). See, for example, del Boca and Locatelli (2006) for a useful survey of the determinants of female labor force participation.

time. For example, Fernández, Fogli, and Olivetti (2004) show using a wide variety of data sets that men whose mothers worked while they were growing up tend to be married to women who also work. This result holds even after controlling for a large set of socio-economic indicators and its effect on women's work behavior is quantitatively important: having a working mother increased the probability that a man's wife worked by 32 percentage points (from 39% to 71%). They interpreted this as evidence that preference transmission may have played an important role in the change in female labor supply in that men brought up by a working mother either preferred a working spouse or were themselves preferred by women who wanted to work. They also presented some evidence for the intertemporal consequences of this preference transmission for female labor supply. They showed that US states with idiosyncratically higher mobilization rates during World War II had a higher percentage of working mothers and hence a greater proportion of men brought up by working women. According to their argument, over time these states should present an "echo" effect with, *ceteris paribus*, more working women a generation later. As shown by Fernández et al, this effect is indeed present for the right cohort of women (those born in 1930-35) and not for those born earlier. Thus, this work points to the possibility that changes in attitudes brought about by changes in individual experience may have been important contributors to changes in female labor supply over time.⁵

While the evidence discussed above is supportive of the hypothesis that individual attitudes towards work matter and that these are influenced in a systematic fashion, it is easier to identify differences in culture with differences in preferences/beliefs over time periods or countries rather than with variation across US states at a point in time.⁶ The work that I will present here will rely instead on the fact that there exists important variation in the amount that women work across countries. This is in fact true today, as in the past. As shown in Figure 3, female LFP in 2003 in OECD countries ranged from a low of slightly over 20% in Turkey to a high of 81 percent in Iceland. Is this variation mostly a consequence of differences in purely economic variables and institutions or do differences in culture play an im-

⁵For the relationship between work and culture, see also Reimers (1985), Antecol (2000), Levine (1993), Vella (1994), and Pencavel (1998).

⁶See Potamites (2006) for a quantitative analysis of Black vs White female labor supply in the US that concludes that economic factors are unable to explain the large differential in work behavior.

portant role? This is the question that this paper will explore.

The paper is organized as follows. Section 2 discusses the epidemiological approach to studying culture. This approach uses the strategy of analyzing outcomes for immigrants or their descendants as a way to separate the influence of markets and institutions from that of culture. Section 3 summarizes and extends some of the earlier research on female labor supply and culture by Fernández and Fogli (2006a) (henceforth denoted FF (2006a)). This work is based on the use of quantitative outcomes in the country of ancestry as proxies for culture. Section 4 introduces new work that explores the use of the cross-country variation in answers to surveys as a proxy for culture in understanding the work behavior of the descendants of immigrants in the US. Section 5 discusses some future avenues for empirical and theoretical research on culture and concludes.

2 The Epidemiological Approach

The main problem faced in any analysis of culture and its effects on economic outcomes is to isolate its influence from those due to purely economic variables (prices, income, etc.). As discussed previously, a cross-country analysis of, say, female LFP, that attempted to control for some macroeconomic differences and associated the coefficient on the country dummies with the effect of culture would not be very convincing. The new literature in this field has met this challenge in different ways. Case studies (e.g. Botticini and Eckstein (2005)) are one direction. Using answers to attitudinal surveys to explain cross-country outcomes is another approach. In that case, however, the problem is that variation in how individuals across countries answer these survey questions may reflect as much economic factors as they do cultural differences. Thus, this approach has required the use of instruments for culture which are difficult to obtain and has met with variable success.⁷

The research presented here follows a different strategy, that I have termed elsewhere (Fernández (2006)) the "epidemiological approach". It relies on

⁷Religion, for example, has been used as an instrument for individual responses to various survey questions by Guiso, Sapienza, and Zingales (2006). It is noteworthy, however, that in none of these exercises is religion likely to be a proper instrument. In their (2005) paper on trust and trade, on the other hand, the authors make innovative use of the genetic distance between indigenous populations as a proxy for the level of trust between populations.

examining immigrants (or, better yet, descendants of immigrants) to a country to isolate the effect of culture from other factors, thus exploiting the differential portability of culture relative to markets and institutions. The basic idea is simple: the descendants of immigrants to, say, the US, share by construction the same markets and institutions. They do not necessarily share, however, the same culture. In particular, they may have, to some extent, inherited their parents' culture, i.e., their preferences and beliefs. Hence by studying work outcomes for women born in one country but whose parents were born in a different country, we may be able to pick up differences in cultural heritages while maintaining constant economic and institutional factors.

The epidemiological strategy has its own set of problems. Immigrants may be subject to many shocks (language, discrimination, greater uncertainty, etc.) which could cause them to deviate from their traditional behavior. Culture, furthermore, is socially constructed: to be replicated, the behavior may require the incentives provided by a larger social body such as a neighborhood, school, or ethnic network. Furthermore, immigrants are unlikely to be a representative sample of their home-country's population. Their beliefs, preferences, and unobserved differences in their economic circumstances may differ significantly from the country average. Lastly, over time, assimilation to the dominant culture will presumably weaken the force of the original culture. This problem would be more severe for the descendants of immigrants but, on the other hand, the shocks associated with recent immigration should no longer be relevant for this group and this seems like a more important source of concern.

It should be noted that all the factors mentioned above introduce a bias towards finding culture to be insignificant.⁸ Thus, on the whole, comparisons of behavior or outcomes across different immigrant groups are a very demanding test of the importance of culture. In epidemiology, when differences across groups remain, one must be careful not to conclude that genetics is determinative when the underlying cause may be cultural; in economics, when significant differences are not observed, one must be careful not to rule out cultural forces.⁹

⁸The sole exception is a selection argument which can always be constructed, but as we argue further on, this is highly implausible.

⁹In epidemiology, researchers study immigrants to examine whether observed cross-country differences in, say, heart disease, are genetic or environmental. In these analyses, culture is considered as part of the environment. Non-convergence of immigrant and native

The first paper to my knowledge to use this approach in economics is Carroll, Rhee, and Rhee (1994). The authors were interested in determining whether some of the large observed cross-country differences in savings rate were cultural in origin. In order to analyze this question, they studied the savings behavior of immigrants in Canada. They found that culture-dummies for the region for the immigrant's home country—does not help explain differences in saving rates. As the authors acknowledge, however, their conclusions must be viewed as tentative due to data restrictions. In particular, they could control only for broad regions of origin, wealth is imperfectly measured, and remittances are not observed. Furthermore, it may be that saving or low consumption serves as a different signal in the country of origin than it does in Canada and that, divorced from their original social environment, the incentives to save are different.

Fernández and Fogli (2006a) also use the epidemiological approach to study the effect of culture on women's work and fertility outcomes. Central to our approach is the use of a quantitative variable related to the outcome we are studying as a proxy for culture. In particular, in Fernández and Fogli (2006a,b) we used past values of female labor force participation (LFP) and total fertility rates (TFR) in the country of ancestry as cultural proxies for work and fertility respectively. The argument for using these variables is as follows. Consider, for example, the value of female LFP in a country. This aggregate variable reflects the market work decisions of women and hence depends on individual characteristics (married, with children, etc.), and the economic and institutional environment (e.g., wages, probability of finding a job, or availability of day care). The aggregate variable is also likely to depend on women's preferences and beliefs, broadly defined, i.e., on culture. In particular, it may depend on how a woman conceives of her role in the household, whether she thinks her children will benefit or suffer from having a working mother, or how she is treated by friends and neighbors as a result of her choice. Now, if cross-country differences in the value of this aggregate variable have explanatory power for why, *in the US*, women from one ancestry work more than women from another ancestry after controlling for their individual economic attributes, only the cultural contribution to this variable can be responsible. The economic and institutional conditions

heart disease rates, however, does not allow one to conclude that genetics is responsible. The persistence of culture and its portability (e.g., diet) implies that it could be the underlying cause of these differences.

of the country of ancestry should no longer be relevant for second-generation American women (as neither the country nor even the time period is the same), whereas the preferences and beliefs embodied in these variables may still matter if parents and/or neighborhood transmitted them to the next generation.

We think that the approach discussed above is superior to the alternative of using a dummy variable for the woman’s country of ancestry. The latter suffers from the disadvantage of not being explicit as to why it may matter to be of Mexican, say, relative to Finnish, ancestry. The choice of a specific quantitative variable also makes it easier to formulate alternative hypotheses about what may be responsible for the correlation between the cultural proxy and the economic outcome of interest and to test the most relevant alternatives.

3 Female LFP as a Cultural Proxy

In this section I extend the work of FF (2006a). Instead of using past values of female LFP in the women’s country of ancestry, I use instead future (from the point of view of the women in the sample) values of female LFP. If culture is, on the whole, evolving slowly, then this variable should also have explanatory power for individual women’s labor supply.

3.1 Data Sets and Sample Selection

To construct the sample, I follow the same procedure as in FF (2006a). In that paper we used the 1970 US Census to form a sample of second-generation American women who are married and between the ages of 30-40 years old.¹⁰ We used 1970 as it is the last year in which the census asked individuals explicitly where their parents were born. We assigned country-of-ancestry by the father’s birthplace as the census does not provide the country of birth of an individual’s mother when both parents were born outside U.S..

¹⁰We used the 1% 1970 Form 2 Metro Sample of the U.S. census. We excluded women living in farms or working in agricultural occupations, as well as those living in group quarters (e.g., prisons, and other group living arrangements such as rooming houses and military barracks). In 1970, about 11% of married women, age 30-40, have fathers who were born outside the US.

For our work cultural proxy we used the 1950 value of female LFP in the country of ancestry from the International Labor Organization (ILO).¹¹ As the women in our sample are 30-40 in 1970 and were born in U.S., their parents must have been in the US by 1930-1940, depending on the precise age of the woman. Thus, on the one hand, it could be argued that the values of the culture proxy variables around 1930-1940 or even a decade or two earlier would best reflect the culture of the country of ancestry. On the other hand, one could argue that the values that parents and society transmit are best reflected in what the counterparts of these women are doing in the country of ancestry in 1970. Data limitations, in any case, did not permit us to use years prior to 1950 since values for neither variable are available for more than a handful of countries prior to that year.

We concluded our selection by eliminating from our sample all women whose fathers were born in countries that became centrally planned economies around World War II.¹² The rationale for doing this is that the parents of the women in our sample must have been in the US by 1940. Hence, the parents did not live through the profound transformations in the economies, institutions, and cultures that these countries experienced over that period, and using data from the 1950s and later would thus not capture the correct culture for these individuals. We also excluded Russia since the revolution was in 1917 and the parents may or may not have been there for any substantial length of time thereafter.¹³ Lastly, solely in order to be able to make meaningful comparisons across averages of women by country of ancestry, we also eliminated those countries with fewer than 15 observations. Since our regressions are all run at the individual level, including these small numbers of observations does not affect our results. Our final sample consisted of 6,774 women and 25 countries of ancestry. These are reported in Table 3.1.

In FF (2006a) we found that female LFP in 1950 in a woman’s country

¹¹Female LFP is the rate of economically active population for women over 10 years of age. The active population includes persons in “paid” or “unpaid” employment, members of the armed forces (including temporary members), and the unemployed (including first-time job seekers). “Unpaid” employment includes employers, own-account workers and members of producers’ cooperatives, unpaid family workers, persons engaged in the production of economic goods and services for own and household consumption, and apprentices who receive pay.

¹²We eliminated Albania, Bulgaria, Czechoslovakia, Hungary, Poland, Romania, Yugoslavia, Estonia, Latvia, and Lithuania.

¹³For robustness, we have also run our regressions with Russia and our results are unaffected.

of ancestry had explanatory power for her market labor supply in the US in 1970. If culture is, on the whole, a relatively slow moving variable, it should be possible to use female LFP from other decades and find similar results. In this section I examine whether female LFP in a woman’s country of ancestry in 1990 has explanatory power for women’s work outcomes in the US in 1970.¹⁴ Aside from its independent interest, this will also be complementary to the work in section 4 which examines whether the cross-country variation in responses to survey questions in 1990 helps explain women’s work decisions in the US in 1970.¹⁵

3.2 Female LFP in 1990

To study women’s labor outcomes, I use the number of hours worked in the previous year which in the 1970 census is reported in intervals.¹⁶ I assign the midpoint of each chosen interval. In 1970 the women in my sample were working on average 10.2 hours a week (with a standard deviation of 16.3 hours). Averaged across country of ancestry, these women worked 10.7 hours a week, but with a much lower standard deviation (2.6 hours). In 1990, across the 25 countries in our sample, female LFP averaged 35.7 percent with a standard deviation of 10.7 percent. They ranged from a low of 13.8% for Syria to a high of 54.9% for China. Figure 4 plots average hours worked in 1970 in the US by country of ancestry against female LFP in 1990 in that country.

We estimate the following model:

$$Z_{isj} = \beta_0 + \beta_1'X_i + \beta_2\tilde{Z}_j + f_s + \varepsilon_{isj}, \quad (1)$$

where Z_{isj} is the work decision of woman i who resides in the Standard Metropolitan Statistical Area (SMSA) s and is of ancestry j .¹⁷ X_i includes a

¹⁴The correlation between female LFP in 1950 and that in 1990 across the 25 countries in our sample is 0.52, i.e., relatively high but far from 1.

¹⁵We use 1990 as the questions we are interested in were only asked as of that year.

¹⁶The number of hours worked in the previous week are recorded in eight intervals: 1-14 hours, 15-29, 30-34, 35-39, 40, 41-48, 49-59, 60+. All other observations are coded as N/A and treated as zeros in this work.

¹⁷An SMSA is an area consisting of a large population center and adjacent communities (usually counties) that have a high degree of economic and social interaction with that center. A total of 117 SMSAs (including not residing in an SMSA) are identified in the data.

set of individual characteristics which varies with the specification considered, f_s is a full set of dummies for the metropolitan area of residence, and \tilde{Z}_j is the proxy for culture—our variable of interest—which is assigned by the country of father’s birthplace. Since the key variable on the right-hand side only varies by country of ancestry, all the standard errors we report are corrected for clustering at the country-of-ancestry level.

Table 3.2 shows the main results from using 1990 female LFP as our cultural proxy. In the first column, the number of hours worked by individual i is regressed on female LFP in 1990 in the country of ancestry and the woman’s metropolitan area of residence. The coefficient on the cultural variable is positive and strongly significant, indicating that women whose parents were born in countries where women participated less in the workforce in 1990 tend to work less themselves in the US in 1970.¹⁸

Although my strategy is to exploit the difference in the portability of culture relative to markets and institutions, there may very well be inter-generational persistence in economic variables that come from purely economic factors. In particular, since I cannot directly control for differences in parental attributes such as education, income, or wealth, which may then independently affect a daughter’s work outcomes, I next include a woman’s education level in the regression. This variable seems by far the most important one to control for since it directly affects the relative price of working at home relative to the market and may well be influenced by borrowing constraints and hence parents’ characteristics. Of course, by controlling for education we are also eliminating the indirect influence of culture on a woman’s work outcome since a woman who wants to work will be more likely to value obtaining a higher level of education.

Column 2 presents the regression results from including a series of individual characteristics, in particular the woman’s age (and its square) and a set of dummy variables to capture her level of education (below high school [omitted], high school degree [High School], some college, and at least a college degree [College +]). As shown, women with a college education tend to work more than others. The direct effect of culture remains of the same magnitude and statistical significance.

¹⁸Thus, for selection to be responsible for these results, it would require (given identical distributions of preferences and beliefs across countries, i.e., given the absence of cultural differences across countries) for women who have a high taste for work to select into immigration from high female LFP countries and women with low taste for work to select from low female LFP countries. This seems rather implausible.

Next I include several characteristics of a woman’s husband in the regression analysis. Once again, culture may affect a woman’s choice of husband and one might expect that a woman that wanted to work may be less concerned with her husband’s income level and more concerned with other idiosyncratic features. On the other hand, the forces that push towards assortative mating may lead more educated women to marry more educated and higher income men, which may then negatively influence the number of hours they work.

The third column presents the results for what we call the “full specification” in which we also include the following characteristics of a woman’s husband: his age (as given by 10 different age-range dummies), his education (as captured by the same four dummy variables as for the woman), and his total income.¹⁹ As can be seen from the regression results, the husband’s characteristics are important determinants of a woman’s labor supply: a woman whose husband has at least a college degree, everything else equal, works on average 5 hours less per week than a woman whose husband did not complete high school, almost half the mean labor supply of the women in our sample. Marriage to a man with \$10,000 more income over the mean is associated, on average, with a woman working almost three fewer hours a week. The effect of culture remains positive and statistically significant at the 1% level, with the coefficient increasing significantly in magnitude (as do the coefficients on female education). The latter indicates that there is a positive correlation between a woman’s education and her husband’s education and total income as well as between these characteristics and female LFP in her country of origin.²⁰ When we do not control for the husband’s characteristics, the woman’s education picks up both the positive effect of her cultural heritage and the negative effect of her husband’s income and education. Similarly, when we omit the husband’s characteristics, the culture proxy also picks up the negative effect of women from higher LFP countries tending to marry men with higher education and income.

In the full specification an increase in the level of female LFP in 1990 by one standard deviation (across countries) is associated with an increase of 0.87 hours per week, about an 8% increase over the average for that period. It also accounts for about one third of the variation in hours worked per week

¹⁹Income is given by the total pre-tax personal income from all sources for the previous calendar year and is measured in tens of thousands of dollars.

²⁰This same effect was present when we used female LFP in 1950 as our cultural proxy.

in the US across country of ancestry.

The last column in table 3.2 explores the effect of including the total fertility rate in 1950 (TFR 1950) in the full specification. Note that while fertility is negatively correlated with labor supply, the correlation between TFR 1950 and female LFP 1990 is far from -1 (it is -0.45). As shown in column 4, TFR 1950 enters negatively whereas female LFP remains positive and significant though with a lower coefficient as a result of the negative correlation between the two cultural proxies. This suggests that the fertility variable may also be capturing independent cultural attitudes towards family size, which are not determined solely by cultural attitudes towards women's work.

3.3 Robustness

The results are robust to various alternative specifications. As shown in the first column of table 3.3, using cross-country female LFP for a narrower age group (women 30-34 years old) yields similar results. A one standard deviation increase in this variable is associated with 0.92 increase in hours worked per week in 1970. It is likewise robust to excluding countries that have large population sizes in our sample (Italy, Mexico, or Canada), including Russia, or excluding China.

A main concern in FF (2006a) was whether the existence of a variable such as unobserved human capital could explain our results without resorting to culture, as such a variable could also be transmitted intergenerationally. As shown in columns 2 and 3 of table 3.3, our results are robust to including a rather crude measure of cross-country differences in human capital—GDP per capita in 1990.²¹ Although the variable is positive and significant in the full specification when our cultural proxy is not included, it becomes insignificant once it is included whereas the magnitude of the cultural proxy does not change. If we use instead per capital GDP in 1950, which may be a better measure of the human capital the women's parents might have been expected to have, the sign of this variable turns from positive and significant when the cultural proxy is omitted, to negative and significant once it is included. The coefficient on female LFP 1990 increases indicating that it is positively correlated with GDP in 1950. The effect of a one standard

²¹The sample size is smaller as we do not have GDP 1990 figures for Cuba. We used the World Development Indicators of the World Bank

deviation increase in female LFP in 1990 is correspondingly larger: it leads to an increase of 1.2 hours worked per week.

There are many other ways in which to measure human capital. While it is beyond the scope of this paper to include these additional checks here, it is important to note that in FF (2006a) the cultural proxy—female LFP in 1950—is shown to be robust to a large variety of alternative measures. In particular, we used the 1940 Census to measure the average years of education of immigrants from the different countries in our sample (from individuals who belonged to the age group of the parents of the women in our 1970 sample). We also measured years of parental education directly using the General Social Survey, albeit for a much smaller sample of women and countries. Lastly, we also included Hanushek and Kimko’s (2000) measures of quality of education across countries in both of the exercises. Our results were robust to all these measures of human capital. Perhaps most convincingly of all, we constructed measures of wage rates for all the women who worked and showed that, in an otherwise standard Mincer specification of a log wage regression, female LFP in 1950 had no explanatory power. Thus, it is unlikely that our results are driven by unobserved human capital as, in that case, one would expect the cultural proxy to also have some power to explain wages.²²

4 Attitudes in 1990 as a Cultural Proxy

An alternative to capturing culture by using country-of-ancestry variables related to the economic outcome of interest is to examine attitudes directly. As discussed previously, the problem with using individual attitudes as an indicator of culture is the potential for reverse causality, i.e., the possibility that individual attitudes are primarily determined by economic circumstances.²³ In that case, an instrument is required for the cultural component expressed in attitudes (e.g., religion in Guiso et al (2006) or regional literacy rates and indicators of political institutions in Tabellini (2005)). This problem, however, is avoided if we use the attitudes of individuals from a different time and place. In particular, we can use the attitudes towards women’s work expressed by individuals in the woman’s country of ancestry. These attitudes

²²We also used a Heckman selection model in which the husband’s characteristics were used to control for selection into the work force and obtained similar results.

²³This is the problem in, for example, Algan and Cahuc (2006b).

are potentially affected by a woman’s material circumstances—her economic and institutional environment—as well as by her own preferences and beliefs. If these attitudes are able to help explain the work behavior of second-generation American women it should be only because the belief/preference component of the attitudes has explanatory power since the economic and institutional environment (and time period as well) has changed.²⁴

4.1 Marginal Effects from the WVS

We obtained attitudes towards work from the World Value Survey (WVS). The WVS consists of nationally representative surveys conducted by a network of social scientists from universities around the world. Data is available from the first four waves 1981, 1990-1991, 1995-1996 and 1999-2001. More than 80 independent countries have been surveyed in at least one wave. We used the second wave (1990-91) which covered 43 countries and which included questions that reveal attitudes towards women’s work. We focus on two questions that we think are particular useful. Individuals were asked whether they strongly agreed, agreed, disagreed or strongly disagreed with each of the statements below:

1. Being a housewife is just as fulfilling as working for pay.
2. Having a job is the best way for a woman to be an independent person.

This questions were answered by individuals that belong to 18 countries of our Census sample (17 countries in the case of second question).²⁵ These countries are overwhelmingly European (the exceptions are only 3: Mexico, China, and Japan), hence we chose to focus our analysis on the European

²⁴Algan and Cahuc (2006a) use attitudes of individuals in the US to proxy for the attitudes of individuals from different European countries. They do not use the epidemiological approach, however, since they are attempting to explain cross-European aggregate outcomes such as trade union density. Thus, they face the usual problem that these aggregate outcomes could be driven by cross-country differences in economic and institutional environment.

²⁵Canadians were also asked these questions, but as noted in Guiso, Sapienza, and Zingales (2003), there are problems with the representativeness of the Canadian sample that year. In particular, the authors note that the religious affiliations do not match the proportions observed in other data sources and hence we follow the authors and omit Canada from the sample.

sample. Our sample therefore consists of 14 or 15 countries, depending on the question. These questions were answered by 1617 individuals on average from each country (with a high of 4147 from Spain and a low of 588 from Finland). Individuals are weighted so that, at the country level, the sample is representative and, across countries, each country has equal number of observations.

Column 7 in Table 3.1 gives the percentage of individuals from each country that either "agreed" or "strongly agreed" with the housework statement (i.e. these individuals are coded as 1); column 8 gives the percentage that either "disagreed" or "strongly disagreed" with the job statement. Hence, in each case, the greater the fraction coded as one, the higher the percentage of people in that country that have what may be considered as more conservative or traditional views on women's role. On average across countries, 59.8% of individuals thought that being a housewife was as fulfilling as working for pay and 27.2% of individuals disagreed that a job was the best way for a woman to be an independent person. The standard deviation across countries was, respectively, 8.06% for the housework statement and 7.46% for the job statement.

Figure 5 shows the percentage that are coded one in the job statement relative to the housework statement by country. As can be clearly seen, on the whole countries that had relatively high fractions of their population disagreeing with the statement that a job is best for independence also had higher fractions that agreed that housework is as fulfilling as working for pay.²⁶ Across countries, the correlation across questions in the fraction coded as 1 was .44. Across individuals, the correlation in the answers to the two questions was surprisingly low: 0.19.

In order to measure how countries varied in their cultural attitudes towards women's work, we ran an individual level probit regression on the answers to the two statements (coded zero-one as described previously). In addition to a country dummy (our primary variable of interest), we controlled for age (and its square), sex, and marital status. Observations were

²⁶An outlier in this respect is the Netherlands which has fairly "conservative" views about whether a job is best for independence but less so with respect to finding housework fulfilling. It should be noted, in any case, that the extent to which a particular answer may be considered conservative itself is likely to have changed over time. That housework is considered fulfilling may now be considered a radical statement—a reinterpretation of woman's work—rather than a conservative view reflecting the thought that woman's place is in the home.

clustered at the country level. In all cases, the omitted country was the Netherlands. For both statements, the country dummies were individually highly significant. The values of the marginal effects vary from $-.076$ to $.242$ for the housework statement (with an average value of $.034$, standard deviation of 0.083) and from $-.190$ to 0 for the job statement (with an average value of $-.139$ and a standard deviation of 0.054). A number such as 0.24 for Turkey implies that an individual from Turkey is 24% more likely to declare that housework is fulfilling than a comparable individual from the Netherlands. The country marginal effects for the two statements are denoted by the variable names `housework` and `job` respectively.

We also ran individual level probit regressions which, in addition to the aforementioned demographic characteristics, included dummies both for household income deciles and for 8 town size categories ranging from 2,000 people or less to 500,000 people or more. We obtained very similar results and so do not report them here.²⁷

Before proceeding, it is of interest to know how well the attitudes of individuals in the country of ancestry correlate with the attitudes of second-generation Americans from that ancestry. One cannot use the WVS American survey to answer this question since it does not ask an individual her/his ancestry. We rely instead on the General Social Survey which in 1988 and 1994 asked individuals these two questions. Unfortunately, the sample of second-generation Americans in the GSS is very small, so we use instead the response to a question about one's ethnicity to assign an ancestry to individuals. This has the drawback, however, that some immigrant groups have been in the US longer than others and that individuals are likely to have more than one ethnicity. Performing a similar exercise to that in the WVS for the GSS, we find that the correlation between the marginal effects for country of ancestry and for the ethnicity of individuals in the US to be high for the job statement (0.79) but surprisingly low for the housework one (0.05). This may be a result of several factors: the very small number of representatives from several countries, the fact that individuals in the US could also answer "neither" to agreeing or not with the statement, and the smaller number of countries represented (11). As mentioned previously, it may also be that, particularly in the US in the mid 90s, it is no longer necessarily a conservative statement to think that being a housewife is just as fulfilling as

²⁷The number of countries is reduced as these additional controls are not available for Sweden, Finland, and Turkey.

having a job.

4.2 Results

We now turn to an analysis of the explanatory power of the new cultural proxies for the hours worked of second-generation American women in 1970. I perform an analysis similar to that of section 3, except that instead of using the values of female LFP to capture culture, we use the country marginal effects obtained in the exercises above. The sample consists of 4660 individuals from 15 countries when we use the cultural proxy associated with the housework statement or 4618 individuals from 14 countries when we use the cultural proxy associated with the job statement. On average, the women in the sample worked 9.7 hours a week with a standard deviation of 15.9 hours; across ancestries, the average is 9.9 hours a week with a standard deviation of 1.5 hours. Figures 6a and 6b show the plot of housework and job by country, respectively, against average hours worked in the US in 1970 by women from that country of ancestry.

The first three columns of tables 4.1a show the results from an OLS regression on hours worked on housework and a series of control variables. As shown in the first column, controlling solely for SMSA, the housework variable enters negative and significantly. Thus, individuals whose country of ancestry is more "conservative" tend to work less. This remains true when the woman's age and education levels are included in the second column as well as when her husband's education and total income are included in the third column. It is interesting to note that the magnitude of the cultural effect decreases slightly when the husband's characteristics are included whereas the woman's education becomes positive and significant. This points to the fact that the spouses' education levels are positively correlated (and the woman's education is positively correlated with her husband's income) so that when the man's characteristics are not included, the statistically insignificant coefficients on the woman's education levels reflect the positive effect of her own education on her labor supply as well as the negative effects of her husband's education and income. This points to the importance of taking into account assortative matching when studying female labor supply during this time period. The cultural proxy becomes less negative since women from more conservative countries of ancestry tend to be married to men who have higher education and income and thus, when we do not control for these characteristics, the impact of the cultural proxy appears stronger.

A similar pattern to the one discussed above is present when we use instead Job as our cultural proxy, as can be seen in tables 4.1b.

Across the tables, our cultural proxies have a significant quantitative impact. Using the full specification (i.e., column 3), we find that a standard deviation increase in the cultural proxy is associated with a decrease of 0.55 to 0.62 hours worked, depending on the proxy used. As women were working on average 9.9 hours a week, this is a decrease of about 6%.

Column 4 in tables 4.1a,b use female LFP in 1950 as the cultural proxy. A standard deviation increase in female LFP 1950 is associated with an increase of 0.69 to 0.85 hours worked per week in 1970, depending on the sample used (which changes slightly across tables). Column 5 shows that both cultural proxies—the ones measured by attitudes and the one measured by participation outcomes—have explanatory value when they are simultaneously included.²⁸ Lastly, column 6 shows that similar results obtain when the sample is broadened to include the non-European countries.

4.3 Robustness

Our results are robust to excluding countries with many observations (e.g. Italy), extending the sample to include the non-European countries as noted previously. or including per capita GDP measures from various years.

We also ran a probit for a woman’s labor force participation. The marginal effects are reported in table 4.2 It is interesting to note that whereas the housework variable is significant in explaining the individual women’s LFP decision, as is the original cultural proxy of female LFP in 1950, the cultural proxy constructed from women’s answers to whether a job is the best way for a woman to be an independent person is insignificant in this outcome (and thus not shown). I am not sure why this is the case. The magnitude of the effect is a 2.1 percentage points decrease in the probability of participating in the labor force associated with a standard deviation increase in housework and the same increase associated with a standard deviation increase in the 1950 value of female LFP. As on average 34% of this sample was in the labor force, this is about a 6% increase over the mean.

²⁸The correlation between female LFP 1950 and housework ranges from 0.41 to -0.12, depending on whether Turkey is included or not; with job it is -0.21 (for this variable Turkey is never included as the survey question was not asked).

5 Concluding Remarks

Much work remains to be done in the field of economics and culture. I think that the epidemiological approach could be usefully extended to study questions such as the effect of culture on altruism, education, occupational choice, discrimination, entrepreneurship, redistribution, environmental and management practices, or savings behavior, to name but a few areas. Take, for example, the labor-leisure tradeoff. Figure 7 shows the relationship between hours worked in the US by second-generation American men in 1970 and hours worked in manufacturing across country of ancestry in 1990.²⁹ As one can see, there is a positive correlation between these variables. To explore whether this is due to culture will require, as in the work above, examining whether it is driven by direct economic intergenerational transmission (e.g., in education), geographic patterns, etc..

It would be useful to explore more deeply the intergenerational preference/belief transmission mechanism. Knowles and Postlewaite (2005), for example, use the PSID to show that parents with high-savings behavior tend to have children who also demonstrate high-savings behavior. In particular, the parental savings residual in a standard life-cycle regression model has explanatory power for children's savings residual. The authors argue that this is suggestive of preference transmission and it would be of interest to explore this link in other contexts.

Experimental work can also shed light on the relationship between culture and economic outcomes. For example, Henrich et al (2001) show that, across societies, there exist marked differences in how individuals play the ultimatum, public good, and dictator games. They speculate that this variation may have to do with whether individuals routinely engage in work that requires a high degree of cooperation with others relative to work done more independently, but this hypothesis needs to be more rigorously examined.

This paper focusses exclusively on work showing that culture matters for economic outcomes since without convincing empirical evidence there is little reason for economists to be concerned with this topic. There are many other important theoretical and empirical questions that also need to be explored. In general, we would like to understand, for example, how culture propagates and evolves. What is the relative importance of family versus

²⁹I used manufacturing so as to provide a measure of hours worked in roughly comparable activities.

other institutions as cultural transmission mechanisms? To what extent is cultural transmission purposeful (optimizing on the part of an individual or group in society) and to what extent is it involuntary?³⁰ When and why does culture change abruptly whereas at other times it proceeds glacially?

The relationship between technology and culture also needs to be investigated as the former is endogenous, despite the convenient simplification of treating it as a primitive in much work in economics. The extent to which societies put resources into developing technology that “liberates” individuals from household work, to give but one example, depends on things such as whether slavery exists or whether women expect to work in the market or at home.

In theoretical work, it would probably be useful to move past understanding culture simply as an equilibrium selection mechanism, though work such as that by Mailath and Postlewaite (2003) who study how behavior that looks like social norms may arise in dynamic matching model with multiple equilibria is very interesting. They show that in addition to an equilibrium in which there is assortative matching on wealth, under some circumstances there may also be an equilibrium with imperfectly assortative matching that depends as well on non-economic characteristics such as whether one has blue eyes. This equilibrium is sustained because individuals know that this characteristic has a probability of being inherited by their children and hence may yield them higher utility than marrying someone with slightly higher wealth. Hence, to an outside observer, it might therefore appear that in this society people had an intrinsic preference for blue eyes although this inference would be incorrect. However, as discussed in Fernández (2006), one may conjecture that what sustains these equilibria over time—what makes these cultural traits less fragile to perturbations—is that this behavior is eventually embodied in individual preferences and beliefs in the form of a “taste” for blue eyes or in a belief about the inherent superiority of such a feature. Evolutionary models may also be useful to understand the parameters under which this happens as well as models that examine identity formation.³¹

Lastly, culture is bound to affect the nature of institutions. As elaborated on in Greif (1994), differences in cultural beliefs (collectivist versus individualist), for example, were reflected in the different ways in which in

³⁰See Bisin and Verdier (2000) for a model with optimizing cultural transmission on the part of parents and Fernández et al (2004) for a model where preferences and beliefs are simply inherited.

³¹See, for example, Bowles and Gintis (2003) and Akerlof and Kranton (2000)..

the 11th century Genoese traders and Maghrebi traders set up their trading institutions, leading to very different economic development paths thereafter. My hypothesis is that the reverse causality is also likely to hold. That is, not only does culture affect institutions but also institutions affect the dynamic evolution of culture.³²

It should be noted (and this may help explain some of the resistance in the economics profession for thinking about culture) that from a theoretical perspective the endogeneity of preferences and beliefs raises difficult questions for welfare analysis. How should we evaluate policies once we recognize that preferences can change? While this is indeed a problematic question for welfare economics, I would like to conclude by emphasizing the positive counterpart of this conundrum. As economists we sometimes have difficulty justifying having a voice in the public sphere. Is it our task to simply inform people about the strictly economic consequences of different policies and then let society decide? Is the passion with which people argue about choices simply rhetorical flourish in a world with pure economic self interest? To recognize instead that man is an animal that is (perhaps uniquely) capable of reflecting upon, and hence changing, his preferences and beliefs, greatly enriches our view of ourselves and the world and within it the potential role of economic discourse. In the words of A.O. Hirschman, “de valoribus est disputandum.”

³²A study of cross-country differences in the adoption and elimination of slavery and subsequent racist attitudes may be an illuminating way to study this question, but to my knowledge this has not been done.

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Table 3.1

Country	Obs.	Hours Worked	Female LFP 1990	Female 30-34 LFP 1990	GDP per capita 1990	% Agree House-work is Fulfilling	% Disagree Job Best Way for Independence
Austria	270	9.96	36.01	64.77	23040	0.63	0.26
Belgium	24	6.58	31.18	73.65	23049	0.67	0.30
Denmark	80	12.20	51.40	90.97	23953	0.55	0.20
U.K.	498	9.43	41.16	64.47	21872	0.60	0.32
Finland	54	11.07	47.26	84.00	22359	0.54	0.23
France	66	9.74	36.84	74.65	21972	0.60	0.21
Germany	616	10.82	40.50	71.37	21015	0.50	0.25
Ireland	465	7.42	23.57	46.75	15587	0.72	0.39
Italy	1909	9.77	30.68	62.26	21863	0.56	0.26
Netherlands	101	9.55	35.54	60.72	23137	0.56	0.45
Norway	141	10.49	44.59	78.29	25641	0.53	0.25
Portugal	100	11.83	40.21	77.66	14183	0.49	0.20
Spain	65	8.71	27.49	56.19	17432	0.60	0.22
Sweden	187	9.93	50.99	90.27	22257	0.62	0.26
Turkey	42	10.63	30.34	42.77	5487	0.79	
Canada	720	10.41	46.18	75.92	22887		
China	53	13.27	54.88	91.93	1596		
Cuba	17	15.24	32.68	67.73			
Greece	197	9.47	28.83	57.53	14561		
Japan	148	16.84	40.59	55.96	23580		
Lebanon	27	10.50	16.16	29.03	2296		
Mexico	839	10.87	21.93	40.01	7627		
Philippines	67	14.53	28.96	49.35	3877		
Switzerland	50	12.78	41.07	60.34	30504		
Syria	38	5.09	13.80	25.65	2592		
Average	270.96	10.69	35.71	63.69	17181.96	0.60	0.27
Std. Dev	414.12	2.57	10.68	18.06	8616.48	0.08	0.07

Sources: 1% 1970 Form 2 Metro Sample of the U.S. Census, 1% 1990 General Sample of the U.S. Census, ILO, Economically Active Population 1950-2010, (Geneva, 1997). GDP is in PPP constant international dollars in 2000, from the World Bank's WDI. Column 7 is the percentage in each country that agrees with the statement "Being a housewife is just as fulfilling as working for pay." Column 8 is the percentage that disagrees with the statement "Having a job is the best way for a woman to be an independent person." Source is WVS 1990.

Table 3.2

Dependent variable is Hours Worked				
	(i)	(ii)	(iii)	(iv)
Female	0.056**	0.056**	0.081**	0.068**
LFP 1990	(0.020)	(0.021)	(0.016)	(0.016)
High School		0.502	2.203**	2.117**
		(0.501)	(0.561)	(0.552)
Some College		-0.163	3.256**	3.194**
		(1.038)	(1.007)	(0.989)
College +		0.787+	6.068**	5.994**
		(0.439)	(0.472)	(0.463)
Husband High School			-1.737*	-1.786*
			(0.718)	(0.717)
Husband Some College			-1.342	-1.378+
			(0.823)	(0.824)
Husband College +			-4.998**	-5.049**
			(0.466)	(0.470)
Husband Total Income			-2.849**	-2.864**
			(0.304)	(0.303)
TFR 1950				-0.185+
				(0.111)
Observations	6774	6774	6774	6774
Adjusted R-squared	0.0180	0.0241	0.0534	0.0534

+ significant at 10%; * significant at 5%; ** significant at 1%. SMSA fixed effects in all specifications. Age and age squared for wife and age range dummies for husband in all specifications with demographics. Robust standard errors in parentheses account for clustering at country level. Income is measured in units of \$10,000. All specifications include a constant.

Table 3.3

	Dependent variable is Hours Worked				
	(i)	(ii)	(iii)	(iv)	(v)
Female 30-34 LFP 1990	0.051** (0.012)				
GDP per capita 1990		1.078** (0.308)	0.511 (0.312)		
GDP per capita 1950				1.546+ (0.816)	-2.283+ (1.330)
Female LFP 1990			0.061** (0.018)		0.114** (0.030)
High School	2.196** (0.565)	2.172** (0.573)	2.156** (0.560)	2.319** (0.590)	2.189** (0.556)
Some College	3.301** (0.984)	3.392** (1.007)	3.285** (0.996)	3.460** (1.044)	3.226** (1.007)
College +	6.110** (0.474)	6.224** (0.491)	6.117** (0.468)	6.296** (0.539)	6.026** (0.465)
Husband High School	-1.722* (0.728)	-1.757* (0.728)	-1.777* (0.721)	-1.649* (0.761)	-1.731* (0.723)
Husband Some College	-1.331 (0.829)	-1.486+ (0.810)	-1.516+ (0.804)	-1.263 (0.847)	-1.336 (0.824)
Husband College +	-4.971** (0.470)	-5.011** (0.476)	-5.042** (0.476)	-4.910** (0.478)	-4.985** (0.465)
Husband Total Income	-2.843** (0.304)	-2.847** (0.302)	-2.855** (0.302)	-2.825** (0.311)	-2.842** (0.304)
Observations	6774	6757	6757	6774	6774
Adjusted R-squared	0.0532	0.0526	0.0530	0.0520	0.0535

+ significant at 10%; * significant at 5%; ** significant at 1%. SMSA fixed effects in all specifications. Age and age squared for wife and age range dummies for husband in all specifications with demographics. Robust standard errors in parentheses account for clustering at country level. Income and GDP pc are in units of \$10,000. All specifications include a constant.

Table 4.1a

	Dependent variable is Hours Worked					
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Housework	-9.973** (2.454)	-9.685** (2.089)	-7.428** (2.527)		-7.314** (1.580)	-6.568* (3.280)
Female LFP 1950				0.081** (0.014)	0.080** (0.015)	
High School		0.064 (0.637)	1.629* (0.807)	1.488+ (0.845)	1.567+ (0.805)	2.125** (0.678)
Some College		-1.208 (0.868)	2.173* (0.943)	1.912* (0.973)	2.045* (0.929)	3.182** (1.177)
College+		0.661 (0.737)	5.697** (0.655)	5.489** (0.646)	5.577** (0.638)	6.314** (0.593)
Husband High School			-1.681+ (0.968)	-1.755+ (0.957)	-1.718+ (0.964)	-1.382 (0.868)
Husband Some College			-1.438 (1.015)	-1.543 (1.003)	-1.478 (1.010)	-1.518+ (0.886)
Husband College +			-4.549** (0.607)	-4.690** (0.607)	-4.629** (0.603)	-4.897** (0.580)
Husband Total Income			-3.025** (0.317)	-3.050** (0.320)	-3.041** (0.318)	-2.730** (0.386)
Observations	4660	4660	4660	4660	4660	5708
Adjusted R-squared	0.0162	0.0262	0.0592	0.0594	0.0600	0.0533

+ significant at 10%; * significant at 5%; ** significant at 1%. SMSA fixed effects in all specifications. Age and age squared for wife and age range dummies for husband in all specifications with demographics. Robust standard errors in parentheses account for clustering at country level. Income is measured in units of \$10,000. All specifications include a constant.

Table 4.1b

Dependent variable is Hours Worked						
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Job	-15.281** (5.158)	-14.099** (4.465)	-10.187* (4.771)		-8.406+ (4.865)	-14.708** (3.933)
Female LFP 1950				0.086** (0.015)	0.078** (0.015)	
High School		0.019 (0.641)	1.549+ (0.820)	1.457+ (0.849)	1.499+ (0.817)	2.022** (0.658)
Some College		-1.307 (0.908)	2.033* (0.992)	1.836+ (0.988)	1.918* (0.976)	2.992* (1.195)
College +		0.686 (0.723)	5.623** (0.653)	5.467** (0.645)	5.525** (0.642)	6.128** (0.520)
Husband High School			-1.628+ (0.988)	-1.703+ (0.973)	-1.668+ (0.982)	-1.366 (0.880)
Husband Some College			-1.460 (1.010)	-1.568 (1.000)	-1.516 (1.006)	-1.545+ (0.892)
Husband College +			-4.465** (0.607)	-4.598** (0.601)	-4.544** (0.599)	-4.836** (0.594)
Husband Total Income			-3.002** (0.323)	-3.025** (0.324)	-3.015** (0.325)	-2.700** (0.387)
Observations	4618	4618	4618	4618	4618	5666
Adjusted R-squared	0.0164	0.0261	0.0585	0.0589	0.0591	0.0533

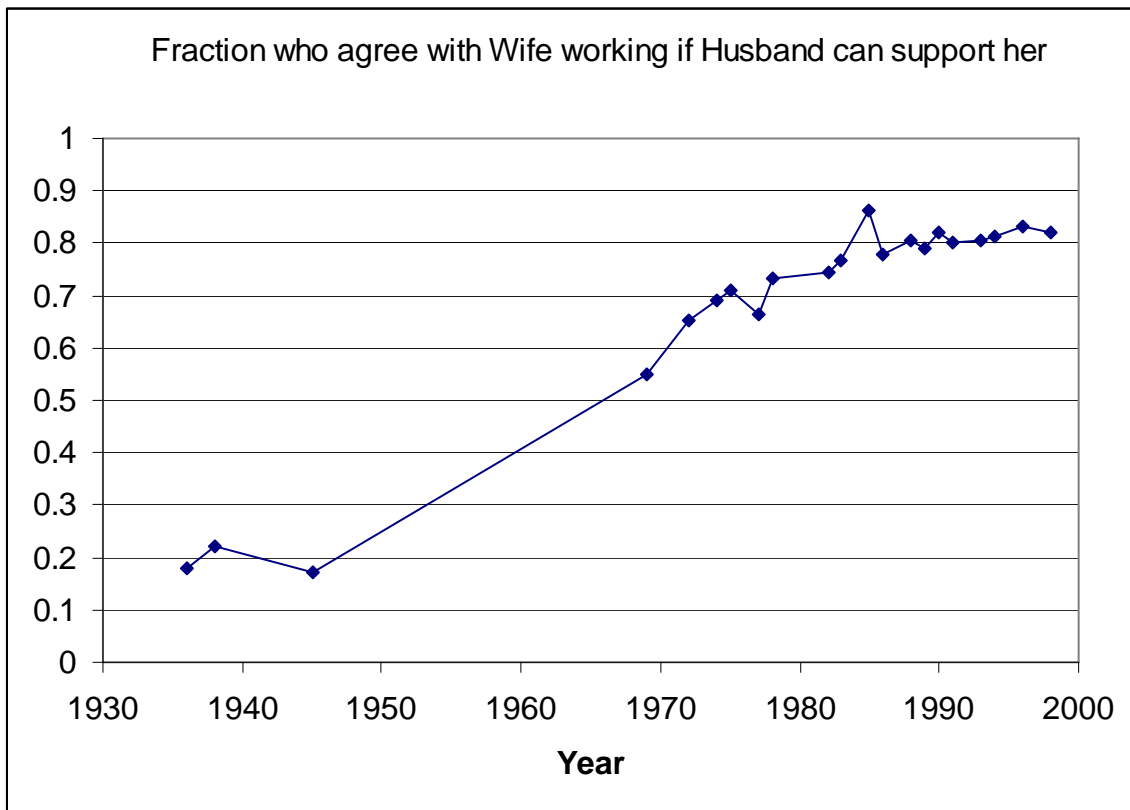
+ significant at 10%; * significant at 5%; ** significant at 1%. SMSA fixed effects in all specifications. Age and age squared for wife and age range dummies for husband in all specifications with demographics. Robust standard errors in parentheses account for clustering at country level. Income is measured in units of \$10,000. All specifications include a constant.

Table 4.2

Marginal Effects from Probit on Labor Force Participation			
	(i)	(ii)	(iii)
Female	0.002**		0.002**
LFP 1950	(0.000)		(0.001)
Housework		-0.253**	-0.250**
		(0.092)	(0.082)
High School	0.047*	0.051*	0.050*
	(0.022)	(0.020)	(0.021)
Some College	0.093**	0.101**	0.098**
	(0.030)	(0.030)	(0.030)
College +	0.238**	0.244**	0.241**
	(0.030)	(0.029)	(0.029)
Husband	-0.068**	-0.066**	-0.067**
High School	(0.020)	(0.020)	(0.021)
Husband	-0.035	-0.032	-0.034
Some College	(0.023)	(0.023)	(0.023)
Husband	-0.143**	-0.140**	-0.142**
College +	(0.013)	(0.012)	(0.013)
Husband	-0.122**	-0.120**	-0.121**
Total Income	(0.014)	(0.014)	(0.014)
Observations	4603	4603	4603
Log Pseudo Likelihood	-2781	-2781	-2779
Pseudo R-squared	0.0633	0.0636	0.0641

+ significant at 10%; * significant at 5%; ** significant at 1%. SMSA fixed effects in all specifications. Age and age squared for wife and age range dummies for husband in all specifications with demographics. Robust standard errors in parentheses account for clustering at country level. Income is measured in units of \$10,000. All specifications include a constant.

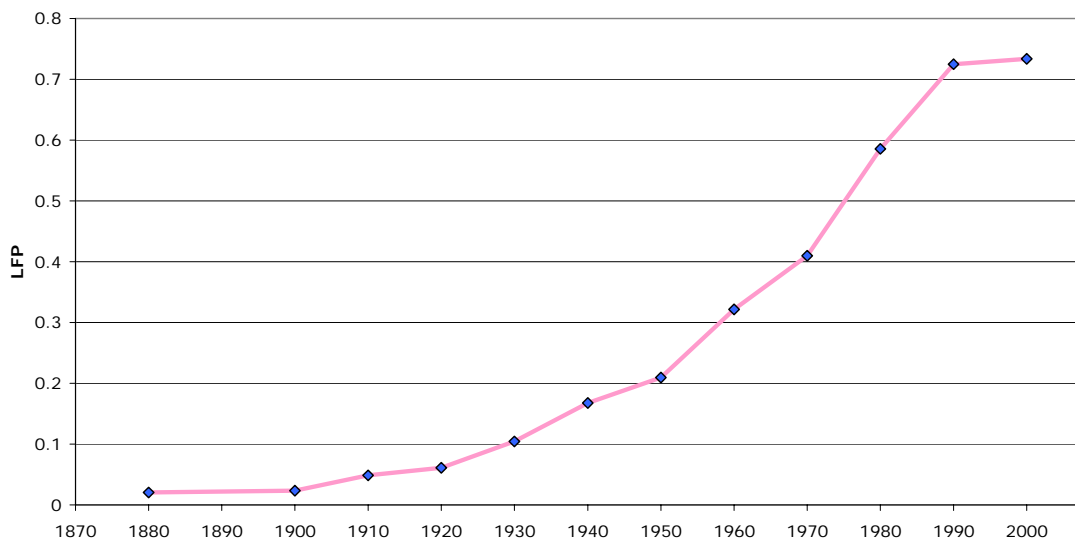
Figure 1



Source: 1936-1938 and 1969 numbers are from the Gallup Poll (1972), 1945 is from Benjamin I. Page and Robert Y. Shapiro, *The Rational Public*, University of Chicago Press, 1992; pp. 101,403-404. 1972 onwards are from the General Social Survey.

Figure 2

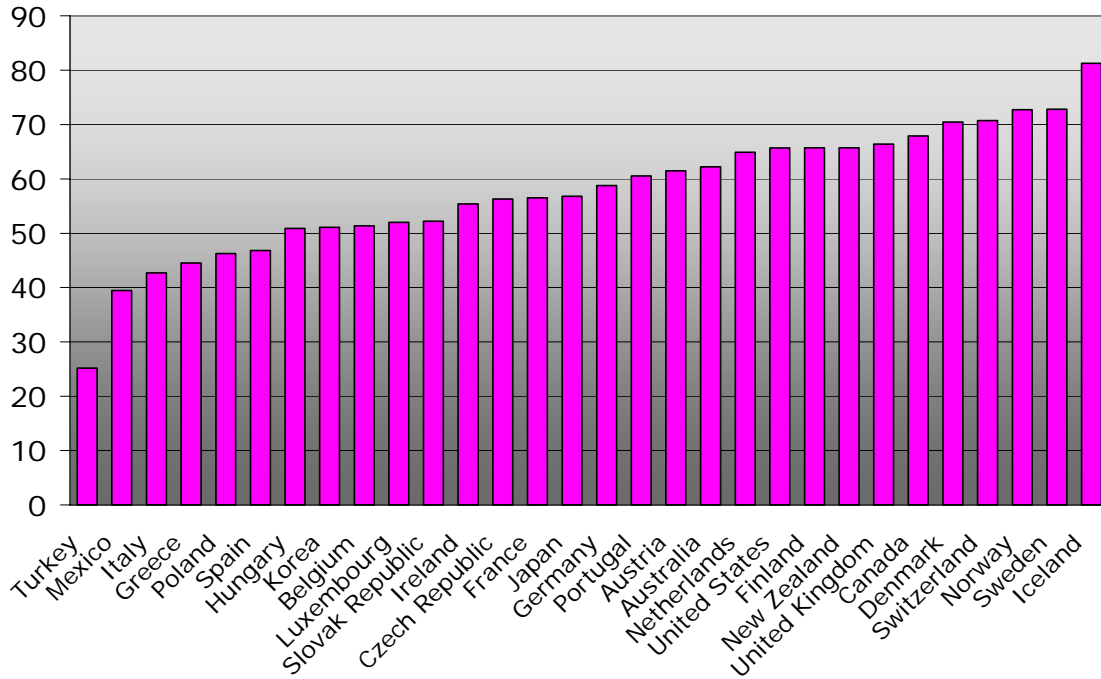
Married Female Labor Force Participation in the U.S.



Source: U.S. Census data 1880-2000. White, married (spouse present) women born in the U.S. 25-44 years old who report being in the labor force.

Figure 3

Female Labor Force Participation (2003)



Source: OECD Factbook 2006: Economic, Environmental and Social Statistics.

Figure 4

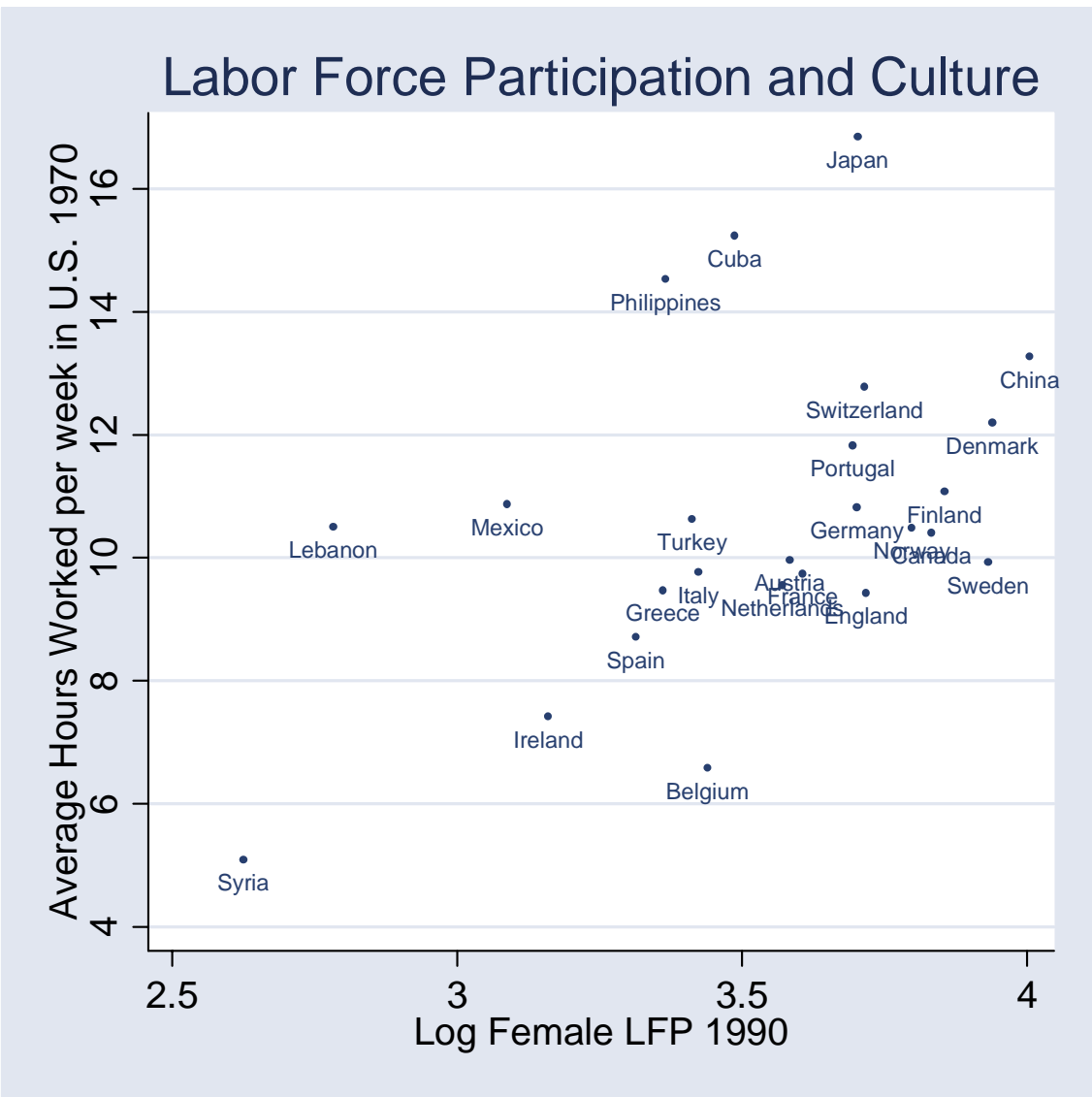


Figure 5

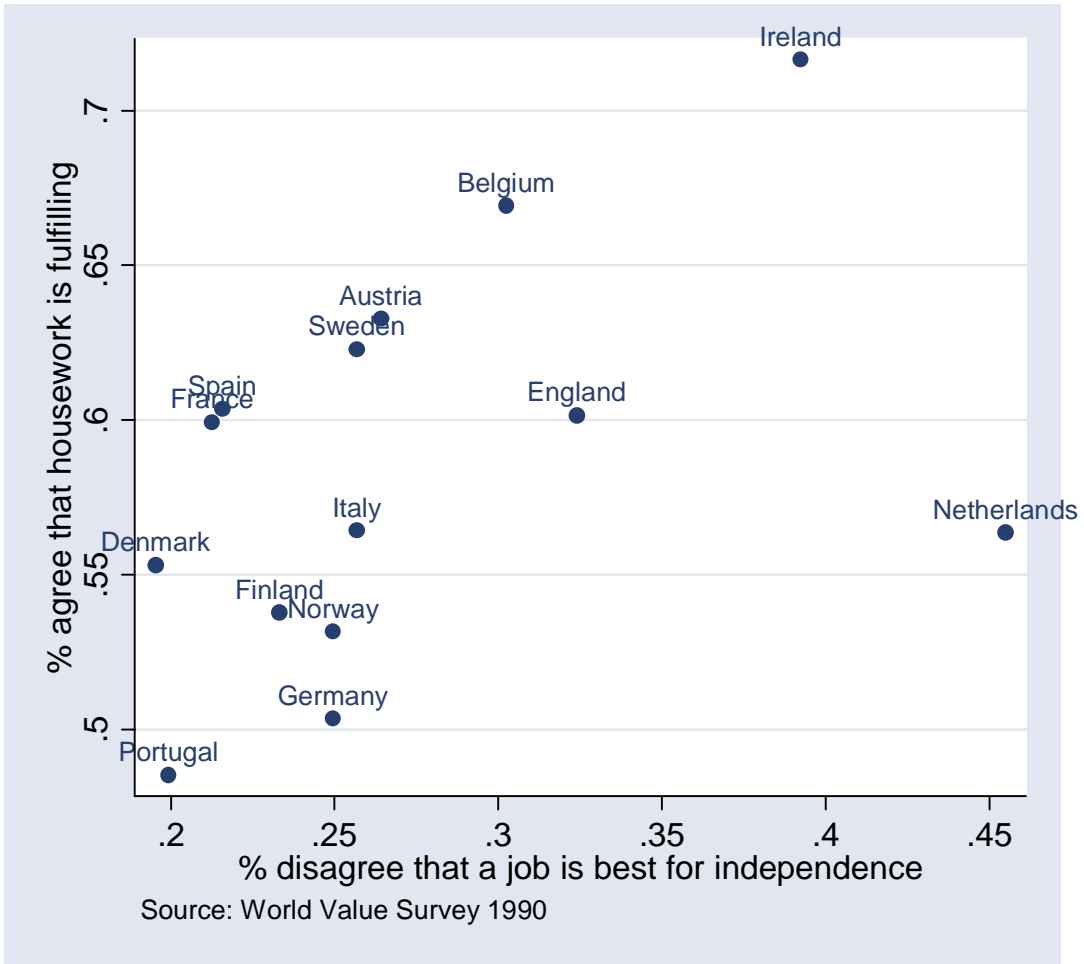


Figure 6a

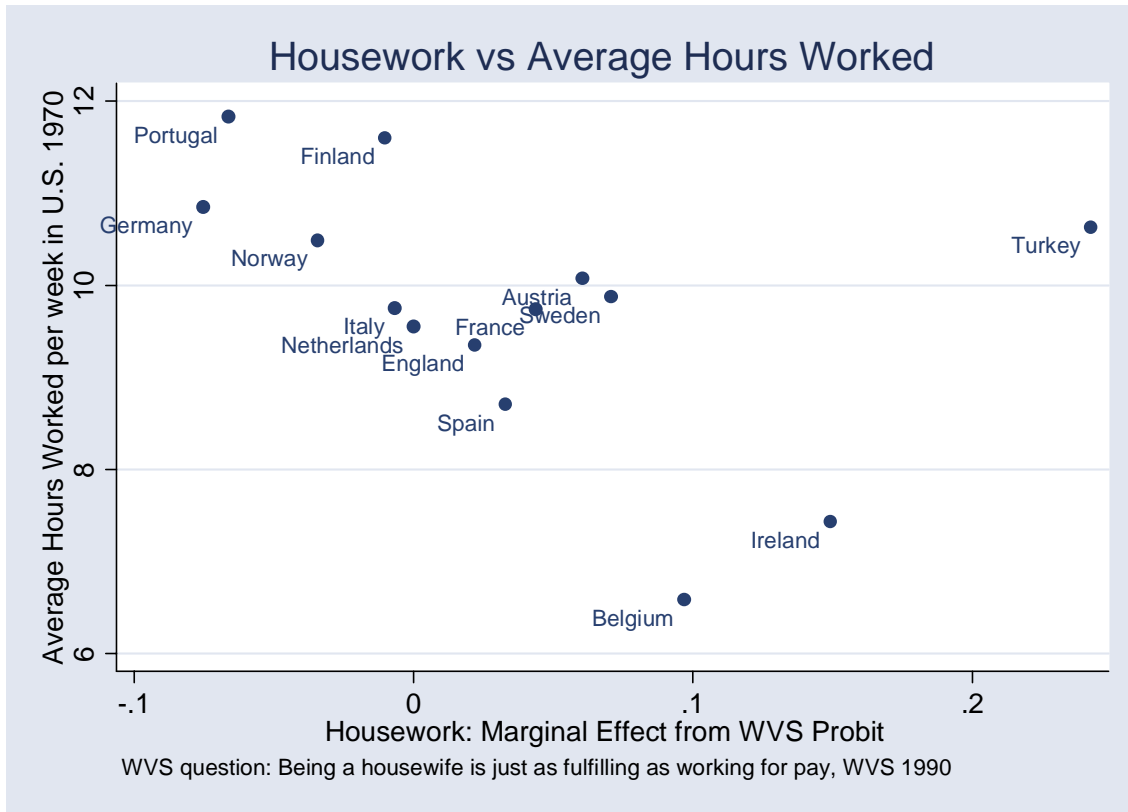


Figure 6b

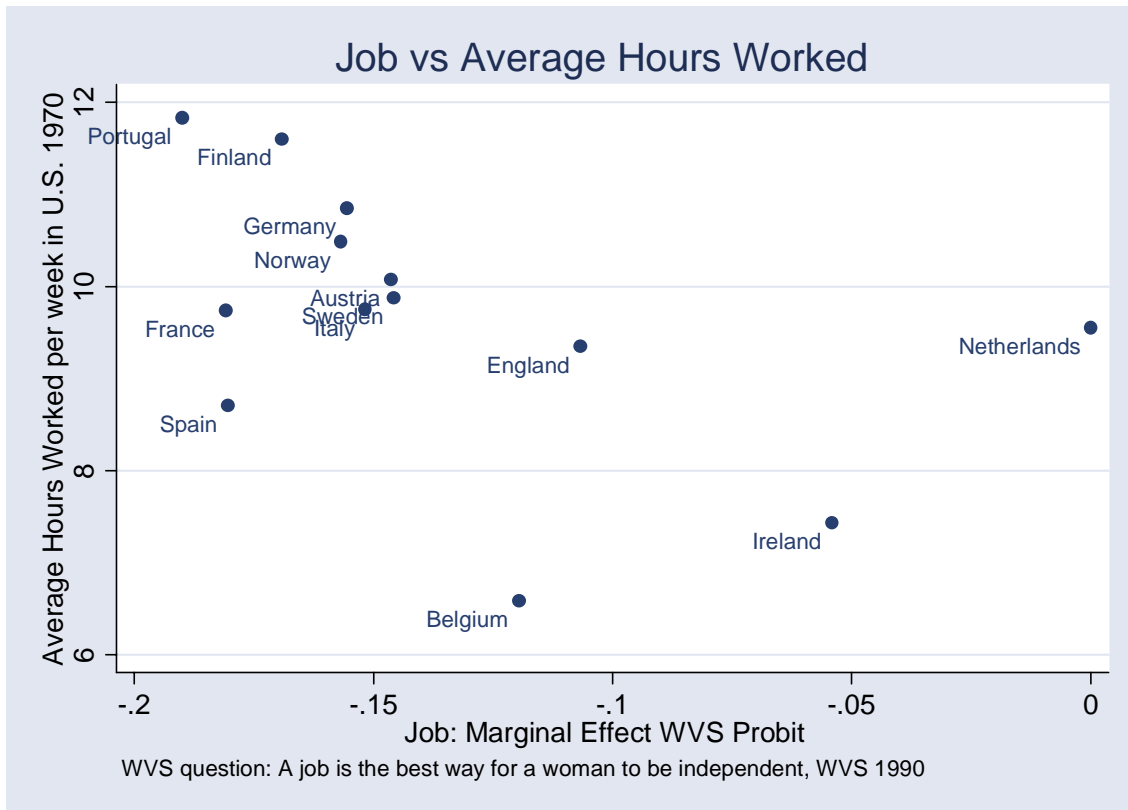
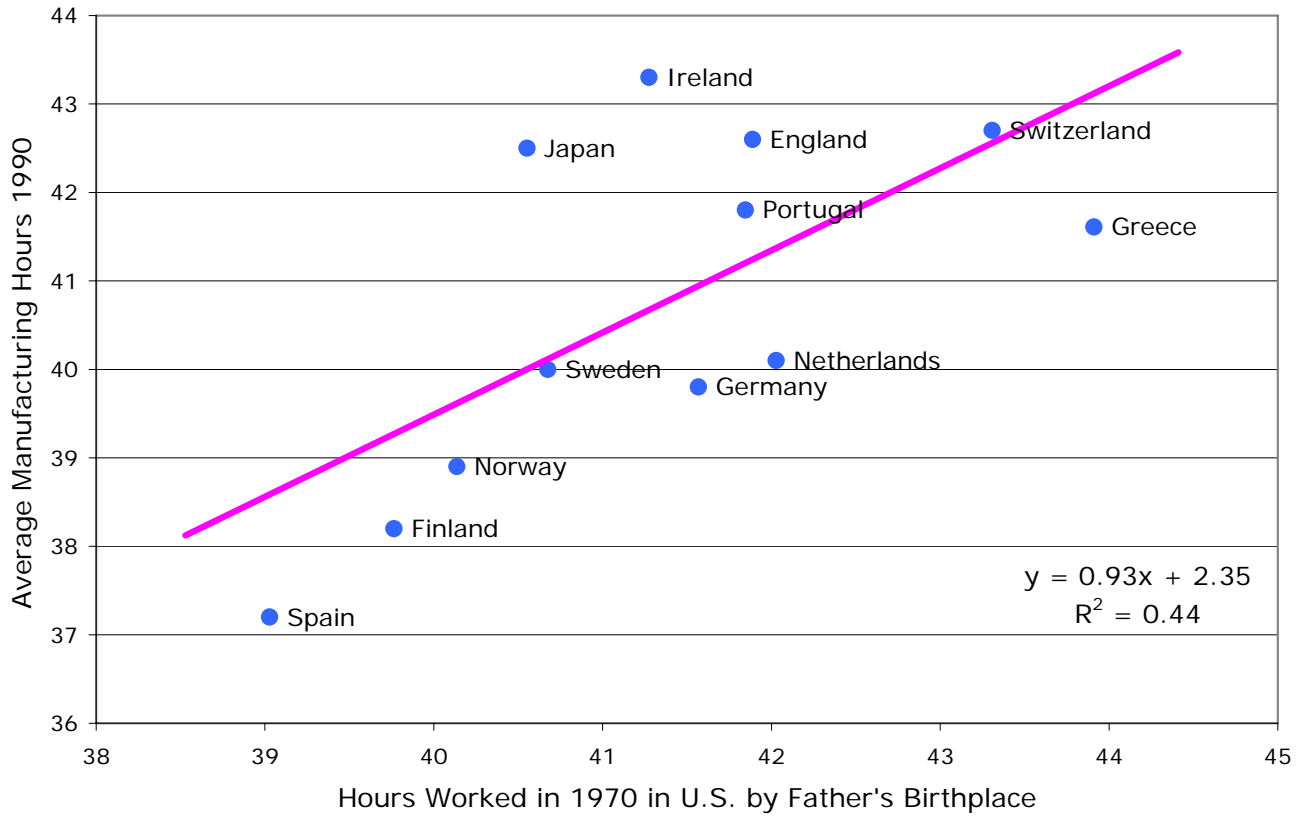


Figure 7



Source: Hours in U.S. from 1970 Census. 30-40 year old married men born in the U.S.. Average manufacturing hours in 1990 from <http://laborsta.ilo.org/>. Switzerland average is from 1987.