



Values and female entrepreneurship

Katherine Terrell

University of Michigan, Ann Arbor, Michigan, USA, and

Michael Troilo

Collins College of Business, University of Tulsa, Tulsa, Oklahoma, USA

Abstract

Purpose – The purpose of this paper is to research the extent to which different types of values influence a woman's decision to become an entrepreneur.

Design/methodology/approach – The paper constructs a two-stage model to capture the entrepreneurial decision. In the first stage, life values affect the decision to enter the workforce. In the second stage, work values impact the type of employment sought: entrepreneur vs employee.

Findings – It is found that women whose life value is that “men should have scarce jobs before women” are less likely to participate in the labor force and hence less likely to become an entrepreneur; work values of initiative, achievement, and respect are positively correlated with entrepreneurship.

Research limitations/implications – The definition of entrepreneurship is limited to those who are self-employed.

Practical implications – The findings have important policy implications. If policy makers wish to spur the rate of entrepreneurship among women to make it approach or reach the same rate as men's, raising young women's awareness that they need not hold themselves secondary to men in the job market and instilling in them work values of achievement, initiative, and respect are important.

Social implications – If policymakers address values that impede women's economic participation, they have the potential to assist both women's social status as well as their economic well-being.

Originality/value – The contribution and originality of the work is the synthesis of labor economics and entrepreneurship scholarship in the two-stage model of how values influence a woman's decision to become an entrepreneur.

Keywords Women, Entrepreneurs, Culture, Entrepreneurialism

Paper type Research paper

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Note from Michael Troilo: Katherine Terrell was my dissertation advisor. She passed away suddenly at the end of 2009. She was an outstanding mentor and friend and is dearly missed by all who knew her.

Katherine Terrell (1950-2009) was a Professor of Business Economics and Public Policy at the Stephen M. Ross School of Business, and a Professor of Public Policy Analysis at the Gerald R. Ford School of Public Policy at the University of Michigan.



Introduction

The incidence of female entrepreneurship is lower than the incidence of male entrepreneurship in virtually every country around the world. This gap is found in numerous datasets, including the global entrepreneurship monitor, the World Bank Investment Climate surveys and the World Values Survey (WVS) (with various definitions of entrepreneurship, such as self-employment, ownership of a small business, etc.) (Global Entrepreneurship Monitor, 2005)[1]. Given the importance of entrepreneurship for job creation and economic development (Schumpeter, 1934), it is critical to understand the factors that drive this phenomenon. Yet, academics have devoted relatively little attention to the environmental factors that can influence female entrepreneurial activity. Most of the literature concerning women entrepreneurs has focused on individual traits and attributes (Greene *et al.*, 2003; Brush, 1992). To the extent that the environment for female-owned new ventures has been studied, the research agenda has centered on access to loans and relationships with banks and other financial institutions (Buttner and Rosen, 1989; Carter and Rosa, 1998; Fafchamps, 2000). The effect of other institutions, defined broadly as humanly devised constraints on human behavior (North, 1990), has been largely overlooked.

This paper seeks to address this gap in the literature by examining the influence of the informal institution of values on the likelihood of a woman being an entrepreneur. By values, we mean a preference for one state of affairs over another (Rokeach, 1973; Hofstede, 1980; Schwartz, 1992; Guiso *et al.*, 2006). There are many different kinds of values in the value theory literature; as we discuss below, we concentrate on the effects of life values (desirable states in life) and work values (desirable states at work) as defined in the sociological literature (Elizur, 1984; Braithwaite and Law, 1985; Schwartz, 1992, 1994).

The main premise of the paper is that values play a key role in explaining the difference in male-female entrepreneurship via a two-stage process: life values shape a woman's decision to enter the labor force, while work values influence whether she becomes an entrepreneur rather than a salaried employee. Hence, the female entrepreneurship rates may be lower than men's because societal values may constrain women from actively participating in the economy in the first place, as well as by shaping their views on what they want from a job.

One of our main contributions consists of tying together several literatures that have examined female entrepreneurship in different ways. Labor economists have studied the woman's decision to enter the labor force (Becker, 1985; Gronau, 1997) but have paid less attention to female entrepreneurship *per se* and to the role of values in household decision making. Scholars of female entrepreneurship have suggested that informal institutions such as values alter perceptions differently between men and women, hence accounting for a gender gap in new firm formation (Brush *et al.*, 2009; Aidis *et al.*, 2005; Bird and Brush, 2002; Welter and Smallbone, 2003), but have not tested this idea empirically. Economists specializing in development have explained various outcomes such as the number of women in managerial roles as the consequence of social institutional arrangements (Morrisson and Jutting, 2005), but have not focused on women entrepreneurs. Other social scientists have analyzed religion and its effects on various attitudes conducive to capitalism (Guiso *et al.*, 2003), but again have not drawn a link to female entrepreneurship across countries[2]. Finally, management scholars have evaluated the role of culture on entrepreneurship

and entrepreneurial processes across nations (Thomas and Mueller, 2000; Baker *et al.*, 2005), without a specific focus on women.

Our conceptual model espouses three main premises. First, female entrepreneurship rates may be lower than men's simply because female labor force participation rates are lower than male labor force participation rates. Second, life values (e.g. a woman's "proper" role in society) influence female labor force participation rates. Third, work values, i.e. goals one seeks to achieve in one's work, impact the decision to become an entrepreneur. We hence model the impact of informal institutions on a woman's decisions as a two-step decision process where the role of life values influences the woman's decision to participate in the labor force as a necessary first step prior to considering the role of work values in determining what form her participation in the workforce will take. Previous literature has not differentiated between types of values nor considered the woman's choice to become an entrepreneur as a two-stage process.

The paper also contributes to the female entrepreneurship literature by offering a truly global analysis of values and the occurrence of female self-employment across nations. While there are studies of female entrepreneurship in different international contexts, the comparative analysis is usually carried out between or among countries that are similar in cultural background (e.g. Canada vs USA or Lithuania vs Ukraine). Our analysis utilizes four waves of the WVS with information on approximately 244,000 individuals across 79 countries. Our results are therefore based on a wider variation of cultural values on female entrepreneurship than prior work.

Finally, one may view our paper as having two overlapping motivations. First, there is the link between economic development and entrepreneurship (Schumpeter, 1934; Aghion and Howitt, 1997). It behooves both academics and policymakers to understand what social values enable (and constrain) women in order to permit an increase in labor force participation and entrepreneurship so as to increase economic prosperity. In the words of Thomas and Mueller (2000, p. 298), who also examine the impact of culture on entrepreneurship, "rigorous comparative research in the domain of international entrepreneurship can help develop better and more generalizable theories of venture creation to guide public policy". Second, and related to the first point, enabling people who have historically been underrepresented in the global economy to participate is not only beneficial for society but also important for personal freedom (Sen, 1999). The process of enabling such individuals begins with understanding the obstacles they face, such as values that may limit their work options.

The paper is organized as follows. We begin in the next section by defining our terms (entrepreneurship, culture, and values), reviewing the pertinent literature in labor economics and entrepreneurship and presenting our hypotheses. This is followed by a section where we describe the data and our two-stage empirical methodology. The tests of our hypotheses are presented in the empirical results section; a discussion of the findings and avenues of future research conclude the paper.

Definitions, review of the literature, and hypotheses

Definitions of entrepreneurship and values

For the purposes of this paper, we define an entrepreneur as "one who owns, launches, manages, and assumes the risks of an economic venture" (Greve and Salaff, 2003). This definition is consistent with prior literature, can be readily operationalized, and

is sufficiently broad to allow inclusion of what Shane (2003) terms the two main entrepreneurship activities: new firm formation and self-employment. Entrepreneurial activity refers to self-employment, which is broad enough to encompass new firm formation but does not presume it. Clearly, there is a tradeoff to be made in adopting this definition. On the one hand, it is easy to find proxies for entrepreneurship with this definition. On the other hand, it lacks richness, for it does not capture certain important facets of entrepreneurial activity such as innovation. We prefer definitions that are capable of being measured empirically, and we delineate the germane aspects of culture and values in what follows given how broad these topics are.

There are ample definitions of values in the values theory literature. An oft-cited definition of a value is an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence (Rokeach, 1973; Roe and Ester, 1999). Hofstede (1984) defines a value as a broad tendency to prefer certain states of affairs over others. Schwartz (1992) posits that values are desirable states, objects, goals, or behaviors, transcending specific situations and applied as normative standards to judge and to choose among alternative modes of behavior. We offer these overlapping definitions to construct our own: a value is an enduring preference for one state of affairs over another that may exist at the social level and that influences behavior.

Our definition emphasizes that values are relatively general, permanent, and capable of affecting measurable outcomes. We emphasize some of these qualities of values to differentiate them from attitudes, which are people's beliefs about specific objects or situations and tend to be less significant in people's hierarchies of beliefs (Hollander, 1971; Roe and Ester, 1999). Furthermore, our definition assumes that personal values can be shared by groups and in that sense become social values. While this assumption has precedent in the values theory literature (Inkeles and Smith, 1974; Hofstede, 1980, 1984; Schwartz, 1992), it is not in fact a settled question that values are indeed shared. There exists causal ambiguity between personal values and social values (Liska, 1990; Roe and Ester, 1999). We make no attempt to resolve this debate; we only note an implicit assumption of our definition is that values are shared.

In line with prior literature, we conceptualize values as being derived from culture, but not congruent with it. We define culture as "those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation" (Guiso *et al.*, 2006, p. 2). This definition of culture is measurable but narrow, as it does not include such standard features of culture as language, cuisine, and dress. Such features, while intrinsic to a broader notion of culture, are ancillary for our purposes in this paper.

There are many categories of values, such as instrumental vs terminal (Rokeach, 1973, 1979). Discussion of these various categories is beyond the scope of this paper, with one exception. We intend to distinguish between life values and work values (Elizur, 1984; Elizur and Sagie, 1999). Their relationship is not dichotomous; rather, work values tend to be a subset of life values. Life values are what people seek in life and govern one's role in society, whereas work values are what people seek in a job. Our intention here is to note this difference as it is germane to our conceptual framework, which we describe subsequently. Understanding the mechanisms of how life values affect work values is beyond the task at hand.

Women, labor force participation, and life values

A woman's decision to work is the bread and butter of labor economists and continues to be a focal point of research even after decades of scrutiny. This decision starts with the allocation of time within households and the concept of the reservation wage (Mincer, 1963). Put simply, the reservation wage is the lowest wage at which the woman finds it more beneficial to spend her time working for pay than to perform household work. If the market wage is below the reservation wage, the woman would prefer to spend her time at home. When the opportunity cost of leisure or household work becomes too high, i.e. market wages equal or exceed the reservation wage, the woman will join the labor force.

Since most women are integral members of households as wives and mothers, the decision whether or not to participate in the labor force is complicated by the responsibilities of their family roles (Hersch and Stratton, 1994). There is some specialization of labor, both in the market and in the home, between the spouses (Becker, 1985; Burda *et al.*, 2007). The traditional model for determining how much time both spouses spend working for pay vs working in the home is the maximization of a single utility function for the household subject to certain resource constraints (Samuelson, 1956)[3]. Women, by custom, generally bear a greater share of household responsibilities. Furthermore, as a husband's earning power increases, there is less economic necessity for a woman to enter the labor force (Browning *et al.*, 1994; Nelson, 1994).

More recent scholarship on women's labor force decisions has moved beyond neoclassical explanations to consider the role of culture and values. Both England and Kilbourne (1990) and Nelson (1994) criticize the traditional utility maximization approach to household decision making for failing to consider the role of power. Burda *et al.* (2007) find that norms of male dominance are positively related to the male-female gap in total work, i.e. the sum of time spent in both market and non-market work. Morrisson and Jutting (2005) differentiate the types of constraints that informal institutions like culture can pose on women's economic activities outside the home. These constraints may be direct, such as taboos against women owning land or other capital, or they may be indirect, such as limiting the opportunity for girls and women to receive education, healthcare, and social capital (Morrisson and Jutting, 2005). These authors do not study the effects of what they term "social institutions" on female entrepreneurship *per se*. Instead, they examine the impact of "non-economic" (i.e. social) institutions like female circumcision, marriage before age 20, and polygamy as well as "economic" institutions such as inheritance laws and right to own assets on four labor market outcomes for women:

- (1) economic activity;
- (2) wage earning;
- (3) holding technical and professional positions; and
- (4) being administrative workers and managers.

Their data cover 65 developing countries across five regions: South Asia, Southeast Asia, Latin America and Caribbean, Sub-Saharan Africa, and Middle East and North Africa (MENA). They find substantial differences among regions in the strength of non-economic institutions, with MENA leading all others. Restrictions on women in these non-economic and economic institutions dampen women's labor market participation in these four areas.

Baker *et al.* (2005) propose that nations differ in how they sort people into roles. They argue that because there are variances in the division of labor among nations, there are also differences in rates of entrepreneurial opportunity discovery. Although they do not focus on the male-female gap in entrepreneurship across countries *per se*, this is clearly one dimension of their theory. Brush *et al.* (2009) place “motherhood” at the center of their conception of female entrepreneurship to highlight the power of gender roles and norms in workplace participation.

Based on this brief review of the literature, we propose that life values that reinforce the roles of men as breadwinners and women as homemakers will curtail the number of female entrepreneurs via labor force participation, as represented by the following hypothesis:

- H1.* Life values affirming the primacy of men over women in the workforce will have a negative effect on female labor force participation.

The impact of values on female labor force participation is relatively understudied in the labor economics literature. Additionally, female entrepreneurship is not a common focal outcome. Our contributions involve deepening the understanding of the role of values on the woman’s decision to participate and extending the focal point beyond labor participation to entrepreneurship.

Entrepreneurship, work values, and gender differences

There is a voluminous literature on work values and entrepreneurs, specifically differences in work values between entrepreneurs and managers in large organizations. The genesis of this work is Schumpeter’s (1934) notion that entrepreneurs possess “special aptitudes”. These aptitudes may be conceived of as psychological characteristics, such as work values (Begley and Boyd, 1987) or as cognitive processes, such as biases and heuristics in decision making (Tversky and Kahneman, 1974; Busenitz and Barney, 1997). We focus on the former.

One work value of particular consequence for entrepreneurial activity is the need for achievement (McClelland, 1961; Begley and Boyd, 1987; Fagenson, 1993). Entrepreneurs tend to be individuals exhibiting a stronger desire than non-entrepreneurs to accomplish great things and to master difficult skills. After a woman makes the decision to enter the workforce, she must choose the manner of participation: salaried employee or entrepreneur. A work value of achievement will correlate with the latter. Other work values that may determine whether a person becomes an entrepreneur or an employee include the need for respect and the need for initiative (Fagenson, 1993). Respect is the regard society has for one’s occupation; initiative is the ability and inclination to act independently. Initiative is a byproduct of internal *locus* of control, which “has consistently been a distinguishing characteristic of entrepreneurs who were motivated by independence to initiate new ventures” (Thomas and Mueller, 2000, p. 292). Thus, our hypotheses are:

- H2a.* The work value of achievement will have a positive effect on female entrepreneurship.
- H2b.* The work value of respect will have a positive effect on female entrepreneurship.

H2c. The work value of initiative will have a positive effect on female entrepreneurship.

Although entrepreneurs on average may value achievement, respect, and initiative more so than non-entrepreneurs, empirical evidence suggests that male and female entrepreneurs may value them differently. Scott (1986) finds that women become entrepreneurs to have greater flexibility with their family as well as to avoid the “glass ceiling” of corporations. Similarly, Anna *et al.* (2000) find that women entrepreneurs have higher career expectations of balancing home life with their business than men, who have higher career expectations of wealth. Other studies highlight that women entrepreneurs start their businesses because they value independence, security, and personal satisfaction more than men, who seem more motivated by the financial rewards and status of being an entrepreneur. These were the conclusions reached by Ljunggren and Kolvereid (1996), who studied women entrepreneurs in Norway, and Shabbir and DiGregorio (1996), who analyzed women-owned businesses in Pakistan. In terms of risk aversion, fear of failure is more of a constraint for women than for men (Wagner, 2004). Finally, Thomas and Mueller (2000) find significant results for men on the prevalence of entrepreneurial traits such as innovativeness and risk-taking.

Other scholars emphasize the role of both values and other institutions in fostering female entrepreneurship. Welter and Smallbone (2003) and Aidis *et al.* (2005) theorize that informal institutions such as values shape both the individual and the collective perceptions of women entrepreneurs, while formal institutions determine the level of development of female entrepreneurship. Put simply, informal institutions influence whether a woman starts a business or not, while formal institutions influence the set of opportunities available, such as industry choice. The authors do not offer proxies for either of these types of institutions; rather, they draw these conclusions from questions they ask women business owners. In their study of female entrepreneurs in Lithuania and Ukraine, Aidis *et al.* (2005) find that women have less access to capital than men. This is apparently not the result of discriminatory treatment on the part of formal financial institutions; it reflects the:

[...] role of women in their households, which affects their attitudes towards risk and their ability and willingness to use household resources, combined with qualitative differences in the informal networks they participate in, compared with men.

Weeks (2009), in her study of female entrepreneurs across five countries in MENA, also finds that access to both bank loans and extensive networks are serious constraints; most of the women in her survey are also responsible for running a home.

Hence, our next set of hypotheses revolve around the questions of whether differences in the work values held by men and women can explain the gap between male and female entrepreneurship. We offer the following hypotheses for testing:

H3a. The work value of respect is higher for men than women and helps explain the gap between male and female entrepreneurship rates.

H3b. The work value of achievement is higher for men than women and helps explain the gap between male and female entrepreneurship rates.

H3c. The work value of initiative is higher for men than women and helps explain the gap between male and female entrepreneurship rates.

As may be seen from the discussion above, our aim is to bridge the labor economics and entrepreneurship literatures and enrich both with concepts from value theory. Both streams of thought have paid relatively little attention to the role of values in their respective domains; the former has focused on neoclassical ideas of personal incentive and utility maximization, and the latter has studied individual traits and characteristics that capture the “entrepreneurial spirit.” Entrepreneurship scholarship has a direct bearing on the nature and incidence of female entrepreneurship, but the antecedent condition of women deciding to participate in the labor force is assumed instead of studied and considered as a potential “selection bias.” Whereas, the entrepreneurship literature has considered the external environment to some extent (e.g. borrowing constraints faced by women vs men) it has not considered the role values play as a potential promoter or inhibitor.

Data and methodology

We use data from the April 2006 WVS (1981-2004), a global research initiative at the Institute for Social Research at the University of Michigan. The 2006 WVS contains data for 84 countries that have been surveyed in up to four waves between 1981 and 2004. Each wave consists of nationally representative surveys, with separate documentation of the survey and sampling techniques for each country. The first wave was carried out during 1981 and 1984 and covers 23 countries. The second wave spanned 1989-1993 and includes 42 countries. The third wave lasted from 1994 to 1999 and covers 54 countries. The fourth wave started in 1999 and ended in 2004; it includes 70 countries. The 2006 WVS is a rich dataset that contains nearly 800 variables on 267,870 individuals (with an average of approximately 1,050 individuals for each country in each wave). It includes three sets of variables important for our analysis: labor market status (out of the labor force vs working either as an employee or self-employed); demographic characteristics (such as gender, marital status, socio-economic status, and education) and myriad variables assessing the basic values of individuals (such as trust, thriftiness, independence, and honesty).

Our analytical sample contains 36 variables (described below) on nearly 244,000 individuals in 79 countries. We dropped observations for people under the age of 15 and over the age of 70 to concentrate on the working-age population. We also dropped all observations for New Zealand, Israel, and Georgia, as none of these countries has information on the self-employed, and for regions such as Northern Ireland and West Germany that are counted as separate countries in earlier waves. Finally, any observations that had any missing values for the variables of interest were not included in the analysis.

Table I displays the number of observations and the variation in our outcome variables – the male and female participation rates (WE/W and ME/M) and self-employment rates (WSE/W and MSE/M) as well as the ratio of the male to female self-employment rates (MSE/WSE) – by country and region in the WVS data[4]. Although European countries represent half of the total number of countries and observations, all major regions of the world are covered and these countries represent over 90 percent of the world’s population. We begin by noting that, for the overall sample, the male participation rate is 69.0 percent while the female rate is only 45.2 percent. The region with the greatest gap is the Middle East, where 67.1 percent of the men participate vs 18.0 percent of the women, while Eastern Europe has the narrowest

	Observations	WE/W (%)	WSE/W (%)	ME/M (%)	MSE/M (%)	MSE/WSE
<i>Eastern Europe</i>						
Albania	1,956	39.7	16.2	67.3	29.7	1.7
Azerbaijan	1,974	50.6	2.4	74.2	13.2	5.3
Armenia	1,950	37.2	3.0	60.9	18.6	5.5
BosniaHerz	2,337	39.1	2.1	57.0	5.6	3.0
Bulgaria	2,798	55.5	2.0	65.1	4.0	1.7
Belarus	3,863	62.3	1.4	73.6	3.4	2.0
Croatia	2,106	47.7	2.7	59.9	9.3	2.8
Czech Republic	5,576	59.5	2.4	76.6	5.9	2.2
Estonia	2,893	64.2	2.9	76.5	6.5	1.8
Greece	1,092	54.1	6.1	75.6	10.4	1.2
Hungary	2,379	47.9	1.9	64.8	4.2	2.0
Latvia	2,937	60.7	2.0	67.8	5.0	1.9
Lithuania	2,861	57.2	2.3	63.9	5.0	2.1
Macedonia	1,971	35.9	2.7	54.7	7.3	2.8
Moldova	1,863	48.6	3.2	58.2	5.5	1.5
Poland	3,841	38.4	5.4	50.2	10.2	1.7
Romania	3,269	50.1	6.6	63.3	10.1	1.5
Russia	5,963	59.7	0.6	71.1	2.0	2.4
SerbiaMont	3,554	45.5	3.5	60.6	9.6	2.6
Slovak Republic	3,762	60.7	1.3	72.9	3.8	2.9
Slovenia	2,898	52.0	1.5	64.3	5.9	3.4
Ukraine	3,685	53.3	0.9	67.3	4.3	3.0
Total (22)	65,528	52.7	2.9	66.3	7.3	2.2
<i>Western Europe</i>						
Austria	2,760	44.7	6.0	67.0	9.8	1.2
Belgium	5,321	41.1	4.8	63.0	8.1	1.6
Denmark	2,926	62.0	3.8	72.4	7.1	1.9
Finland	2,457	53.9	3.2	61.5	5.1	1.6
France	3,515	45.7	2.6	63.2	4.7	1.6
Germany	6,742	53.6	2.2	70.3	5.0	2.0
Great Britain	4,147	54.8	1.8	69.8	4.8	2.4
Iceland	2,466	75.6	7.0	89.1	16.1	2.4
Ireland	2,880	44.7	2.1	76.0	10.2	4.2
Italy	5,099	42.1	6.5	70.4	16.0	2.3
Luxembourg	1,140	51.5	2.7	66.0	2.2	0.8
Malta	1,670	23.8	0.9	59.0	5.8	5.9
The Netherlands	2,964	45.0	2.9	68.9	5.5	1.6
Norway	3,157	69.3	4.9	82.4	15.0	3.2
Portugal	1,946	46.1	6.5	72.3	13.0	1.6
Spain	9,238	30.5	5.2	66.7	13.1	2.3
Sweden	3,734	70.0	2.2	78.4	8.5	4.1
Switzerland	2,281	55.9	5.4	80.9	8.4	1.5
Sub-total (18)	64,443	48.6	4.0	70.5	9.3	2.1
<i>North America</i>						
Canada	4,490	53.8	3.5	72.9	5.2	1.3
Mexico	5,335	42.9	7.9	78.1	19.3	2.5
Puerto Rico	1,794	40.8	2.8	60.1	4.4	0.9
USA	6,160	58.9	2.3	75.5	3.8	1.5
Sub-total (4)	17,779	50.9	4.2	74.5	9.3	1.9

Table I.
Participation and
self-employment rates by
region and country

(continued)

	Observations	WE/W (%)	WSE/W (%)	ME/M (%)	MSE/M (%)	MSE/WSE
<i>Africa</i>						
Algeria	1,261	50.1	7.0	70.0	19.8	2.9
Morocco	2,250	50.7	21.0	74.7	37.7	1.7
Nigeria	4,945	49.3	27.8	65.9	31.7	1.3
South Africa	8,462	40.9	4.4	58.8	6.3	1.3
Tanzania	1,131	45.9	16.7	60.5	26.6	2.0
Uganda	1,000	52.1	18.2	75.4	27.5	1.5
Zimbabwe	975	54.8	6.5	59.8	10.4	1.6
Sub-total (7)	20,024	46.1	13.4	64.1	19.7	1.5
<i>South America</i>						
Argentina	4,105	41.3	10.8	72.0	22.5	1.9
Brazil	2,931	42.9	6.3	71.0	13.0	2.1
Chile	3,554	35.7	9.3	75.7	18.8	1.8
Colombia	6,009	39.4	7.2	72.1	15.5	2.2
Dominican Republic	414	51.4	7.8	66.9	12.4	1.1
El Salvador	1,215	33.6	11.9	68.1	23.0	1.7
Peru	2,712	33.1	11.6	63.3	21.4	1.8
Uruguay	905	46.7	8.7	64.1	10.4	0.8
Venezuela	2,348	38.6	11.6	69.2	23.1	2.0
Sub-total (9)	24,193	39.0	9.3	70.6	18.4	1.9
<i>Asia</i>						
Bangladesh	2,999	16.3	1.3	50.3	22.3	20.5
China	3,450	77.8	11.7	87.0	13.8	1.4
India	6,432	25.7	5.8	73.5	28.4	6.0
Indonesia	978	53.1	22.4	81.9	23.2	1.0
Japan	4,413	53.0	9.4	81.9	14.9	1.4
Pakistan	2,711	10.4	3.8	81.0	29.2	8.1
Philippines	2,326	32.2	14.0	73.0	26.0	1.9
Singapore	1,484	47.9	1.8	69.2	2.7	1.4
South Korea	3,669	30.1	10.6	53.3	20.3	1.8
Taiwan	758	56.2	11.0	87.5	25.3	2.2
Vietnam	940	29.6	11.3	39.4	13.4	1.1
Sub-total (11)	30,160	37.5	8.3	71.5	21.3	2.7
<i>Middle East</i>						
Egypt	2,915	16.0	1.4	76.1	15.2	11.2
Iran	2,489	18.7	2.5	60.9	19.9	9.1
Iraq	2,257	11.8	1.5	68.4	18.4	11.1
Jordan	1,191	6.9	0.6	58.9	7.1	10.0
Kyrgyzstan	999	39.4	6.4	59.6	16.6	2.1
Saudi Arabia	1,502	17.6	1.2	77.6	5.7	4.8
Turkey	7,404	19.3	2.7	65.7	24.5	9.1
Total (7)	18,757	18.0	2.3	67.2	18.7	8.2
Australia	3,032	49.9	1.0	70.7	3.0	2.8
Sub-total (79)	243,916	45.2	5.3	69.0	12.8	2.3

Notes: "No. of observations" in column (1) refers to all men and women ages 15-70; WE (ME) refers to the number of women (men) who are employed, i.e. working for pay; WSE (MSE) is the no. of women (men) who are self-employed; W(M) is the total no. of women (men) in the 15-70 age group; the percentages are hence based on the population ages 15-70; the percentages in the final row are weighted by the population in each country

Table I.

gender difference at 66.3 percent for men and 52.7 percent for women. Our second variable of interest, the rate of self-employment (entrepreneurship), is small all over the world; the overall average is 12.8 percent for men and 5.3 percent for women, with enormous variation across countries. In the last column, we can see interesting differences in the ratio of male to female self-employed. Overall, that ratio is 2.3, with Africa having the lowest at 1.5 and the Middle East having the highest at 8.1. North America as a whole has a ratio of 1.9.

Our estimation strategy recognizes that the decision to become an entrepreneur is contingent upon the decision to participate in the labor force. Failure to take into account the fact that a large share of women do not participate in the labor force would bias our estimates of the determinants of female entrepreneurship (sample selection bias). Hence, we model these sequential decisions using nested probit equations which estimate the probability that a woman is an entrepreneur, conditional that she is participating in the labor market. The procedure we use, Heckman Probit, estimates a nested probit model and corrects for sample selection bias by treating the selection bias as an omitted variables problem (Heckman, 1979; Woolridge, 2002). A consistent estimator of this unobserved variable can be obtained in the first-stage regression of the selection model (Heckman, 1979; Woolridge, 2002).

In particular, we estimate the probability that an individual is self-employed with pooled data on working women ages 15-70 in 79 countries as follows:

$$\Pr(SE_{ict}) = \alpha_1 + \alpha_2 WorkValue_{ict} + \sum_{j=3}^{13} \alpha_j Demog_{ict} + \sum_{j=1}^{10} \delta_j HHI_{inc_{cit}} + \alpha_{14} PerCapGDP_c + \varepsilon_{ict} \quad (1)$$

where $SE = 1$ if the individual i in country c at time t is self-employed and 0 if she is an employee (working for someone else). This variable proxies for entrepreneurship; we note that some of the self-employed have employees but most do not[5].

The key explanatory variable *WorkValue* is represented by a dummy variable for one of the three different work values (estimated sequentially): initiative takes a value of 1 if the individual indicated that “the opportunity to use initiative is important in a job” and 0 otherwise; achievement (“being able to achieve something is important in a job”); respect (“a job that people in general respect is important”). Respondents in the WVS were asked to name the two most important characteristics they want from a job from the following list of options: good pay, not too much pressure, good job security, respected by others, good hours, generous holidays, responsibility, interesting, achieving something important, meets one’s abilities, and an opportunity to take initiative. We selected the three variables that we thought might most differentiate the entrepreneurs from salaried employees to proxy for work values based upon our review of the literature.

The remaining control variables are: *Demog*, a vector of demographic variables that includes marital status (dummy – 1 if married), number of children in the family under the age of 15, age groups (Age15-19, Age20-29, Age30-39, Age40-49, Age50-59, and Age60-70, with Age15-19 being the base) education (in years)[6], happiness, and health. Happiness and health are the respondent’s self-assessment of their personal well-being and take values of 1 if the person considers herself happy or in good/excellent health. We also take household income (*HHInc*) into consideration as per our conceptual model and prior literature on female labor supply. Respondents were asked to indicate the decile to which their *HHInc*’s income level corresponded in their respective countries.

Hence, $HHInc$ is a vector of dummy variables for each decile of income, with the first decile being the base. We also use $PerCapGDP$ to control for a country's wealth or level of development. This variable is the purchasing power parity (PPP) gross domestic product (GDP) in US\$ obtained from the Economist Intelligence Unit for each country for each year the WVS was administered in that country.

The self-employment vs employee outcome is not observed unless the individual chooses to work outside the home. Hence, our first stage equation is specified as:

$$\begin{aligned} \Pr(LFP_{ict}) = & \beta_1 + \beta_2 LifeValue_{ict} + \sum_{j=3}^{13} \beta_j Demog_{ict} + \sum_{j=1}^{10} \phi_j HHInc_{cit} \\ & + \beta_{14} PerCapGDP_c + \varepsilon_{ict} \end{aligned} \quad (2)$$

where $LFP = 1$ if the woman is working for pay (participating in the labor force) and 0 otherwise. The control variables, $Demog$, $HHInc$, and $PerCapGDP$ are the same as in equation (1). The key explanatory variable $LifeValue$ is represented by a dummy variable $AgreeJobs$, which is equal to one if the individual agrees that "When jobs are scarce, men have more right to a job than women."

It can be argued that a person's life values have two components, an inherent component (derived from a person's cultural background) and a temporary component (derived from the person's current environment). In other words, there would be an endogeneity problem if a woman's answer to $AgreeJobs$ were to be influenced by her current condition (e.g., witnessing her father or husband being unemployed) or current labor market status. In order to avoid this endogeneity problem, we instrument $AgreeJobs$ with that dimension of values that is inherited rather than voluntarily selected by the individual over his/her lifetime [7]. Religion suits our purposes because its tenets generally remain static over centuries; therefore, it has been characterized as a "slow-moving" institution or a "Level 1" institution (Roland, 2004; Williamson, 2000). Our rationale for religion as an instrument has strong precedent, dating back to the work of Weber (1904) and his seminal idea of the work ethic. Guiso *et al.* (2003) examine the role of religion (their proxy for culture) on having certain values or attitudes such as trust, thriftiness, and the role of women in society. They find, for example, that being actively religious is positively and significantly correlated with traditional gender roles, e.g. "being a housewife is just as fulfilling as working for pay." Guiso *et al.* (2006), in their paper, find that trust is positively and significantly correlated with the likelihood of entrepreneurship in the USA, but they do not distinguish the likelihood of female vs male entrepreneurship. In this study, we rely on Guiso *et al.*'s (2003, 2006) method of instrumenting, and extend the entrepreneurship literature by focusing on explaining gender differences in the incidence of entrepreneurship by differences in values derived from culture.

Hence, the instrumented $LifeValue$ variable is the predicted value of $AgreeJobs$ from the following ordinary least squares (OLS) equation [8]:

$$\begin{aligned} AgreeJobs_{ict} = & \lambda_1 + \sum_{j=1}^{10} \chi_j Denom_{ict} + \lambda_2 Active_{ict} + \lambda_3 PercentDenom_{ict} \\ & + \lambda_4 DomMember_{ict} + \sum_{j=3}^{13} \lambda_j Demog_{ict} + \sum_{j=1}^{10} \theta_j HHInc_{ict} \\ & + \lambda_4 PerCapGDP_c + \varepsilon_{ict} \end{aligned} \quad (3)$$

A person's religious denomination is the primary instrument. Denom is a set of ten dummy variables equal to 1 if she indicates that this is her religious denomination and 0 otherwise; the base is "no religion." We also consider the extent of the woman's religious activity and religious environment. Active is a dummy variable equal to 1 if she attends religious services at least once a week. PercentDenom represents the percentage of each religious denomination within the locality of the country in which she resides. DomMember is a categorical variable equal to 1 if she is a member of the dominant religion in her locality. We include these last two variables because we think peer effects may influence a young woman's values when there is a high concentration of a particular religious group, especially if she belongs to this dominant group. The results of this regression are presented in the Appendix (Table AI). The F -statistic for these instruments is 27, indicating a good fit[9].

Finally, our methodology for testing the third set of hypotheses regarding male-female differences in work values and their effect on gender gaps in entrepreneurship ($H3a-H3c$) is to compare:

- the means of the work values for men and women; and
- the male and female marginal effects of the work values on entrepreneurship (from our nested probit model, estimated separately for men and women).

The two effects taken together will allow for a total effect of work values on the gender gap in entrepreneurship[10]. The means tell us the probability that each gender will hold this value. The coefficients on a value in the regression estimated for men indicate the marginal effect of holding this value (on the probability of being an entrepreneur) relative to men who do not hold this value. Similarly for women, it expresses the difference in the effect between women who do and do not hold this value. The difference in the men's and women's coefficients amounts to a difference-in-difference methodology. Hence, finding that these coefficients are significantly higher for men would support the hypotheses that work values help explain the gaps in female and male entrepreneurship. Moreover, should we find men are more likely than women to hold this value, this too would support $H3a-H3c$.

Table II presents the definitions and means for the variables in the analytical sample by gender. As for demographic characteristics, on average 64 percent of the individuals in the sample are married and have two children. About 49 percent are between the ages of 20 and 39, and nearly 77 percent of respondents consider themselves to be happy. Men on average have slightly more education than women, at 7.6 vs 7.3 years, and are more likely to say they are in good health. The average per capita GDP for the countries in our sample is approximately \$11,000. Protestants and Catholics are the two largest religious groups, together accounting for about one-half of the sample. Over half of the men and women are living in a locality where their religion is the dominant religion; a little over a quarter are actively religious.

Empirical results

Table III shows the coefficients, with robust standard errors clustered by country and wave, from estimating equations (1) and (2) with data on all women of working age in the 2006 WVS. The coefficients from the three sets of nested probits – one for each of the three work values – are presented in columns numbered (1), (2), and (3); the left panel reports the estimates from the first decision and the right panel contains

Variable	Definition	Women		Men	
		Mean	SD	Mean	SD
LFP	Participating in the labor force – 1	0.452	0.497	0.690	0.462
Self-emp.	Being self-employed – 1, given person is working	0.116	0.321	0.185	0.389
Agree/jobs	When jobs are scarce men have more right to a job than women	0.386	0.487	0.501	0.500
Initiative	The opportunity to use initiative is important in a job	0.460	0.498	0.517	0.500
Achievement	Being able to achieve something is important in a job	0.581	0.493	0.605	0.489
Respect	A job that people in general respect is important	0.485	0.500	0.485	0.500
Marital status	Married – 1; 0 otherwise	0.637	0.481	0.646	0.478
Children	No. of children in the household less than 15 years of age	1.978	1.665	1.803	1.702
Age15-19	Age category: 15 to 19 years of age, etc.	0.053	0.225	0.056	0.230
Age20-29		0.254	0.435	0.260	0.438
Age30-39		0.238	0.426	0.231	0.422
Age40-49		0.193	0.395	0.194	0.396
Age50-59		0.142	0.349	0.140	0.347
Age60-70		0.119	0.324	0.119	0.324
Education	Years of schooling	7.316	5.547	7.615	5.648
Happy	Are you generally happy? (yes – 1)	0.768	0.422	0.769	0.421
Healthy	Are you in good/excellent health? (yes –)	0.487	0.500	0.547	0.498
HH income	Self-assessment as to which income decile respondent's HH is in				
Decile 1		0.081	0.273	0.067	0.250
Decile 2		0.108	0.311	0.097	0.296
Decile 3		0.123	0.329	0.119	0.324
Decile 4		0.124	0.330	0.131	0.337
Decile 5		0.118	0.323	0.123	0.329
Decile 6		0.093	0.290	0.101	0.301
Decile 7		0.074	0.262	0.083	0.275
Decile 8		0.057	0.232	0.063	0.243
Decile 9		0.037	0.190	0.045	0.206
Decile 10		0.034	0.180	0.042	0.200

(continued)

Table II.
Descriptive statistics of
variables in the working
age population

Variable	Definition	Women		Men	
		Mean	SD	Mean	SD
PerCapGDP	Per capita GDP (PPP in US\$) by country and wave/year divided by 10,000	10,789	8,243	10,789	8,243
<i>Religion variables</i>					
Catholic	Individual is a Catholic	0.338	0.473	0.304	0.460
Protestant	Individual is a protestant, etc.	0.166	0.372	0.156	0.363
Orthodox		0.092	0.289	0.073	0.260
Jewish		0.003	0.056	0.003	0.056
Muslim		0.125	0.331	0.139	0.346
Hindu		0.022	0.149	0.028	0.166
Buddhist		0.014	0.119	0.014	0.118
Han		0.003	0.054	0.003	0.055
Other		0.016	0.127	0.013	0.115
None		0.221	0.428	0.267	0.401
Active	Attends religious services at least once per week	0.287	0.453	0.264	0.441
DomMember	Respondent is a member of dominant religious group in locality where dominant is defined as 50 percent or more.	0.557	0.497	0.538	0.498
PercentCatholic	A locality contains 200 observations on average	0.324	0.338	0.319	0.338
PercentProtestant	Percentage of Catholics in a locality	0.160	0.257	0.162	0.262
PercentOrthodox	Percentage of Protestants in a locality, etc.	0.086	0.216	0.079	0.210
PercentJewish		0.003	0.014	0.003	0.014
PercentMuslim		0.126	0.292	0.138	0.303
PercentHindu		0.023	0.124	0.028	0.139
PercentBuddhist		0.014	0.063	0.014	0.063
PercentHan		0.003	0.033	0.003	0.034
PercentOther		0.015	0.035	0.015	0.033

Note: All variables above are dummy variables except PerCapGDP: total no. of observations for women is 127,511 and for men is 119,057
Source: WVS, except for of PerCapGDP which was obtained from the Economist Intelligence Unit Country Data (2008)

Independent variables	First decision: labor force participation Dependent variable: working for pay vs not working for pay			Second decision: entrepreneurship choice Dependent variable: self-employed vs employee		
	(1)	(2)	(3)	(1)	(2)	(3)
Agree jobs-IV	-1.106*** (0.437)	-1.088*** (0.437)	-1.005** (0.439)	0.082*** (0.031)	0.106*** (0.035)	0.112*** (0.038)
Age20-29	0.877*** (0.040)	0.873*** (0.040)	0.874*** (0.040)	0.442*** (0.070)	0.409*** (0.068)	0.442*** (0.069)
Age30-39	1.360*** (0.052)	1.361*** (0.052)	1.354*** (0.052)	0.586*** (0.073)	0.572*** (0.074)	0.586*** (0.073)
Age40-49	1.491*** (0.058)	1.493*** (0.058)	1.482*** (0.058)	0.586*** (0.072)	0.580*** (0.072)	0.588*** (0.071)
Age50-59	1.154*** (0.062)	1.154*** (0.062)	1.139*** (0.062)	0.527*** (0.072)	0.528*** (0.073)	0.536*** (0.071)
Age60-70	0.298*** (0.080)	0.299*** (0.080)	0.277*** (0.081)	0.197*** (0.082)	0.216*** (0.082)	0.198*** (0.081)
PerCapGDP	-7.313*** (2.964)	-7.184*** (2.964)	-6.628** (2.974)	-0.145*** (0.060)	-0.126*** (0.061)	-0.155*** (0.061)
Education	-0.019** (0.009)	-0.019** (0.009)	-0.018* (0.009)	-0.003 (0.004)	-0.003 (0.004)	-0.004 (0.004)
Happy	-0.071** (0.028)	-0.077*** (0.028)	-0.073*** (0.028)	0.073*** (0.039)	0.050 (0.036)	0.072* (0.038)
Healthy	-0.003 (0.030)	-0.009 (0.031)	-0.006 (0.031)	0.116*** (0.036)	0.088*** (0.031)	0.104*** (0.036)
Married	-0.080*** (0.042)	-0.077* (0.042)	-0.086*** (0.042)	-0.011 (0.042)	0.008 (0.042)	-0.009 (0.042)
Children	-0.116*** (0.014)	-0.121*** (0.014)	-0.119*** (0.014)	-0.052*** (0.013)	0.045*** (0.013)	0.050*** (0.013)
Constant	7.853*** (3.587)	7.711*** (3.587)	7.040*** (3.587)	-2.103*** (0.998)	-2.090*** (0.998)	-2.110*** (0.998)
Observations	90,483	90,091	90,205			
Wald χ^2	321.510***	307.580***	306.670***			

Notes: Significance at: *10, **5, and ***1 percent; robust standard errors in parentheses, clustered by country/wave; income deciles not shown to condense the table

Table III.
Heckman probit
regressions for women
entering the labor force
and becoming
entrepreneurs

the estimates from second decision. For the sake of brevity, we do not show the income deciles.

Taking the first decision of whether or not to join the labor force, we see that the estimated coefficients on the instrumented values of AgreeJobs are negative and highly significant for each of the three specifications. The estimates are between -1.0 and -1.1 , and significantly different from zero (but not from each other) at 1 percent. These results support *H1*, which states that life values which affirmed the primacy of men over women in the workforce would have a deleterious effect on female labor force participation. Converting the coefficient in Table III into the marginal effect (where all other variables are held at their means), women who agree that men have more of a right to jobs when they are scarce are 44 percent less likely to be working than women who do not agree with this life value. This is a substantial effect as it reduces the mean probability that a woman participates in the labor force from 0.45 to 0.25[11].

Regarding the second decision of whether to become an entrepreneur or an employee, we note that the coefficients on all three work values of achievement, respect, and initiative are positive and significant at the 1 percent level. These results support *H2a*, *H2b*, and *H2c*, respectively. However, the marginal effect of each of these values on the probability of becoming an entrepreneur is not large. Women, who think that it is important to have a job that people generally respect, are 1 percent more likely to be an entrepreneur, compared to women who do not hold that work value. Women who think that being able to use initiative or achieve something is important in a job are also about 1 percent more likely to be an entrepreneur, raising the probability that a woman in the labor force is an entrepreneur (rather than an employee) from 11.6 to 11.7 percent.

The coefficients of the control variables all have the expected signs. For example, women who are married and those with children are significantly less likely to work for pay, but if they do work, those with children are more likely to be entrepreneurs than those without children. This is consistent with a large literature that shows women often choose self-employment as it provides more flexibility in balancing their dual roles of homemaker and breadwinner. Interestingly, happier women are more likely to stay at home, but if they do work, happier women are more likely to be self-employed. Finally, the data show that women in countries with a higher GDP per capita are less likely to work and if they do work, they are less likely to work as self-employed entrepreneurs. Hence, the income effect of higher GDP per capita seems to result in lower labor force participation in richer countries, and wages in rich countries appear to be sufficiently high as to induce women on average to become employees rather than self-employed entrepreneurs.

Our next step is to assess whether these work values can explain the gender gap in entrepreneurship. We first perform a simple test of means of these values for employed men and women. We see from the first panel of Table IV that on average men are much more likely than women to say respect, initiative or achievement is important in a job, with the gap in initiative being the greatest at 5.2 percent points. Hence, the gender difference in probability of holding these values, which are positively correlated with entrepreneurship, supports *H3a-H3c*.

We next test, in the second panel of Table IV, whether the marginal effects of having any of these work values are different for men and women's decision to become an entrepreneur (see Table AII for men's estimated coefficients, from which their marginal effects are derived[12]). For all three values, the differences between the marginal effects of men and women are significant. They indicate that men who hold any one of these

Work value	Means ^a		Marginal effects (Heckman Probit) ^b			
	Male	Female	Male-female	Male	Female	Male-female
Respect	0.482 *** (0.002)	0.459 *** (0.002)	0.033 *** (0.003)	0.029 *** (0.010)	0.009 *** (0.010)	0.020 *** (0.003)
Initiative	0.531 *** (0.002)	0.479 *** (0.002)	0.052 *** (0.003)	0.032 *** (0.010)	0.012 *** (0.003)	0.021 *** (0.007)
Achievement	0.612 *** (0.002)	0.588 *** (0.002)	0.031 *** (0.003)	0.029 *** (0.009)	0.013 *** (0.004)	0.016 *** (0.006)

Notes: Significance at: *10, **5, and ***1 percent; ^ameans are for men and women participating in the labor force; they differ from means in Table II, which are calculated for all men and women ages 15-70; standard errors in parentheses; ^bmarginal effects calculated from coefficients in equations (1) and (2) estimated separately for men and women; robust standard errors in parentheses

Table IV.
Male-female differences
in means of values and
their marginal effects

values are 2 percent more likely to become an entrepreneur (than a salaried employee) compared to women who hold these values. Hence, these findings also support *H3a-H3c*.

These results suggest that women become entrepreneurs at a lower rate than men not only because of the probability that they hold these work values differ, but also because of the way these values affect their decisions. For example, even when men and women hold the same work value, men have a significantly higher probability of becoming entrepreneurs than women, because their marginal effects are higher. These marginal effects may be interpreted as how the institutional environment or market converts the work value into the probability of entrepreneurship.

We also note that the results indicate that the gender gap in holding the values is slightly higher than the gender gap in the marginal effects. Hence, it is the differences in men's and women's probability (or incidence) of holding these work values that have a larger impact on the gender gap in entrepreneurship than the differences in men's and women's marginal effects.

We have assessed the extent to which values can explain the differences in rates of female labor force participation and entrepreneurship around the world. We have shown that a woman having the life value *AgreeJobs* is 44 percent less likely to participate in the labor market than a woman who does not hold this value, whereas holding this value has no effect on the labor force participation of men (as seen from the coefficient in Table AII and the marginal effect, which is -0.202 and also not significantly different from zero.) This life value is having large negative effect on the probability that a woman works and, hence, becomes an entrepreneur compared to a man. If, in addition, she does not possess any of the work values we use in our analysis, the probability of her becoming an entrepreneur is lowered by another 2 percent relative to men.

Discussion and conclusion

We have examined the role that values play in explaining the rates of male and female entrepreneurship around the world. Our premise is that values work in a two-stage fashion to influence women's decisions to become entrepreneurs (defined as self-employed in this paper). First, life values about women's role in society, which are derived from her culture (religion), govern her choice to enter the labor market. Second, her work values shape the type of labor participation: self-employed vs salaried employee.

We find that our proxy for life values, a categorical variable equal to 1 if a woman agrees that "in times of job scarcity, men should have jobs first" and 0 otherwise, has a significant and negative effect on the likelihood of a woman entering the labor force. Women with this value are 44 percent less likely to participate than women without this value. We are confident that causality runs from values to the participation decision and not the other way around since we instrument values with an aspect of values that is inherited from a previous generation and is stable, i.e. religion.

We also find that the impact of the work values of "respect," "initiative," and "achievement" on the decision to be an entrepreneur vs a salaried employee are significant in explaining the difference in female entrepreneurship rates around the world, but the effect is not large: a woman who holds this value is 1 percent more likely to be an entrepreneur compared to a woman who does not hold this value.

Given the literature argues that men and women have different motivations for becoming entrepreneurs, we asked whether gender differences in work values can explain the gender gap in entrepreneurship around the world. We find that that they

can, on two dimensions. Women are less likely than men to hold these values that are positively correlated with entrepreneurship. Moreover, men who hold these values are more likely (by 2 percent) than women who hold these values to become an entrepreneur. Hence, institutions are not only shaping the way men and women think about what they want from work (work values), but they are also impacting the probability that a person who holds these values become an entrepreneur. A woman who holds the same work value as a man is less likely to be an entrepreneur.

Our findings have important policy implications. If policy makers wish to spur the rate of entrepreneurship among women to make it approach or reach the same rate as men's, raising young women's awareness that they need not hold themselves secondary to men in the job market and instilling in them work values of achievement, initiative, and respect are important. The impact of this life value on participation is large and may be more important; however, instilling young women with these values is not sufficient. Given that the marginal effect on entrepreneurship of holding a given work value is lower for women than for men, it is also important for policy makers to examine what aspects in the market may be constraining women with these work values from becoming an entrepreneur at the same rate as men who hold the same values. Here, there are a number of institutions that could be examined such as differences in property rights (e.g. women needing a man's signature to buy property), access to finance, or customer-based gender discrimination.

Another implication involves the role of religion in shaping the life values. It behooves civic leaders to engage religious leaders in what admittedly may be delicate conversations about attitudes that keep women from participating in the economy. It is important to note that most religions have existed for centuries if not millennia; any one religion can contain different schools of thought regarding the application of theology to daily life. Values that discriminate against female involvement in society may not represent orthodoxy but, rather, may be distortions that have become ingrained over time. This dialogue between the state and institutions of faith may serve to advance both personal freedom and social welfare (Sen, 1999).

Our major academic contribution is to synthesize the strains of labor economics, development economics, and entrepreneurship regarding the role of values on female entrepreneurs. We do this by conceiving of values as influencing women entrepreneurs at two levels:

- (1) the decision to join the workforce; and
- (2) the decision to be an entrepreneur.

We build on the work of Welter and Smallbone (2003) and Aidis *et al.* (2005) who suggested the relationship between values and female entrepreneurship through their interviews with women business owners. Whereas, these scholars investigate this relationship in one region (Eastern Europe), we theorize a two-stage process and test it with data from 79 countries.

Our analysis also extends in a major way the work of Thomas and Mueller (2000), who tested the relationships among culture, gender, and entrepreneurship across nine countries. It also contributes to the research of Baker *et al.* (2005) and Brush *et al.* (2009) by explaining how life values influence the division of labor among nations and, hence, the subsequent access to entrepreneurial opportunities. We add to the work of Morrisson and Jutting (2005), who study the impact of values on female economic activity, but who

do not consider the outcome of female entrepreneurship. Likewise, we extend the research of Guiso *et al.* (2003, 2006), who use religion as a proxy for values to research economic outcomes including entrepreneurship, but do not examine female entrepreneurship as a distinct phenomenon.

We see a number of avenues for future research. One is to consider the extent to which the effect of life values changes across different regions of the world (e.g. Africa vs North America), as this would help disentangle the effects of “culture” from “economic development.” Similarly, understanding exceptional countries is a worthy endeavor: An example is Sweden, which has a male self-employed/female self-employed ratio of 4.0, when seemingly similar cultural neighbors like Denmark and Finland have ratios of 1.89 and 1.55, respectively.

Notes

1. Using the World Bank Investment Climate Survey, Sabarwal *et al.* (2009) find that women comprise from 12 to 50 percent of all entrepreneurs (defined as principal or sole owners of a business) in 62 countries in Africa, Latin America, Central and Eastern Europe and Central Asia during the 2002-2005 period.
2. Guiso *et al.* (2006) study the effects of culture on various economic outcomes, including entrepreneurship, but only total entrepreneurship is considered, and in one country, the USA.
3. An entire subset of the labor economics literature has concentrated on the bargaining and distribution of resources in the household using a game-theoretic approach (Manser and Brown, 1980; McElroy, 1981; Lundberg and Pollak, 1996). We do not focus on how these household decisions are reached; we only note that typically women spend more time on household tasks and less on market tasks relative to men.
4. The participation rate is defined as the share of the working-age population that is employed, i.e. working for pay. The self-employment rate is defined here as the share the working age population that is self-employed.
5. We did consider using sole proprietors (self-employed with employees) as a separate category but unfortunately the self-employed were not asked about the number of employees until the 1999-2004 wave. Moreover, there are not a sufficient number of such entrepreneurs to make our primary analysis viable: we note that there are 1,254 self-employed women with employees in the dataset vs 5,705 men; all of the women entrepreneurs are from 30 separate countries in either Eastern or Western Europe.
6. The WVS has nine categories for the question, “How much education have you completed?” The nine categories and the respective number in years (bracketed) are: no formal education (0), incomplete primary (4), completed primary (8), incomplete vocational/technical (9), completed Vo/Tech (11), incomplete secondary (10), completed secondary (12), incomplete university (14), completed university (16).
7. We do not instrument separately for the work values of respect, initiative, and achievement since these are long-term values that are developed as a result of experiences in the early part of one’s life and hence reverse causality is not expected to be a problem. In particular, the desire for achievement or respect can explain why some individuals achieve more in school or select other outlets (e.g. entrepreneurship) where they can realize these values.
8. Instrumenting ordinal variables is very difficult. Rivers and Vuong (1988) criticize the use of the probit functional form to instrument, hence we use OLS which gets around this criticism, but invites criticism of the variable being predicted out of the 0-1 range. We found this was not the case as the predicted value of Agreejobs in our OLS regression are in range 99.2 percent of the time.

9. We note for completeness that the religion variables were unable to predict the work values for women with the same goodness of fit, all the F -statistics were below 9.0. It is 6.64 for achievement; 3.77 for initiative; 7.45 for respect.
10. The logic of the approach is akin to the Oaxaca-Blinder decomposition (Blinder, 1973; Oaxaca, 1973) of the average gender wage gap into differences in men's and women's characteristics (X s) and their coefficients (β s), estimated from separate wage regressions for men and women.
11. For those curious about the magnitude of the coefficient on AgreeJobs when it is not instrumented, we note that it is estimated at -0.324 (significant at the 1 percent confidence level). The marginal effect is -0.125 , which would lower the average probability of participating from 0.45 to 0.39. Hence, the instrumented value has a larger impact on the outcome than the non-instrumented value, which signals that the long-term component of this value makes its effect even stronger.
12. In order to conserve space, we do not report the coefficients from the OLS regression on AgreeJobs for men but we will gladly supply them on request. We note that the F -statistic for the religion variables is 18.1, indicating that the instruments predict it well.

References

- Aghion, P. and Howitt, P. (1997), *Endogenous Growth Theory*, MIT Press, Cambridge, MA.
- Aidis, R., Welter, F., Smallbone, D. and Isakova, N. (2005), "Female entrepreneurship in transition economies: the case of Lithuania and Ukraine", working paper, University College London, London.
- Anna, A., Chandler, G., Jansen, E. and Mero, N. (2000), "Women business owners in traditional and non-traditional industries", *Journal of Business Venturing*, Vol. 15 No. 3, pp. 279-303.
- Baker, T., Gedajlovic, E. and Lubatkin, M. (2005), "A framework for comparing entrepreneurship processes across nations", *Journal of International Business Studies*, Vol. 36 No. 5, pp. 492-504.
- Becker, G. (1985), "Human capital, effort, and the sexual division of labor", *Journal of Labor Economics*, Vol. 3 No. 1, pp. 533-58.
- Begley, T.M. and Boyd, D.P. (1987), "Psychological characteristics associated with performance in entrepreneurial firms and smaller businesses", *Journal of Business Venturing*, Vol. 2, pp. 79-93.
- Bird, B. and Brush, C. (2002), "A gendered perspective on organizational creation", *Entrepreneurship, Theory and Practice*, Vol. 26 No. 3, pp. 41-65.
- Blinder, A.S. (1973), "Wage discrimination: reduced form and structural variables", *Journal of Human Resources*, Vol. 8, pp. 436-55.
- Braithwaite, V. and Law, H. (1985), "Structure of human values: testing the adequacy of the Rokeach Values Survey", *Journal of Personality and Social Psychology*, Vol. 49, pp. 250-63.
- Browning, M., Bourguignon, F., Chiappori, P. and Lechene, V. (1994), "Income and outcomes: a structural model of intra-household allocation", *Journal of Political Economy*, Vol. 102 No. 6, pp. 1067-96.
- Brush, C. (1992), "Research on women business owners: past trends, a new perspective, and future directions", *Entrepreneurship: Theory and Practice*, Vol. 16 No. 4, pp. 5-30.
- Brush, C., de Bruin, A. and Welter, F. (2009), "A gender-aware framework for women's entrepreneurship", *International Journal of Gender and Entrepreneurship*, Vol. 1 No. 1, pp. 8-24.
- Burda, M., Hamermesh, D. and Weil, P. (2007), "Total work, gender, and social norms", NBER Working Paper No. 13000, NBER, London.

- Busenitz, L. and Barney, J. (1997), "Differences between entrepreneurs and managers in large organizations: biases and heuristics in strategic decision-making", *Journal of Business Venturing*, Vol. 12 No. 1, pp. 9-30.
- Buttner, E. and Rosen, B. (1989), "Funding new business ventures: are decision makers biased against women entrepreneurs?", *Journal of Business Venturing*, Vol. 4 No. 4, pp. 249-61.
- Carter, S. and Rosa, P. (1998), "The financing of male- and female-owned businesses", *Entrepreneurship & Regional Development*, Vol. 10 No. 3, pp. 225-41.
- Economist Intelligence Unit Country Data (2008), available at: www.eiu.com (accessed May 3, 2008).
- Elizur, D. (1984), "Facets of work values: a structural analysis of work outcomes", *Journal of Applied Psychology*, Vol. 69 No. 3, pp. 379-89.
- Elizur, D. and Sagie, A. (1999), "Facets of personal values: a structural analysis of life and work values", *Applied Psychology: An International Review*, Vol. 48 No. 1, pp. 73-87.
- England, P. and Kilbourne, B. (1990), "Markets, marriages, and other mates: the problem of power", in Friedland, R. and Robertson, A. (Eds), *Beyond the Marketplace: Rethinking Economy and Society*, de Gruyter, New York, NY, pp. 163-88.
- Fafchamps, M. (2000), "Ethnicity and credit in African manufacturing", *Journal of Development Economics*, Vol. 61 No. 1, pp. 205-35.
- Fagenson, E. (1993), "Personal value systems of men and women entrepreneurs versus managers", *Journal of Business Venturing*, Vol. 8, pp. 409-30.
- Global Entrepreneurship Monitor (2005), *Report on Women and Entrepreneurship*, available at: www.gemconsortium.org (accessed March 15, 2006).
- Greene, P., Hart, M., Gatewood, E. and Brush, C. (2003), "Women entrepreneurs: moving front and center: an overview of research and theory", working paper, Greene University of Missouri, Kansas City, MO.
- Greve, A. and Salaff, J. (2003), "Social networks and entrepreneurship", *Entrepreneurship Theory & Practice*, Vol. 28 No. 1, pp. 1-22.
- Gronau, R. (1997), "The theory of home production: the past ten years", *Journal of Labor Economics*, Vol. 15, pp. 197-205.
- Guiso, L., Sapienza, P. and Zingales, L. (2003), "People's opium? Religion and economic attitudes", *Journal of Monetary Economics*, Vol. 50, pp. 225-82.
- Guiso, L., Sapienza, P. and Zingales, L. (2006), "Does culture affect economic outcomes?", *Journal of Economic Perspectives*, Vol. 20 No. 2, pp. 23-48.
- Heckman, J. (1979), "Sample selection bias as a specification error", *Econometrica*, Vol. 47, pp. 153-61.
- Hersch, J. and Stratton, L. (1994), "Housework, wages, and the division of household time for employed spouses", *American Economic Review*, Vol. 84, pp. 120-5.
- Hofstede, G. (1980), *Culture's Consequences: International Differences in Work-related Values*, Sage, Beverly Hills, CA.
- Hofstede, G. (1984), "The cultural relativity of the quality of life concept", *Academy of Management Review*, Vol. 9, pp. 389-98.
- Hollander, E.P. (1971), *Principles and Methods of Social Psychology*, Oxford University Press, New York, NY.
- Inkeles, A. and Smith, D. (1974), *Becoming Modern*, Harvard University Press, Cambridge, MA.
- Liska, A. (1990), "The significance of aggregates for testing and conceptually linking macro and micro theories", *Social Psychology Quarterly*, Vol. 53, pp. 292-301.

- Ljunggren, E. and Kolvereid, L. (1996), "New business formation: does gender make a difference?", *Women in Management Review*, Vol. 11 No. 4, pp. 3-12.
- Lundberg, S. and Pollak, R. (1996), "Bargaining and distribution in marriage", *Journal of Economic Perspectives*, Vol. 10 No. 4, pp. 139-58.
- McClelland, D.C. (1961), *The Achieving Society*, Van Nostrand, New York, NY.
- McElroy, M. (1981), "Appendix: empirical results from estimates of joint labor supply functions of husbands and wives", in Ehrenberg, R. (Ed.), *Research in Labor Economics*, 4th ed., JAI Press, Greenwich, CT, pp. 53-64.
- Manser, M. and Brown, M. (1980), "Marriage and household decision-making: a bargaining analysis", *International Economic Review*, Vol. 21 No. 1, pp. 31-44.
- Mincer, J. (1963), "Market prices, opportunity costs, and income effects", in Christ, C.F., Goodman, L.A. and Patinkin, D. (Eds), *Measurement in Economics: Studies in Mathematical Economics and Econometrics in Memory of Yehuda Grunfeld*, Stanford University Press, Palo Alto, CA.
- Morrison, C. and Jutting, J. (2005), "Women's discrimination in developing countries: a new data set for better policies", *World Development*, Vol. 33 No. 7, pp. 1065-81.
- Nelson, J. (1994), "I thou, and them: capabilities, altruism, and norms in the economics of marriage", *American Economic Review*, Vol. 84 No. 2, pp. 126-31.
- North, D. (1990), *Institutions, Institutional Change, and Economic Performance*, Harvard University Press, Cambridge, MA.
- Oaxaca, R. (1973), "Male-female wage differentials in urban labor markets", *International Economic Review*, Vol. 14 No. 3, pp. 693-709.
- Rivers, D. and Vuong, Q. (1988), "Limited information estimators and exogeneity tests for simultaneous probit models", *Journal of Econometrics*, Vol. 39, pp. 347-66.
- Roe, R. and Ester, P. (1999), "Values and work: empirical findings and theoretical perspective", *Applied Psychology: An International Review*, Vol. 48 No. 1, pp. 1-21.
- Rokeach, M. (1973), *The Nature of Human Values*, The Free Press, New York, NY.
- Rokeach, M. (1979), *Understanding Human Values*, The Free Press, New York, NY.
- Roland, G. (2004), "Understanding institutional change: fast-moving and slow-moving institutions", *Studies in Comparative International Development*, Vol. 38 No. 4, pp. 109-31.
- Sabarwal, S., Terrell, K. and Bardasi, E. (2009), "How do female entrepreneurs perform? Evidence from three regions", unpublished paper, The World Bank PREM-Gender, Washington, DC.
- Samuelson, P. (1956), "Social indifference curves", *Quarterly Journal of Economics*, Vol. 70 No. 1, pp. 1-22.
- Schumpeter, J.A. (1934), *The Theory of Economic Development*, Harvard University Press, Cambridge, MA.
- Schwartz, S. (1992), "Universals in the content and structure of values: theoretical advances and empirical tests in 20 countries", in Zanna, M. (Ed.), *Advances in Experimental Social Psychology*, Academic Press, New York, NY, pp. 1-65.
- Schwartz, S. (1994), "Beyond individualism-collectivism: new cultural dimensions of values", in Kim, U., Triandis, H., Kagitcibasi, C., Choi, S. and Yoon, G. (Eds), *Individualism and Collectivism: Theory, Methods, and Applications*, Sage, London, pp. 85-119.
- Scott, C. (1986), "Why more women are becoming entrepreneurs", *Journal of Small Business Management*, Vol. 24 No. 4, pp. 37-44.
- Sen, A. (1999), *Development as Freedom*, Oxford University Press, Oxford.

- Shabbir, A. and DiGregorio, S. (1996), "An examination of the relationship between women's personal goals and structural factors influencing their decisions to start a business: the case of Pakistan", *Journal of Business Venturing*, Vol. 11 No. 6, pp. 507-29.
- Shane, S. (2003), *A General Theory of Entrepreneurship*, Edward Elgar, Northampton.
- Thomas, A. and Mueller, S. (2000), "A case for comparative entrepreneurship: assessing the relevance of culture", *Journal of International Business Studies*, Vol. 31 No. 2, pp. 287-301.
- Tversky, A. and Kahneman, D. (1974), "Judgment under uncertainty: heuristics and biases", *Science*, Vol. 185, pp. 1124-31.
- Wagner, J. (2004), "What a difference a Y makes: female and male nascent entrepreneurship in Germany", *Small Business Economics*, Vol. 28, pp. 1-21.
- Weber, M. (1904), *Essays in Sociology*, Routledge and Kegan Paul, London (translated and edited by H.H. Gerth and C. Wright Mills (1948)).
- Weeks, J. (2009), "Women business owners in the Middle East and North Africa: a five-country research study", *International Journal of Gender and Entrepreneurship*, Vol. 1 No. 1, pp. 77-85.
- Welter, F. and Smallbone, D. (2003), "Entrepreneurship and enterprise strategies in transition economies: an institutional perspective", in Kirby, D. and Watson, A. (Eds), *Small Firms and Economic Development in Developed and Transition Economies: A Reader*, Ashgate, Aldershot, pp. 95-114.
- Williamson, O. (2000), "The new institutional economics: taking stock, looking ahead", *Journal of Economic Literature*, Vol. 38, pp. 595-613.
- Wooldridge, J. (2002), *Econometric Analysis of Cross Section and Panel Data*, MIT Press, Cambridge, MA.
- WVS (1981-2004), World Values Survey, available at: www.worldvaluessurvey.org (accessed March 1, 2006 and January 28, 2007).

Further reading

- Cliff, J. (1998), "Does one size fit all? Exploring the relationship between attitudes towards growth, gender, and business size", *Journal of Business Venturing*, Vol. 13 No. 6, pp. 523-42.
- Coleman, S. (2000), "Access to capital and terms of credit: a comparison of men- and women-owned small businesses", *Journal of Small Business Management*, Vol. 38 No. 3, pp. 37-52.
- Gundry, L. and Welsch, H. (2001), "The ambitious entrepreneur: high-growth strategies of women-owned enterprises", *Journal of Business Venturing*, Vol. 16 No. 5, pp. 453-70.
- Hisrich, R. and Brush, C. (1984), "The woman entrepreneur: management skills and business problems", *Journal of Small Business Management*, Vol. 22 No. 1, pp. 30-7.
- Singh, S., Reynolds, R. and Muhammad, S. (2001), "A gender-based performance analysis of micro and small enterprises in Java, Indonesia", *Journal of Small Business Management*, Vol. 39 No. 2, pp. 174-82.
- US Census Bureau web site (2006), available at: www.census.gov/csd/sbo/WomenSummaryoffindings.htm (accessed April 5, 2006).

Corresponding author

Michael Troilo can be contacted at: mike-troilo@utulsa.edu

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Dependent variable: AgreeJobs

Age20-29	- 0.007	(0.012)	Jewish	0.012	(0.024)
Age30-39	- 0.007	(0.014)	Muslim	0.094 ***	(0.019)
Age40-49	0.012	(0.016)	Hindu	0.107 ***	(0.037)
Age50-59	0.058 ***	(0.017)	Buddhist	0.051 *	(0.028)
Age60-70	0.113 ***	(0.020)	Han	- 0.030 **	(0.043)
IncomeDecile2	0.004	(0.015)	Other	0.031 **	(0.015)
IncomeDecile3	- 0.023 *	(0.012)	DominantMember	0.031 *	(0.018)
IncomeDecile4	- 0.028 *	(0.017)	PercentCatholic	- 0.102 *	(0.061)
IncomeDecile5	- 0.054 ***	(0.014)	PercentProtestant	- 0.227 ***	(0.062)
IncomeDecile6	- 0.052 ***	(0.015)	PercentOrthodox	- 0.089	(0.071)
IncomeDecile7	- 0.061 ***	(0.017)	PercentJewish	- 0.539	(0.446)
IncomeDecile8	- 0.064 ***	(0.017)	PercentMuslim	0.137 ***	(0.069)
IncomeDecile9	- 0.085 ***	(0.018)	PercentHindu	- 0.193 ***	(0.069)
IncomeDecile10	- 0.110 ***	(0.016)	PercentBuddhist	0.715 ***	(0.101)
Happy	0.007	(0.009)	PercentHan	0.235	(0.307)
Healthy	0.000	(0.009)	PercentOther	- 0.062 ***	(0.190)
Married	0.074 ***	(0.007)	Constant	0.447 ***	(0.053)
Children	0.020 ***	(0.003)	Observations	54.98 ***	91.931
Education	- 0.007 ***	(0.002)	F-statistic	26.97 ***	
PerCapGDP	- 0.083	(0.014)	F-stat. (Religion Vars)		
ActivelyReligious	0.063 ***	(0.012)			
Catholic	0.018	(0.015)			
Protestant	0.025 *	(0.013)			
Orthodox	0.006	(0.014)			

Notes: Significance at: *10, **5 and ***1 percent; robust standard errors in parentheses, clustered by country/wave

Table AI.
OLS regression of AgreeJobs on religion variables for women

Table AII.
Heckman probit
regressions of men
entering the labor force
and becoming
entrepreneurs

Independent variables	First decision: labor force participation. Dependent variable: working for pay vs not working for pay			Second decision: entrepreneurship choice Dependent variable: self-employed vs employee			
	(1)	(2)	(3)	(1)	(2)	(3)	
Agreejobs-IV	-0.464	(0.534)	-0.425	(0.539)	-0.372	(0.537)	
Age20-29	0.896***	(0.039)	0.894***	(0.038)	0.894***	(0.039)	0.107***
Age30-39	1.388***	(0.050)	1.386***	(0.050)	1.385***	(0.050)	0.017
Age40-49	1.328***	(0.057)	1.326***	(0.057)	1.323***	(0.057)	0.035
Age50-59	0.842***	(0.071)	0.840***	(0.072)	0.832***	(0.072)	0.014
Age60-70	-0.313	(0.098)	-0.318	(0.098)	-0.331	(0.098)	0.061
PerCapGDP	-3.024	(3.615)	-2.755	(3.644)	-2.406	(3.637)	0.454***
Education	-0.025**	(0.010)	-0.024**	(0.010)	-0.024**	(0.010)	0.270***
Happy	0.107	(0.029)	0.101	(0.029)	0.101	(0.029)	0.003
Healthy	0.143***	(0.033)	0.139***	(0.033)	0.140***	(0.032)	0.067*
Married	0.528***	(0.048)	0.531***	(0.048)	0.521***	(0.049)	0.039
Children	0.002	(0.010)	0.001	(0.010)	-0.001	(0.010)	-0.133***
Constant	2.697	(4.352)	2.376	(4.386)	1.957	(4.378)	0.084***
Observations	103,000		102,390		102,422		0.010
Wald χ^2	515.260***		515.650***		523.820***		-0.623

Notes: Significance at: *10, **5, and ***1 percent; robust standard errors in parentheses, clustered by country/wave; income deciles not shown to condense the table