

ABSTRACT

We use data from the World Values Survey, the Global Entrepreneurship Monitor, and the Economic Freedom of the World Annual Report to empirically examine the impact that economic freedom and societal approval of entrepreneurs have on rates of early stage entrepreneurship. We find that both social approval and economic freedom, specifically freedom from big government, is associated with increased rates of entrepreneurship in a cross-section of 21 countries.

Key Words: Entrepreneurship, Economic Freedom, Culture

JEL Codes: L26, M13, O10, P48, Z10

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I. Introduction

Entrepreneurs play a crucial role in promoting economic development. They drive new innovation (Schumpeter 1934) and the market's process toward equilibration (Kirzner 1973). However, the wide variation in efficiency and growth in countries around the world illustrates that entrepreneurship isn't universally productive.

Baumol (1990) argues that entrepreneurs are omnipresent but vary in how productive they are based on their institutional environment. When profits can be made through lobbying or other participation in the political arena, entrepreneurs will be attracted to unproductive or destructive activities. When profits are more readily available by serving consumers through enhancing efficiency or creating new products, entrepreneurship will be more productive. Sobel (2008) finds support for Baumol's argument by examining the United States. He finds that as economic freedom increases, measures of productive entrepreneurship increase, but as economic freedom decreases, measures of unproductive entrepreneurship increase. Most studies citing Baumol, like Sobel, point to the role that profit opportunities play in directing entrepreneurial activity. This is surely an important part of the story, but culture also matters in Baumol's account.

Ancient Romans had profit opportunities available to them in both the marketplace and the political arena, but a social stigma accompanied engaging in entrepreneurial commerce. As Baumol explains, "First, it may be noted that they had no reservations about the desirability of wealth or about its pursuit. *As long as it did not involve participation in industry or commerce,* there was nothing degrading about the wealth acquisition process. Persons of honorable status

had three primary and acceptable sources of income: landholding... 'usury,' and what may be described as 'political payments'" (emphasis original p. 899). Baumol concludes his discussion of ancient Rome by writing, "The bottom line, for our purposes, is that the Roman reward system, although it offered wealth to those who engaged in commerce and industry, offset this gain through the attendant loss in prestige" (p. 901). Thus, for Baumol both the formal rules of the game that reward entrepreneurs with profits and informal culture that rewards or punishes entrepreneurs with social status will affect the prevalence of productive entrepreneurship.

Baumol's claims are consistent with a Misesian understanding of human action in the market process (1949). Mises emphasizes the role that "psychic profits" play in encouraging action,

Profit, in a broader sense, is the gain derived from action; it is the increase in satisfaction brought about; it is the difference between the higher value attached to the result attained and the lower value attached to the sacrifices made for its attainment... Profit and loss in this original sense are psychic phenomena... It is possible to ascertain in terms of money how much an individual has profited or lost. However this is not a statement about this individual's psychic profit or loss... every individual derives a psychic profit from his actions, or else he would not act at all (pp. 286-287).

Baumol is not alone in arguing that the social status of entrepreneurs increases their "psychic profit" and can lead to higher rates of entrepreneurship. Moyker (1996) argues that the social status of entrepreneurs played a role in the industrial revolution. More recently McCloskey (forthcoming) argues that the main cause of the industrial revolution was an increase in Kirznerian alertness brought about by what she calls a "Bourgeois Revaluation." Specifically, it was a change in cultural values that gave dignity and social standing to entrepreneurs, coupled with liberty, that led to the industrial revolution.

Etzioni's (1987) description of how culture can encourage entrepreneurship is also consistent with ours. He argues that "legitimation" is a major factor determining the level of entrepreneurship within one society compared with others and in different periods of time within the same society. He claims that the demand for, and supply of, entrepreneurs will rise the greater the extent that entrepreneurship is viewed as legitimate in society. Individual preferences for being an entrepreneur will increase as respect from others for entrepreneurial activity increases individuals' "psychic rewards" from entrepreneurship.

We build on this literature by empirically examining both parts of Baumol's and McCloskey's arguments in a cross-country setting. We use questions from the World Values Survey (WVS) and the Global Entrepreneurship Monitor (GEM) to approximate the social status, or legitimation, that societies attach to entrepreneurs, and we use the Economic Freedom of the World Annual Report (EFW) to measure the quality of the formal institutions that reward entrepreneurs with monetary profits. We employ these measures, along with other controls, to explain the cross-country variation in rates of private entrepreneurship as measured by the GEM.

Our twofold contribution is first to create a new measure specifically focused on moral praise, or legitimation, for the entrepreneur to study the impact of this aspect of culture on entrepreneurship. Second, we merge the empirical literature on the importance of culture with the empirical literature on the importance of institutions, specifically economic freedom, on rates of entrepreneurship. We expect that formal institutions of economic freedom and positive societal status for entrepreneurs both will be associated with higher rates of entrepreneurship.

The following section relates our research to existing empirical work on the role of culture and the role of economic freedom in explaining entrepreneurship. The third section describes our data and methodology. The penultimate section contains our results and discussion. The final section concludes.

II. Empirical Literature on Culture, Economic Freedom, and Entrepreneurship

Our research merges two important strands of literature on the causes of entrepreneurship: the impact of “culture” and the impact of economic freedom. This paper is the first to empirically examine the relative importance of these factors together in contributing to productive entrepreneurship.¹

Culture and Entrepreneurship

Much empirical work has been done on the effect of culture on economic outcomes (see Guiso et al. 2006, Licht et al. 2007, and Tabellini 2008 and 2009, for some of the more important recent papers), but less has been done on how culture affects entrepreneurship.² However, our study does relate to a few empirical papers that measure culture in ways related to “moral praise,” “social status,” or “legitimation” of entrepreneurs, although none control for the other half of Baumol and McCloskey’s arguments – economic institutions. Hindle and Klyver (2007) examine the relationship between media coverage and rates of entrepreneurship

¹ Johnson and Lenartowicz (1998) examine the relationship between economic freedom, culture, and growth, but they do not consider the impact on entrepreneurship. They find a positive relationship between economic freedom and growth and a positive relationship between the cultural values of “uncertainty avoidance,” and “autonomy” and economic freedom as well as a negative relationship between “conservatism and hierarchy” and economic freedom.

² Among the many other areas of the literature on culture that they survey, Guiso et al. consider how trust, religion, and ethnic origin influence rates of self-employment.

using GEM data. They find a positive relationship between the volume of entrepreneurship media coverage and the volume of people running a young business. Although not the main object of their study, they also include controls for the percentage of the adult population who think that most people in their country should have similar living standards and the percentage of the adult population who think that those starting a successful new business in their country have a high level of status and respect. The first of these is weakly significant in a few of their specifications, and the second never is.

In contrast, Tominc and Rebernik (2007) study these same two questions in post-socialist countries and find that they do influence entrepreneurial growth aspirations. Unfortunately, their study is limited to Slovenia, Hungary, and Croatia. Our study more comprehensively tests these indicators using a wider cross-section of countries than Tominc and Rebernik and uses WVS data to measure culture while controlling for economic institutions and macroeconomic conditions, which Hindle and Klyver's study leaves out.³

Hofstede's (1980) study measuring differences across countries in work-related values has been used in many other studies on the effect of culture on entrepreneurship. His measure of "individualism" is most relevant to our study. Presumably, more individualistic cultures will be more approving (or at least not as shunning) of entrepreneurial success. Mueller and Thomas (2000) use Hofstede's measure and find that individualistic cultures are more likely to have internal locus of control orientations, which contribute to a country's entrepreneurial

³ Tominc and Rebernik (2007) raise doubts about the appropriateness of the questions used to measure culture in these two studies because the survey didn't ask the respondent's opinion but instead asked what the respondent thought the opinion of the majority of the people in their country was.

potential.⁴ Lee and Peterson's (2000) brief survey of the United States, Japan, China, Mexico, and the former Soviet countries also supports the idea that more individualistic countries have a more entrepreneurial orientation. In contrast, Singh, DeNoble, and Ehrlich (2004) use Hofstede's measure of individualism and find no direct relationship to total entrepreneurial activity as measured by the GEM data. Although we are sympathetic to the idea that culture evolves more slowly than economic activity, using Hofstede's measures of culture, which were measured in the 1970s, to explain entrepreneurial activity 30 years later is clearly limiting. Clearly cultural evolution is possible over such a long time frame.

Like our study, Uhlaner and Thurik (2007) use the WVS to measure culture and the GEM data to measure rates of entrepreneurship. However, they focus on "postmaterialist" values rather than moral praise for the entrepreneur, so they selected different questions from the WVS than this study does. They obtain mixed results that depend on the particular specification and control variables used, but in general find that the more "postmaterialist" a culture, the lower the rate of entrepreneurial activity. As explicitly suggested in Uhlaner and Thurik's paper, this study attempts to quantify the significance of other cultural values and economic policies in determining rates of entrepreneurship.⁵

Economic Freedom and Entrepreneurship

The empirical literature on the role of institutions of economic freedom in promoting entrepreneurship is relatively new, although economists have long theorized that they could play an important role. Kirzner (1985) argues that it's the opportunity for profit that increases

⁴ Harper (1998) argues that internal locus of control beliefs strengthen the link between Kirznerian alertness and self-efficacy, which leads to more entrepreneurship.

⁵ Singh, DeNoble, and Ehrlich (2004), and Arenius and Minniti (2005) also suggest further research on other measures of culture's impact on entrepreneurship.

entrepreneurial alertness and that government interventions that hamper the informational signaling process of the market can lower entrepreneurial alertness. However, until very recently little work had been done to examine the relationship empirically.

Stel, Storey, and Thurik (2007) examine the relationship between the institutional environment and rates of entrepreneurship using the World Bank's *Doing Business* report and the GEM data. They find that minimum capital requirements and labor market regulations lower entrepreneurship rates across countries but that regulations increasing the time, cost, and number of procedures necessary to start a business are unrelated to rates of entrepreneurship. They speculate that the lack of relationship between entry regulations and rates of entrepreneurship is due to the fact that entry regulations influence the distribution of entrepreneurial activity between the formal and informal economy rather than the total amount of activity.

Freytag and Thurik (2007) examine the relationship between economic freedom and self-employment, both preferences for and actual, in the 25 member states of the E.U. plus the United States. Their regressions are unable to explain actual rates of self-employment, but they find that economic freedom from regulation is significant in explaining preferences for self-employment, as is the overall economic freedom index.

Nystrom (2008) examines the relationship between economic freedom and entrepreneurship using panel data for 23 OECD countries from 1972-2002 and self-employment as her measure of entrepreneurship. She finds that a smaller size of government, better legal structure and security of property rights, and less regulation of credit, labor, and business all increase rates of entrepreneurship.

Our study's empirical methodology is most closely related to Sobel, Clark, and Lee (2007) and Bjornskov and Foss (2008). Their studies and ours are cross-sectional, and use data from the GEM to measure entrepreneurship and from the EFW to measure institutions.

Sobel, Clark, and Lee (2007) examine how tariff rates, internal barriers to trade through administrative burdens for start-ups, and economic freedom impact the rate of total entrepreneurship as measured by the GEM for a cross-section of OECD countries. Even before controlling for other factors, they find that economic freedom is highly positively significant for determining a country's rate of entrepreneurship. Their multivariate results with controls for economic and demographic factors show that higher tariffs and internal barriers negatively impact rates of entrepreneurship and that higher levels of economic freedom positively impact levels of entrepreneurship.⁶ Furthermore, they find that the size of government and regulation are the two individual areas of economic freedom that are most important for determining rates of entrepreneurship.

Bjornskov and Foss (2008) examine cross-sectional data on entrepreneurial activity as well as opportunity-driven and necessity-driven entrepreneurial activity as dependent variables across 29 countries. They use each of the five individual areas of economic freedom—government size, legal quality, sound money, international trade, and regulatory quality—as measures of institutional quality. They consistently find that a smaller size of government and higher scores for sound money positively impact each measure of entrepreneurship. Although they don't report the coefficients, they note that they include regional dummy variables that are not individually significant but are jointly significant. These dummy variables are likely

⁶ When they include all three measures of institutional quality together, economic freedom loses its significance. This is likely due to the fact that the index itself includes measures of internal barriers and external tariffs.

picking up some of the impact of differences in culture, including differences in social status for entrepreneurs, that this paper explicitly studies.

Bjornskov and Foss conclude by mentioning that their analysis “cannot tell us whether government size mainly affects the context in which potential entrepreneurs work and their incentives to unfold their entrepreneurial abilities, or whether systems with large governments instead mainly limit entrepreneurship by transforming norms and privately held beliefs about society” (2008, p. 326). It is these privately held beliefs, specifically how individuals in different societies give moral sanction and praise to entrepreneurs, that this study adds to the literature.

III. Data and Culture Index

The Global Entrepreneurship Monitor (2008), World Values Survey (2005), and Economic Freedom of the World Annual Report (2009) are our sources of data for the main variables of interest. Below we explain each of these measures. Appendix 2 summarizes the sources of our other control variables.

Our dependent variable for entrepreneurial activity is the GEM’s measure of “Early Stage Entrepreneurial Activity.” The GEM surveys a representative sample of at least 2,000 adults in each covered country on a wide range of activities related to entrepreneurship. Their early stage entrepreneurial activity measure is the summation of the percentage of the adult population that is actively involved in setting up a business that is less than 3 months old and the percentage of the adult population that owns a business between 3 and 42 months old. This measure is most appropriate for our study because new entrepreneurs are likely to be most affected by the social status society gives to entrepreneurs and the most affected by economic freedom. If cultural values turn against entrepreneurship, this cost may simply be

sunk for many established entrepreneurs. Also, many established businesses are more effective at securing special privileges for themselves that circumvent harmful overall decreases in economic freedom.

For a robustness check, we also use GEM data on the percentage of the population that thinks starting a business is a desirable career choice as an alternative measure of culture. Most GEM survey data were collected before the global financial crisis and so should be unaffected by the recent macro economic downturn. However, this alternative measure is obviously influenced both by social status for entrepreneurs and perceived profit opportunities. As such, it's not purely a cultural measure.

Our main measure of the societal status of entrepreneurs is derived from the World Values Survey. Data from the 2005 round of the survey are the most recent available. Because culture evolves slowly over time, this is a suitable measure to predict 2008 entrepreneurship rates.⁷ Unfortunately, the WVS doesn't include a question that directly measures the social standing, moral approval, or legitimation of entrepreneurs, so we have constructed an index based on the following questions:

⁷ As noted previously, in other studies Hofstede's measures of culture from the 1970s are often used to explain rates of entrepreneurship in the 1990s.

How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between.

V.116	Incomes should be more equal	We need larger income differences as incentives for individual effort
V.118	The government should take more responsibility to ensure that everyone is provided for	People should take more responsibility to provide for themselves
V.119	Competition is good. It stimulates people to work hard and develop new ideas	Competition is harmful. It brings out the worst in people
V.121	People can only get rich at the expense of others	Wealth can grow so there's enough for everyone

We inverted question V. 119 so that scores closer to 10 indicate views that are more likely to coincide with societies that legitimate entrepreneurs and calculated a simple average based on the responses to the four questions. It seems reasonable to believe that societies that recognize that income differences stimulate effort, that people should provide for themselves, that competition stimulates hard work, and that wealth is not zero sum are more likely to give legitimation or social status to entrepreneurs. Conversely, entrepreneurs are more likely to be detested when a society believes that an entrepreneur's wealth came at the expense of others, that competition brings out the worst in people, that government should provide for everyone,

and that incomes should be more equal. Although no individual question perfectly maps onto social status or legitimation for entrepreneurs, collectively these questions provide the best measure currently available.

We use the well-known Economic Freedom of the World Annual Report by Gwartney and Lawson as our measure of economic freedom. Following the methodology of prior studies, which have found that different areas of economic freedom have different impacts on rates of entrepreneurship, we use each of the five main areas of the index individually in our regression analysis. These areas of economic freedom are not highly correlated with each other, so breaking down the index does not create statistical problems.⁸

Finally, we control for the log of GDP per capita in PPP, obtained from the World Development Indicators, in all regressions, and we check the robustness of our results using standard control variables from the literature, as described in Appendix 2.

We have data on entrepreneurship, legitimation, economic freedom, and GDP per capita for 21 countries. Although the sample is small, it is quite diverse and includes countries from all inhabited continents.⁹ We keep our main regressions as parsimonious as possible due to our limited sample size.

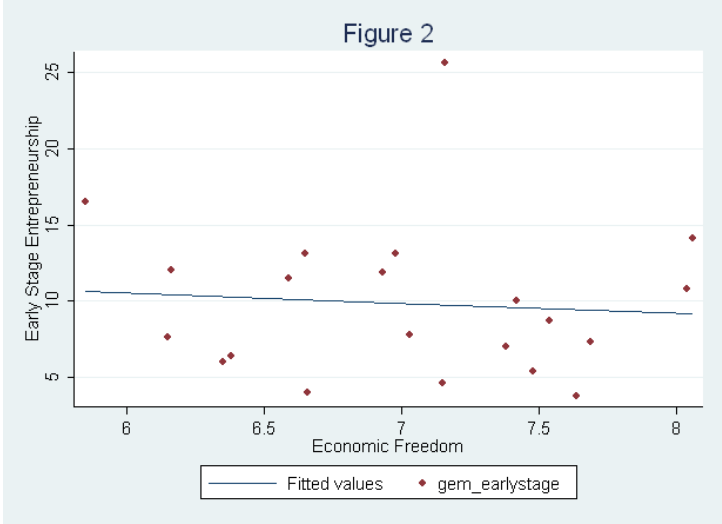
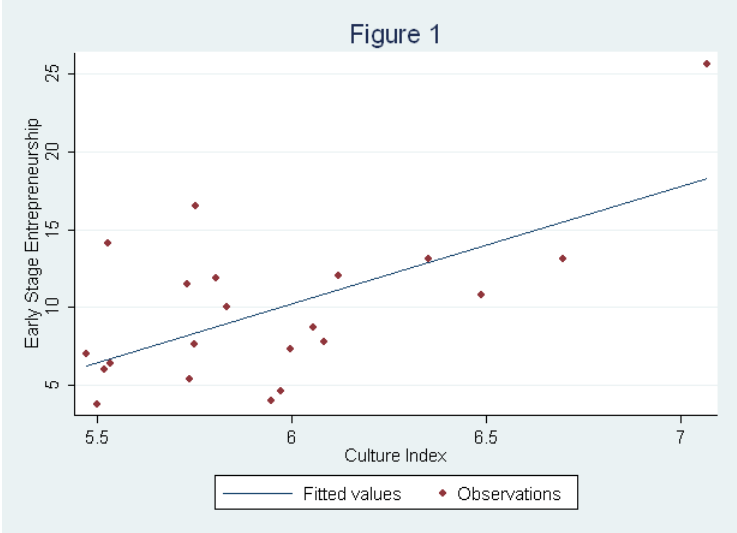
IV. Results and Discussion

Simple scatter plots show correlations between early stage entrepreneurial activity and the two main variables of interest, our constructed culture index and the overall EFW score. A clear positive relationship exists between entrepreneurship and cultural approval, as seen in

⁸ The two most correlated areas are regulation and sound money at 0.54, and all but four pair-wise correlations are less than 0.25, with some actually negatively correlated.

⁹ See Appendix 1 for a complete list of countries.

Figure 1. Contrary to our intuition, however, the scatter plot in Figure 2 does not show a clear positive relationship between entrepreneurship and economic freedom. Bjornskov and Foss (2006) have shown that only certain components of the EFW freedom index explain variance in entrepreneurship, which likely explains this initial result. Following their methodology, our main regressions use each area of economic freedom individually rather than the single index score.



The dependent variable in our main regression is the prevalence rate of early stage entrepreneurial activity. Independent variables include our cultural index of moral legitimation for entrepreneurship, log of GDP per capita, and the five main components of the Economic Freedom Index: the size of government, access to sound money, the overall rule of law, regulation of international trade, and regulation of credit, labor and business. Two important independent variables of interest are both statistically and economically significant (see Table 1). The coefficient on the culture index, which is based on a scale from 1 to 10, suggests that a one standard deviation increase in cultural legitimation of entrepreneurship leads to a 2.62 percentage point increase in early stage entrepreneurial activity. Consistent with the findings of Bjornskov and Foss (2008), freedom from big government is also important for encouraging early stage entrepreneurship. A one standard deviation increase in freedom from big government, also based on a scale from 1 to 10, yields a 3.22 percentage point increase in the rate of early stage entrepreneurial activity. It is somewhat perplexing that economic freedom from business regulation is insignificant with a negative coefficient; however, Stel, Storey, and Thurik (2007) found no relationship between the World Bank's *Doing Business* measures of business regulation and entrepreneurship, and other studies employing GEM data have not found a relationship with the EFW's measure of regulation. However, Nystrom (2008), who uses self-employment as her measure of entrepreneurship rather than GEM data, did find that freedom from regulation increases entrepreneurship. Nystrom's measure only picks up self-employment in the formal sector, whereas GEM data measures entrepreneurship in both formal and informal sectors. Like Stel, Storey, and Thurik, we believe that regulation in the

formal sector may cause informal sector entrepreneurship, which the GEM data also picks up, and that this is likely the cause of this empirical insignificance.

Some caution is in order when interpreting our results because of the possibility of endogeneity. While greater social acceptance of entrepreneurship may cause higher rates of entrepreneurship, the reverse could also be true that higher rates of entrepreneurship also lead to entrepreneurs being more socially accepted. Our data are not simultaneous, we use the 2005 WVS to predict 2008 GEM data but endogeneity may remain an issue. Unfortunately data availability doesn't allow us to investigate this further. The WVS and GEM data were the binding constraints that limited us to 21 countries and the most recent wave of each was chosen to maximize country coverage. Since cultural evolution is a gradual long-term process we investigated using the 1990 WVS to predict more recent entrepreneurship but there were only nine countries that overlapped in coverage.¹⁰ Until data availability improves this will remain a concern and the appropriate degree of caution should be used when interpreting the results.

Robustness

We test the robustness of our results by using alternate measures of cultural approval, varying how economic freedom is measured, including additional control variables, dropping our GDP per capita control, and excluding one outlying observation.

Table 2 includes five different OLS specifications. The first two columns of Table 2 are similar to the main regression in Table 1, but we vary the measure of economic freedom. The first column includes only two components of the Economic Freedom Index: size of government

¹⁰ GEM data only goes back to 1999 eliminating the possibility of putting together a panel data set.

and access to sound money. These were the only areas of economic freedom that Bjornskov and Foss (2008) found significant. The coefficient estimate on the culture index is similar in significance and magnitude to that in the main regression. While access to sound money is not significant, freedom from big government exhibits a positive impact on entrepreneurship that is comparable in magnitude to the results in the other specifications. The regression in the second column uses the overall EFW index in place of the five components. As might be expected, the overall index is not significant due to the many components that are not individually significant, but the culture index remains significant and has a slightly larger coefficient.

The results in the last three columns use the GEM measure of the percentage of the population that considers entrepreneurship a good career choice as the culture variable measuring the social approval of entrepreneurs. Clearly, this measure contains ideas other than social legitimation of entrepreneurs, such as perceived profit opportunities. Therefore, we do not consider it as good of a measure as our WVS index. However, one factor that likely influences whether people think entrepreneurship is a good career choice is its social standing, so the measure is useful to examine. The specification in column three is similar to the main regression in which early stage entrepreneurship is regressed on log GDP, the GEM culture variable, and the five components of the Economic Freedom Index. The GEM culture variable is not significant, but the impact of government size is significant and consistent with the other specifications. Our results suggest that a one standard deviation increase in the EFW size of government scale increases early stage entrepreneurship by 3.51 percentage points. This result is similar to that of the fourth regression, which includes only government size and access to sound money as measures of economic freedom. In the final regression the overall EFW index is

used, and the GEM culture variable is significant at the 10 percent level. The coefficient suggests that a one percentage point increase in social approval leads to a 0.24 percentage point increase in early entrepreneurship. The fragility of the impact of culture in these regressions likely reflects the fact that the GEM question is not as good of a proxy for cultural values as our WVS measure.

Table 3 builds on our main regression by including additional control variables that may influence entrepreneurship and have been included in previous papers (Sobel, Clark and Lee 2007, Bjornskov and Foss 2008). Appendix 2 provides descriptions and sources of these variables. All regressions include the five areas of economic freedom as well as the log of GDP per capita, but to conserve space these are not reported in the table because all except freedom from big government, which is reported, remained insignificant. The small sample size limits how many variables we can include simultaneously, and there is no obvious way to group the additional variables. Thus, they are included individually, except the proxies for industry structure that measure the share of labor in agriculture and manufacturing, which are included jointly. Although none of the additional variables has a significant impact on entrepreneurial activity, our cultural legitimation variable and government size variable remain statistically and economically significant across all specifications. As an additional robustness check, not reported, we omitted our control for log GDP per capita in our main regressions and our main variables of interest retained their statistical significance and economic significance.

We also varied our WVS culture measure to verify that it wasn't sensitive to the inclusion of a particular question. We re-ran our main regressions, not reported, by dropping

each question and constructing an index from the remaining three questions. In each new specification the recalculated indices retained their statistical and economic significance.

Finally, as seen in Figure 1 there is one outlying observation, Peru, with both a very high rate of entrepreneurial activity and a high score on our cultural index. To verify that the outlier was not driving our result we reran all of the above regressions without Peru. Our WVS measure of cultural legitimation retained its statistical significance in all of our main regressions in Tables 1 and 2 and in 7 of the 12 robustness checks in Table 3. Cultural legitimation retained economic significance as well. In our main regression, excluding Peru, a one standard deviation increase in our cultural index led to a 1.51 percentage point increase in the rate of entrepreneurship.¹¹ Our GEM measure of good career choice continued to only have significance in regression five in Table 2.

V. Conclusion

We have found evidence that both cultural legitimation of entrepreneurs and liberty, specifically freedom from big government, are associated with early stage entrepreneurship. This is consistent with our intuition and arguments put forth by Baumol, McCloskey, and others. However, some important data limitations should be kept in mind.

Our regressions were as parsimonious as possible because WVS and GEM data were available for only 21 countries. As the GEM and WVS grow to cover more countries, further empirical exercises should be conducted. Future studies should also vary the measure of entrepreneurship to capture differences between formal and informal sector entrepreneurship and differences between “necessity” and “opportunity” entrepreneurship. Also, data

¹¹ The economic significance of social praise was reduced approximately in half in most of our regressions when Peru is excluded.

limitations do not allow us to fully address endogeneity concerns. As more data become available future studies should use larger lags of values to explain entrepreneurship and could also investigate instrumental approaches.

Despite these limitations, we find some empirical evidence in support of Baumol's argument that both the quality of institutions and the social approval of entrepreneurs will impact the prevalence of productive entrepreneurship. McCloskey claims that "three centuries ago in places like Holland and England the talk and thought about the middle class began to alter. Ordinary conversation about innovation and markets became more approving... the dignity to take ones place [as a middle class entrepreneur] and the liberty to venture made the modern world" (forthcoming pp. 7-8). Our results indicate that this could be an important lesson for less developed countries today. If they encourage both liberty and social legitimation for entrepreneurs, they are more likely to have higher rates of entrepreneurship that could lead to long-term growth.

Table 1: Main Regression
 Dependent Variable Early Stage Entrepreneurial Activity

Independent Variables	Coefficient
Culture Index	2.62** (0.99)
Government Size	3.22*** (0.97)
Sound Money	1.11 (1.20)
Rule of Law	-0.81 (0.73)
Regulation of International Trade	0.94 (0.74)
Regulation of Credit, Labor and Business	-1.28 (1.14)
Log GDP	-0.83 (1.32)
R ²	0.72
Number of Observations	21
F Statistic	3.47
RMSE	3.32

(***), (**), (*) indicate p-value < 0.01, 0.05 and 0.10 respectively. GDP is PPP constant 2007 dollars. Numbers in parentheses are robust standard errors. The coefficients on the culture index and institution variables indicate the result of a one standard deviation change in the respective regressor.

Table 2: Variations of Culture and Economic Freedom Variables
 Dependent Variable is Early Stage Entrepreneurial Activity

Independent Variables	1	2	3	4	5
Culture Index	2.65** (1.02)	3.44** (1.22)			
Good Career Choice (GEM)			0.11 (0.13)	0.14 (0.09)	0.24* (0.12)
Economic Freedom Index		-0.01 (1.54)			-0.17 (0.90)
Government Size	2.89*** (0.78)		3.51** (1.61)	2.69** (1.16)	
Sound Money	0.76 (1.06)		1.94 (1.91)	1.00 (1.29)	
Rule of Law			-0.46 (0.99)		
Regulation of International Trade			-0.03 (1.54)		
Regulation of Credit, Labor and Business			-1.02 (1.36)		
Log GDP	-1.32 (1.06)	-1.18 (1.53)	0.41 (1.95)	0.04 (1.65)	0.99 (2.12)
R ²	0.66	0.42	0.50	0.46	0.33
Number of Observations	21	21	20	20	20
F Statistic	7.90	4.40	2.58	4.40	2.26
RMSE	3.31	4.20	4.44	4.16	4.48

(***), (**), (*) indicate p-value < 0.01, 0.05 and 0.10 respectively. Culture Index is the same used in the main regression. GDP is PPP constant 2007 dollars. Numbers in parentheses are robust standard errors. The coefficients on the culture index and institution variables indicate the result of a one standard deviation change in the respective regressor.

Table 3: Various Control Variables
 Dependent Variable is Early Stage Entrepreneurial Activity

Independent Variables	1	2	3	4	5	6
Culture Index	2.47** (1.14)	2.59* (1.21)	2.51** (1.10)	2.55** (0.96)	2.26* (1.08)	2.10** (0.90)
Government Size	3.09** (1.05)	3.19** (1.24)	3.22** (0.95)	3.12*** (1.01)	3.50*** (1.07)	4.58*** (1.24)
Income Inequality (GINI)	0.50 (1.20)					
Median Age		-0.01 (0.22)				
Unemployment			-0.16 (0.19)			
Percent Female				-0.55 (1.07)		
Domestic Credit Availability					-0.01 (0.02)	
Foreign Capital						-0.00 (0.00)
R ²	0.72	0.72	0.74	0.72	0.75	0.75
Number of Observations	21	21	21	21	20	17
F Statistic	2.87	2.94	2.95	3.10	2.69	5.36
RMSE	3.43	3.46	3.37	3.44	2.69	3.36

(***), (**), (*) indicate p-value < 0.01, 0.05 and 0.10 respectively. Culture Index is the same used in the main regression. GDP is PPP constant 2007 dollars. Numbers in parentheses are robust standard errors. All EFW variables are included as well as log of GDP. The coefficients on the culture index, government size, and income inequality indicate the result of a one standard deviation change in the respective regressor.

Table 3 Continued: Various Control Variables
 Dependent Variable is Early Stage Entrepreneurial Activity

Independent Variables	7	8	9	10	11	12
Culture Index	2.97** (1.02)	2.71** (1.14)	2.62** (1.08)	2.58** (1.02)	2.69** (1.02)	3.14*** (0.95)
Government Size	4.58*** (1.24)	3.65*** (0.98)	3.39** (1.22)	3.20*** (1.02)	2.88*** (0.83)	4.24*** (1.19)
Government Political Stability	1.14 (1.17)					
Investment Price Level		-0.96 (3.73)				
Market Capitalization			-0.01 (0.02)			
Exchange Rate Volatility				-0.14 (0.72)		
Employment, Ag.					-0.13 (0.08)	
Employment, Man.					-0.09 (0.11)	
Education						0.07 (0.07)
R ²	0.74	0.72	0.73	0.72	0.78	0.80
Number of Observations	21	20	20	21	21	19
F Statistic	3.08	2.70	2.69	2.91	3.48	3.91
RMSE	3.36	3.60	3.57	3.46	3.21	3.18

(***), (**), (*) indicate p-value < 0.01, 0.05 and 0.10 respectively. Culture Index is the same used in the main regression. GDP is PPP constant 2007 dollars. Numbers in parentheses are robust standard errors. All EFW variables are included as well as log of GDP. The coefficients on the culture index, government size, political stability and exchange rate volatility indicate the result of a one standard deviation change in the respective regressor.

References

- Arenius, Pia, and Maria Minniti (2005) "Perceptual Variables and Nascent Entrepreneurship." *Small Business Economics* 24: 233-247.
- Baumol, William (1990) "Entrepreneurship: Productive, Unproductive, and Destructive." *Journal of Political Economy* 98(5): 892-921.
- Bjornskov, Christian, and Nicolai Foss (2008) "Economic Freedom and Entrepreneurial Activity: Some Cross-Country Evidence." *Public Choice* 134: 307-328.
- Bosma, Niels, Zoltan Acs, Erkkko Autio, Alicia Coduras, and Jonathan Levie (2008) *Global Entrepreneurship Monitor*. Babson College, Reykjavik University, Universidad del Desarrollo. <http://www.gemconsortium.org/>
- Etzioni, Amitai (1987) "Entrepreneurship, Adaptation and Legitimation: A Macro-behavioral Perspective." *Journal of Economic Behavior and Organization* 8(2): 175-189.
- Freytag, Andreas, and Roy Thurik (2007) "Entrepreneurship and Its Determinants in a Cross-Country Setting." *Journal of Evolutionary Economics* 17: 117-131.
- Guiso, L., P. Sapienza, and L. Zingales. (2006). "Does Culture Affect Economic Outcomes?" *Journal of Economic Perspectives* 20(2): 23-48.
- Gwartney, James, and Robert Lawson (2009) *Economic Freedom of the World Annual Report*. Vancouver: Fraser Institute.
- Harper, David (1998) "Institutional Conditions for Entrepreneurship." *Advances in Austrian Economics* 5: 241-275.
- Heston, Alan, Robert Summers, and Bettina Aten (2009) Penn World Table Version 6.3, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, August.
- Hindle, Kevin, and Kim Klyver (2007) "Exploring the Relationship Between Media Coverage and Participation in Entrepreneurship: Initial Global Evidence and Research Implications." *International Entrepreneurship Management Journal* 3: 217-242.
- Hofstede, G. (1980) *Culture's Consequences: International Differences in Work-Related Values*. Beverly Hills, CA: Sage Publications.
- Johnson, James, and Tomasz Lenartowicz (1998) "Culture, Freedom and Economic Growth: Do Cultural Values Explain Economic Growth?" *Journal of World Business* 33(4): 332-356.

- Kirzner, Israel (1973) *Competition and Entrepreneurship*. Chicago: University of Chicago Press.
- Kirzner, Israel (1985) *Discovery and the Capitalist Process*. Chicago: University of Chicago Press.
- Lee, Sang, and Suzanne Peterson (2000) "Culture, Entrepreneurial Orientation, and Global Competitiveness." *Journal of World Business* 35(4): 401-416.
- Licht, A.N., G. Chanan, and S.H. Schwartz. (2007). "Culture Rules: The Foundations of the Rule of Law and Other Norms of Governance." *Journal of Comparative Economics* 35: 659-688.
- McCloskey, Deidre (Forthcoming) *Bourgeois Dignity and Liberty: Why Economics Can't Explain the Modern World*. Under Contract and Review with University of Chicago Press.
- Mises, Ludwig Von (1949, 1998) *Human Action*. Auburn: Ludwig Von Mises Institute.
- Moyker, J. (2006) "Long-Term Economic Growth and the History of Technology." In P. Aghion and S. Durlauf (Eds.) *Handbook of Economic Growth*. Oxford: Oxford University Press.
- Mueller, Stephen, and Anisya Thomas (2000) "Culture and Entrepreneurial Potential: A Nine Country Study of Locus of Control and Innovativeness." *Journal of Business Venturing* 16: 51-75.
- Nystrom, Kristina (2008) "The Institutions of Economic Freedom and Entrepreneurship: Evidence from Panel Data." *Public Choice* 136: 269-282.
- Schumpeter, Joseph (1934) *The Theory of Economic Development*. Cambridge, MA: Harvard University Press.
- Singh, Gangaram, Alex DeNoble, and Sanford Ehrlich (2004) "National Culture and Entrepreneurship: A Multi-Country Study." *CIBER Working Papers Series*.
- Sobel, Russell (2008) "Testing Baumol: Institutional Quality and the Productivity of Entrepreneurship." *Journal of Business Venturing* 23: 641-665.
- Sobel, Russell, J.R. Clark, and Dwight Lee (2007) "Freedom, Barriers to Entry, Entrepreneurship, and Economic Progress." *Review of Austrian Economics* 20: 221-236.
- Stel, Andre Van, David Storey, and Roy Thurik (2007) "The Effect of Business Regulations on Nascent and Young Business Entrepreneurship." *Small Business Economics* 28: 171-186.
- Tabellini, G. (2008). "Presidential Address: Institutions and Culture." *Journal of the European Economic Association* 6(2-3): 255-294.

Tabellini, G. (2009). "Culture and Institutions: Economic Development in the Regions of Europe." *Journal of the European Economic Association*, forthcoming.

Tominc, Polona, and Miroslav Rebernik (2007) "Growth Aspirations and Cultural Support for Entrepreneurship: A Comparison of Post-Socialist Countries." *Small Business Economics* 28: 239-255.

Uhlaner, Lorraine, and Roy Thurik (2007) "Postmaterialism Influencing Total Entrepreneurial Activity Across Nations." *Journal of Evolutionary Economics* 17: 161-185.

UNU *World Income Inequality Database* Helsinki: United Nations University-World Institute for Development Economics Research 2009.

World Bank Group. *World Development Indicators* 2005-2007.

World Bank Group. *Worldwide Governance Indicators* 1996-2008.

World Values Survey (2005) <http://www.worldvaluessurvey.org/>

Appendix 1

Argentina
Brazil
Chile
Egypt
Finland
Germany
India
Italy
Japan
Mexico
Norway
Peru
Romania
Serbia
Slovenia
South Africa
South Korea
Spain
Turkey
United States
Uruguay

Appendix 2: Data Descriptions and Sources

Variable name (source)	Description	Mean (SD) Min/Max
Early Stage Entrepreneurial Activity (1)	The percentage of the adult population who are actively involved in setting up a business that is less than 3 months old and the percentage of the adult population who owns a business that is between 3 and 42 months old.	9.87 (5.07) 3.8 / 25.6
Culture Index (2)	Country average on WVS questions v116, v118, v119 and v121	5.95 (0.42) 5.47 / 7.07
Good Career Choice (1)	Percent of the population that thinks starting a business is a desirable career choice	65 (12.16) 26 / 82
Economic Freedom Index (3)	Composite Index measuring economic freedom that includes government size, access to sound money, the rule of law, freedom in international trade and regulation of credit, labor and business. Scale from 0 to 10 where a higher rating indicates more freedom.	7.05 (0.58) 5.99 / 8.14
Government Size (3)	Measure of the reliance on the political process to allocate resources, goods and services. It includes government expenditures, transfers, government enterprises and investment and the top marginal tax rate.	6.62 (0.95) 6.44 / 9.78
Rule of Law (3)	Measure of the legal structure and protection of property rights. It includes judicial independence, impartiality of courts, military interference in politics, the integrity of the legal system, contract enforcement and restrictions on the sale of real property.	7.68 (1.19) 4.34 / 9.61

Appendix 2 continued: Data Descriptions and Sources

Variable name (source)	Description	Mean (SD) Min/Max
Regulation of International Trade (3)	Measure of the restraints on international trade including taxes, trade barriers, size of trade sector, black market exchange rates and international capital market controls.	7.05 (0.57) 6.15 / 8.12
Regulation on Credit, Labor and Business (3)	Measures the restraints on exchange in credit, labor and business.	6.50 (0.88) 4.79 / 8.14
GDP (4)	GDP per capita in PPP 2007 international dollars (use log form)	20,872 (14,039) 2,753 / 53,432
Median age (4)		34.58 (7.18) 24.4 / 44.2
Unemployment (4)	Percentage rate	8.05 (4.79) 2.48 / 22.97
Percent Female (4)	Percent of population that is female.	50.62 (0.75) 48.31 / 51.75
Domestic credit Availability (4)	Domestic credit to the private sector (% of GDP)	77.88 (55.52) 13.63 / 201.39
Foreign Capital (4)	Net foreign direct investment per capita	-348.27 (1592) -6092 / 680
Income Inequality (5)	Gini coefficient	40.13 (10.04) 26 / 57.78
Government political stability (6)	Index measures the perception that the government will be overthrown. Scores range from -2.5 (extremely poor) to 2.5 (extremely good)	0.20 (0.74) -0.99 / 1.36
Market Capitalization (4)	The rate of market capitalization as percent of GDP.	47.4 (37.3) 9.96 / 177.51
Exchange rate volatility (7)	The ten-year average coefficient of variation of the real exchange rate.	0.22 (0.16) 0 / 0.53
Employment, Ag. (8)	Share of labor in agriculture. Proxy for market structure.	13.42 (15.17) 0.6 / 60

Appendix 2 continued: Data Descriptions and Sources

Variable name (source)	Description	Mean (SD) Min/Max
Market Capitalization (4)	The rate of market capitalization as percent of GDP.	47.4 (37.3) 9.96 / 177.51
Exchange rate volatility (7)	The ten-year average coefficient of variation of the real exchange rate.	0.22 (0.16) 0 / 0.53
Employment, Ag. (8)	Share of labor in agriculture. Proxy for market structure.	13.42 (15.17) 0.6 / 60
Employment, Man. (8)	Share of labor in manufacturing. Proxy for market structure.	24.34 (7.59) 12 / 46
Education	Enrollment rates in secondary education (2006)	94.51 (14.06) 53.63 / 118.74

Source Index

1. Bosma, Acs, Autio, Coduras, Levie (2008) Global Entrepreneurship Monitor. Babson College, Reykjavik University, Universidad del Desarrollo.
<http://www.gemconsortium.org/>
2. World Values Survey (2005) <http://www.worldvaluessurvey.org/>
3. Gwartney, James, and Robert Lawson (2009) *Economic Freedom of the World Annual Report*. Vancouver: Fraser Institute.
4. World Bank Group. *World Development Indicators 2005-2007*.
5. UNU *World Income Inequality Database* Helsinki: United Nations University-World Institute for Development Economics Research 2009.
6. World Bank Group. *Worldwide Governance Indicators 1996-2008*
7. Heston, Alan, Robert Summers, and Bettina Aten, Penn World Table Version 6.3, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, August 2009
8. CIA. *CIA World Factbook: 2008*.