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Culture and the regulation of entry

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ABSTRACT

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Does culture affect the manner in which a society regulates the entry of new firms? Our results suggest it does. We find more individualistic countries regulate entry more lightly. We investigate *how* culture matters presenting evidence of significant interactions between individualism and formal legal and political institutions. Individualism has a greater impact on entry regulation in societies with democratic political institutions or a common law tradition. This outcome is consistent with the idea that culture influences social preference for regulation, and political and legal institutions determine the degree to which those preferences are expressed as policy outcomes. *Journal of Comparative Economics* 44(4) (2016) 1055–1083. Department of Economics, Union College, 807 Union Street, Schenectady NY, 12308, USA; Department Finance and Economics, Box 9580, 312F McCool Hall, Mississippi State University, Mississippi State, MS, 39762, USA.

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1. Introduction

The regulation of entry by new firms varies tremendously across countries. For example, it takes half a day to start a business in New Zealand compared with 208 days in Suriname. Nineteen countries pay less than 1 percent of income per capita to register a business while eighteen countries impose fees that amount to over 100 percent (*World Bank Doing Business, 2013*). Furthermore, differences in the regulation of entry have important social consequences. In a recent review, *Djankov (2009)* finds 201 academic articles on the subject concluding that ‘easier regulation of start-ups increases entrepreneurship, raises productivity, and cuts corruption’ (p. 190).¹ For example, *Estrin and Prevezer (2010)* find that regulation of business in Brazil, Russia, India and China strictly favors existing firms and severely limits new business start-ups, contributing to a growing informal economy. *Klapper et al. (2006)* show that the number of entry procedures is negatively correlated with new firm development. *Djankov et al. (2006)* find that entry regulation is negatively associated with growth rates across countries.

Less work has been done on the determinants of entry regulation; however, the dominant approach gives formal institutions a central role. *Djankov et al. (2002)* show that countries with limited and representative government regulate

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¹ See *Clarke and Xu (2004)*, *Crafts (2006)*, *Aidis et al. (2008)*, *Aidis and Adachi (2007)*, *Bhaumik et al. (2007)*, *Ciccone and Papaioannou (2007)*, *Campos and Looity (2007)*, *Tian (2007)*, *Campos and Estrin (2008)*, *Barseghyan (2008)*, *Fisman and Sarria-Allende (2010)*, *Kaplan et al. (2011)*, *Dreher and Gassebner (2013)*.

entry less intensively. Thus, the pattern of entry regulation across countries is broadly in line with public choice theory: politicians and bureaucrats choose policies and regulations in keeping with their own private interest rather than with the public interest. [Acemoglu \(2008\)](#) provides a model of political institutions and entry regulation showing that in an oligarchy government capture may lead to high barriers to entry for new firms to protect incumbent elites. In contrast, entry barriers are lower under democracy. A second closely related literature, reviewed by [La Porta et al. \(2008\)](#), explores the association between legal origin and the regulation of economic and other activities, including the regulation of entry. Broadly speaking, this literature finds that countries with a civil law tradition tend to regulate more than those with a common law tradition.

We extend this work to consider the role of culture in determining the characteristics of a society's regulatory regime. In particular, we focus on the dimension of cultural variation associated with individualism and collectivism, a distinction that reflects the importance of social relationships and obligations in an individual's fundamental understanding of the self ([Gorodnichenko and Roland, 2012](#)). We focus on this dimension for several reasons. First, individualism is recognized as a key component of a country's cultural make-up. For example, [Hofstede \(2001\)](#) finds individualism-collectivism to be the most important dimension in explaining international variation in cultural values, and [Gorodnichenko and Roland \(2011\)](#) empirically show that individualism is the only dimension of culture that is robustly related to economic development. Second, individualism is credibly linked to the development of democratic political institutions ([Licht et al., 2007](#); [Klasing, 2013](#)), suggesting a potential channel through which it might influence entry regulation. Finally, individualism is plausibly associated with a preference for lower levels of entry regulation, which matters if social preferences play a role in policy formation.

To measure entry regulation, we collect 2008 country-level data on the number of procedures, number of days, and the monetary cost to legally register a new business ([World Bank Doing Business, 2014](#)). Based on these three measures, we create an overall index to capture a country's propensity to regulate entry. Our primary cultural variable is [Beugelsdijk et al.'s \(2015\)](#) measure of individualism, which uses World Values Survey (WVS) data from 1981 to 2008 to update [Hofstede's \(1980, 2001\)](#) original individualism variable. Using this measure substantially increases the number of countries for which both regulation and cultural data are available.

We organize our investigation of individualism and entry regulation around three hypotheses. The first is simply that *culture matters* for entry regulation. In section four, we present empirical evidence of a strong negative association between individualism and entry regulation. This relation exists for time, monetary costs, and our composite index of entry regulation. This finding is robust to the use of alternative measures of individualism and to controlling for a wide variety of alternative cultural values and exogenous determinants of institutional quality. Furthermore, we employ instrumental variables to address issues related to the measurement and endogeneity of individualism. Specifically, we use three instruments for individualism identified in the culture literature, pronoun drop ([Kashima and Kashima, 1998](#); [Davis and Abdurazokzoda, forthcoming](#)), rainfall variation ([Davis, 2016](#)) and genetic distance ([Spolaore and Wacziarg, 2009](#); [Gorodnichenko and Roland, 2010, 2011](#)). All three instruments are significantly correlated with individualism. Based on the IV estimations, we find a strong negative association between the exogenous component of individualism and the regulation of entry. Thus, our evidence is consistent with the hypothesis that culture matters for entry regulation.

Having found that individualism is important for entry regulation, we investigate how it matters. That is, we attempt to uncover the channels through which individualism affects the regulation of entry, with particular attention to the association between formal and informal institutions. In particular, we argue that culture may affect regulation directly through its impact on preferences over social policy and indirectly through its effect on the development of democratic political institutions. This second channel derives from work stressing *the hierarchy of institutions*, e.g. [North \(1990\)](#) and [Williamson \(2000\)](#), in which informal institutions serve as the basis for the development of formal institutions. The second hypothesis we investigate is based on an admittedly extreme version of this idea that we call the *Strict Hierarchy of Institutions* hypothesis, which holds that individualism only influences entry regulation indirectly through its impact on political institutions. In section five, we test and reject the *Strict Hierarchy of Institutions* hypothesis. In particular, we find that culture plays an important role in determining the regulation of entry even after controlling for the quality of political institutions. These results are also robust to instrumenting for individualism.

Finally, we investigate whether culture and formal institutions interact in the determination of entry regulation, a proposition we call the *Interdependent Institutions Hypothesis*. The functioning of formal institutions may be sensitive to cultural values or social preferences in the determination of social policy. And, indeed, our findings in section six are largely consistent with this hypothesis. In particular, we find that democracy and the common law tradition magnify the influence of individualism on entry regulation. In contrast, cultural values appear to play a relatively minor role in societies with authoritarian political systems and civil law traditions. Similarly, political and legal institutions have little influence on entry regulation in collectivist societies. These results are consistent with theories that stress the particular ability of democracy and common law to aggregate and channel social preference in determining social policy outcomes.

The paper's primary contributions are that (1) individualism matters for the regulation of entry and (2) the magnitude of individualism's influence depends on a country's legal and political institutions. This analysis adds to a relatively small literature examining the role of culture in regulation. [Stulz and Williamson \(2003\)](#) present evidence of a causal relation-

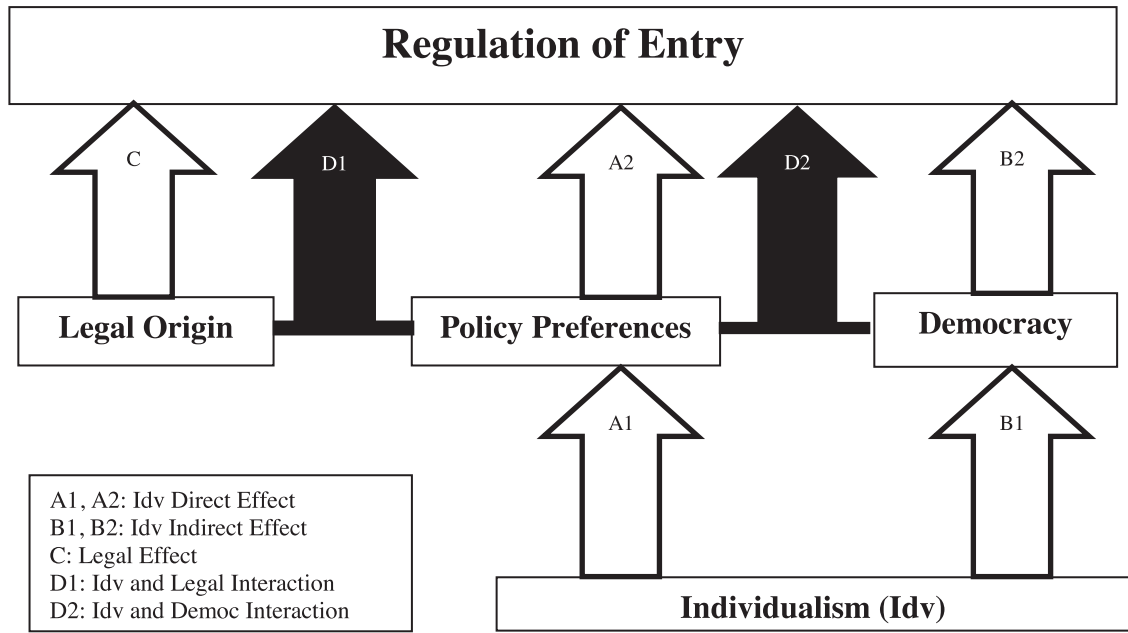


Fig. 1. Individualism, institutions and the regulation of entry: potential channels of influence.

ship between religious affiliation and financial regulation in 49 countries.² In addition, [Aghion et al. \(2010\)](#) find a negative association between measures of trust and different measures of regulation, including the regulation of entry. In a similar paper, [Pinotti \(2012\)](#) finds that trust predicts the regulation of entry. After controlling for levels of trust, the link between entry regulation and 'bad' market outcomes is no longer significant. We believe these results are largely consistent with ours. As [Tabellini \(2008\)](#) has argued, a belief in individual rights is one of the fundamental determinants of a generalized morality and high levels of social trust suggesting a link between trust and individualism. To address concerns regarding omitted variable bias, we present evidence that the link between individualism and entry regulation is robust to controls for religious affiliation and social trust.

Finally, our effort is closely related to the emerging literature that explores the role that culture plays in economic outcomes with the main conclusion that 'culture matters' (see, for example, [Fernandez, 2011](#); [Knack and Keefer, 1997](#); [Guiso et al., 2008](#); [Guiso et al., 2006](#); [Tabellini, 2010](#); [Bjørnskov, 2010](#); [Klasing, 2013](#)). We further this effort in two ways. First, we present evidence linking a particular dimension of cultural variation, individualism, to a particular outcome, the regulation of entry. In doing so, we identify one channel through which individualism may affect previously identified social outcomes, including corruption ([Licht et al., 2007](#)) and economic development ([Gorodnichenko and Roland, 2010](#); [Davis, 2016](#)). Second, previous work focuses on the role of culture as a determinant of the quality of formal institutions ([Licht et al., 2007](#); [Tabellini, 2008](#)); however, we present evidence that formal and informal institutions interact to determine at least one dimension of economic policy, the regulation of entry.

2. Hypotheses and empirical specifications

2.1. Hypotheses

[Fig. 1](#) provides an overview of our hypotheses, summarizing the potential channels through which culture, and legal and political institutions influence the regulation of entry. The channel indicated by Arrows A1 and A2 shows the direct effect of culture on regulation via its role in shaping policy preferences, while Arrows B1 and B2 show the indirect effect of culture acting through the level of democracy. Arrow C shows the influence of legal origin on entry regulation. Because legal origin is by all accounts exogenous to culture, there is not analogous indirect channel through law. Arrows D1 and D2 reflect interactions between culture and law and culture and democracy, respectively. Please note that this framework is not intended as a comprehensive representation of the potential causal links between culture, formal institutions and regulation. For example, it omits potential feedback loops related to the endogeneity of cultural values. Instead, we use it to highlight a number of channels through which individualism may influence regulation and to illustrate the distinctions between the primary hypotheses we discuss below.

² [La Porta et al. \(2008\)](#) find that the link between legal origin and an index of creditor rights is robust to the inclusion of a variety of cultural values and beliefs.

We begin with the role of individualism in shaping preferences over policy outcomes. Drawing on an extensive literature in cultural psychology, [Gorodnichenko and Roland \(2012\)](#) argue that the distinction between individualism and collectivism is grounded in fundamentally different views of the self. In individualistic societies, people understand the self as essentially an independent entity, while in collectivist societies the self is interdependent, connected through a web of relationships and obligations to other individuals and to society as a whole. According to [Gorodnichenko and Roland \(2012\)](#), this fundamental difference manifests itself in a variety of attitudes, beliefs and behaviors, which emphasize either individual autonomy or the importance of larger social units.

This aspect of culture might directly influence someone's preference for social control through regulation, as illustrated in arrows A1, A2 in [Fig. 1](#). Individualism-collectivism may affect a society's preferences over potential regulatory regimes. This argument follows from public opinion theory regarding the demand for regulation ([Pinotti, 2012; Aghion et al., 2010](#)). Concern over perceived or expected market failures can lead to a greater preference, and thus demand, for government intervention and regulation, even if regulation is perceived to hinder beneficial market activity. Under this scenario, individuals are more concerned about unbridled market activity than potential costs from intervention ([Acemoglu and Verdier, 2000](#)). More generally, the demand for regulation may stem from the perceived costs of social disorder ([Djankov et al., 2003](#)). Viewed from the perspective of these theories, culture will matter for business regulation if it influences the preferred balance between the positive private benefits and social costs of commercial activity. In particular, collectivist societies may prefer a greater level of regulation if they place a greater importance on the social rather than private outcomes. Finally, collectivist cultures may favor regulation because it facilitates the exercise of clientelistic relationships ([Tanzi, 1994](#)). Thus, a number of arguments suggest that the individualism-collectivism nexus may influence social preferences over the level of regulation.³

Cultural attitudes may also influence the regulation of entry, *per se*, as distinct from other forms of regulation. For example, individualistic cultures may place a greater value on innovation and entrepreneurship, as argued by [Gorodnichenko and Roland \(2010\)](#), and choose to regulate entry less intensively to foster these activities. Similarly, Schumpeter's theory of creative destruction suggests that the ease of firm entry may involve a trade-off between opportunities for individual expression and enrichment for greater social stability. Viewing entry from this perspective may lead collectivist societies to prefer greater restrictions on firm entry than individualist societies. In contrast, more individualistic societies may place a relatively greater weight on innovation and entrepreneurship than on the social dislocations that may accompany firm entry.

In addition to influencing the preferred level of regulation, individualism-collectivism may influence regulation indirectly through an effect on formal institutions. This idea stems from a large body of work that posits a *hierarchy of institutions*, organized in a series of layers from fundamental to proximate. For example, [Williamson \(2000\)](#) lays out a four-tiered system, with informal or embedded institutions forming the most fundamental layer. Similarly, [Roland \(2004\)](#) argues that because informal institutions change relatively slowly, the dominant direction of influence is from culture to formal institutions, and [North \(1990, p. 91\)](#) appeals to the "deep-seated cultural inheritance that underlies many informal constraints." In this regard, informal institutions form the most fundamental layer and bear a causal relation to formal institutions, which in turn determines social policy, including regulation. Recent evidence in support of this understanding of institutional structure includes [Tabellini \(2008\)](#), [Licht et al. \(2007\)](#) and [Klasing \(2013\)](#), who find that culture has a causal relationship to democracy, and [Djankov et al. \(2002\)](#), who find that democracy influences the regulation of entry.

Thus, we identify two mechanisms through which culture may influence regulation: a direct effect that works by shaping preferences over social policy and an indirect effect that works by influencing the evolution of political institutions. These considerations lead to our first hypothesis, which simply states that *Culture Matters* for the regulation of entry. That is, a country's position on the individualism-collectivism continuum plays a role in determining the regulation of entry. Given our discussion above, if such an association does exist, we expect individualism to be negatively related to the regulation of entry.

Hypothesis 1. *Culture Matters* for the regulation of entry.

In [Section 4](#) we test this hypothesis by considering whether measures of individualism are negatively and significantly related to the regulation of entry. We find that culture does indeed matter for the regulation of entry, a result that potentially reflects both the direct and indirect effects of individualism. We then investigate *how* culture matters by exploring the indirect and interactive associations between culture, law and politics in determining the regulation of entry. We begin by exploring an extreme version of the hierarchy of institutions hypothesis, which we call the *Strict Hierarchy of Institutions Hypothesis*. This hypothesis holds that informal institutions affect social policy *exclusively* through their impact on formal institutions, as indicated by channels B1, B2 in [Fig. 1](#).

Hypothesis 2. *Culture only impacts entry regulation indirectly via political institutions under a Strict Hierarchy of Institutions (SHIH)*

³ In contrast, if collectivist societies have stronger social norms, they may have less need of formal regulation to constrain unwanted business behavior. This argument suggests a positive relationship between individualism and entry regulation that is not consistent with our findings. We thank a referee for suggesting this mechanism.

To test this hypothesis, we consider specifications in which we control for individualism and democracy simultaneously. Under the SHIH, we would expect individualism to be insignificant in these regressions, as its effect would be subsumed by democracy. In contrast, in section five, we find that individualism is significant while democracy is not, leading to a rejection of the SHIH.

The failure of the *Strict Hierarchy of Institutions Hypothesis* means that cultural values exert an influence on social policy beyond their role in determining formal institutions. In this case, two additional possibilities may be distinguished regarding the association between formal and informal institutions. Cultural values and formal institutions may play largely independent roles in the determination of social policy. Alternatively, it may be that cultural values and formal institutions interact in significant ways in the formation of social policy, a proposition we refer to as the *Interdependent Institutions Hypothesis*.

Research in economic history supports the view that informal institutions can work together with formal institutions (Greif, 1993). In addition, Greif (2006) highlights formal and informal institutional complementarities and explains how differing cultural norms toward social cooperation require a different set of formal institutions. Different societies have relied on various combinations of formal and informal institutions to sustain cooperation. North (1990) also supports an interdependent understanding of formal and informal institutions, arguing that the same formal rules adopted in different countries with different cultures can lead to various economic outcomes. Thus, a given set of formal institutions may have varying implications for social policy outcomes, depending on a society's cultural values. Thus, the functioning of formal legal and political institutions may be sensitive to preferences over social policy. In addition, the effect of cultural values on social policy will depend on the make up a society's formal institutions.

We hypothesize that both legal and political formal institutions may interact with culture in determining social policy. As we argued above, culture shapes individual preferences for the level of regulation; however, we failed to explain why individual preferences matter for social policy outcomes. As we argue below, political and legal institutions play a central role in determining the degree to which these preferences influence social policy outcomes. In particular, we argue that one function of political and legal institutions is to aggregate and channel social preferences in the formation of social policy. Moreover, some formal institutions are more responsive to social preference and, as a result, cultural values have a greater influence on regulation in the presence of these formal institutions. Finally, the differential sensitivity of formal institutions to social preferences gives rise to important complementarities between cultural values and formal institutions. We consider two versions of the *Interdependent Institutions Hypothesis*. The first version examines whether culture and legal institutions interact to determine regulation, while the second investigates whether culture and political institutions interact to determine regulation.

Legal origins represent how a country's legal processes are organized based on different historical experiences, specifically whether a nation was founded or colonized by a country with a common law or civil legal system. The legal origins literature focuses on the contemporary economic and social consequences stemming from common law versus civil law traditions. Collectively, these findings suggest that common law nations have less hierarchical regulations and more market-oriented processes of social control relative to civil law, including less business regulation (see, La Porta et al., 2008, for a survey). Due to its evolutionary properties, common law is said to be more “economically efficient” than civil law as it promotes resource allocations yielding greater economic performance (Posner, 1977; Rubin, 1977). As summarized by La Porta et al. (2008, p. 286), “common law stands for the strategy of social control that seeks to support private market outcomes, whereas civil law seeks to replace such outcomes with state-desired allocations.”

Specifically, Beck et al. (2003) argue that legal origin may influence social policy through two different channels. The *adaptability channel* focuses attention on the differential ability of the common and civil law traditions to adapt to local or changing conditions. In the early formation of the common law tradition, legal authority was divided based on the type of dispute. Adjudication was relatively competitive and decentralized with some degree of choice regarding court authority and punishment (Glaeser and Shleifer, 2002). This type of pluralistic legal environment with its decentralized organizational features fosters competition, efficient resource allocation, and institutional innovation (Ostrom, 1990). Such legal adaptability utilizes local knowledge and generates a feedback mechanism between informal cultural norms and the formalization of legal doctrine (Hayek, 1945). In addition, Hayek (1960) argues that the central role of judge-made law, or legal precedent, makes the common law tradition inherently evolutionary, since it generates new laws in response to current legal conflicts.⁴

In contrast, the *political channel* stresses the degree to which a legal tradition favors the state over individual rights (La Porta et al., 1999; Posner, 1977). The origins of this divide are widely held to be rooted in history. As Beck et al. (2003, p. 654) put it: “English common law evolved to protect private property owners against the crown [, while] the French and German civil codes in the 19th century were constructed to solidify state power.” Djankov et al. (2003) suggest the greater degree of social disorder amidst the French revolution warranted a larger role of dictatorial governance compared to the English experience. As a result, the centralized bureaucratic feature inherent in civil law suppresses competition and lacks comparable feedback processes for leveraging dispersed knowledge and local norms.

Because the adaptability channel suggests that common law systems evolve in a manner that is responsive to local conditions, potentially including local cultural values, it is consistent with the *Interdependent Institutions Hypothesis* formalized as Hypothesis 3A below. That is, we expect the common law tradition to be more responsive than the civil law tradition to

⁴ In a similar vein, Rubin (1982) suggests inefficient laws have a greater propensity to be litigated, and thus to generate new law through judicial rulings, implying that legal innovation is concentrated in areas of relative inefficiency. The importance of the adaptability channel is also stressed by comparative studies of transplanted legal systems, e.g. Pistor et al. (2003) and Berkowitz et al. (2003).

cultural preferences over social policy. In contrast, the political channel reflects historical circumstances in a legal tradition's country of origin and, consequently, it does not posit an explicit role for a society's current cultural values. Thus, if legal origin affects entry regulation primarily through the political channel, we would expect this effect to be largely independent of a country's culture. This hypothesis is expressed as channel D1 in Fig. 1.

Hypothesis 3A. *Common Law and Culture interact as Interdependent Institutions impacting entry regulation*

The second version of the *Interdependent Institutions Hypothesis*, Hypothesis 3B below, states that culture interacts with political institutions to determine regulation. The dominant interpretation of democratic political institutions supports this argument. Democracy is widely interpreted as an institution for communicating and aggregating policy preferences (Rodrik, 2000; Caplan, 2007), with a particular emphasis on the preferences of the median voter or middle class (Downs, 1957). In contrast, in oligarchic societies policy choices are relatively insulated from popular pressure, with policies chosen to benefit political and economic elites. Since these elites are more likely than the median voter to be regulators or owners of incumbent firms, less democratic societies will tend to regulate entry more stringently (Djankov et al. 2002; Acemoglu, 2008). Thus, political theory leads one to expect that democratic institutions will magnify the role of culture in the selection of social policy. Moreover, the impact of democratic political institutions should be greatest when the policy preferences of elites and the public diverge, which will tend to be true in more individualistic societies. This hypothesis is expressed as channel D2 in Fig. 1.

Hypothesis 3B. *Democracy and Culture interact as Interdependent Institutions impacting entry regulation*

To test the *Interdependent Institutions Hypothesis*, we introduce interaction terms between individualism and common law and individualism and democracy. In estimating these specifications, a significant coefficient on an interaction term may be interpreted as evidence in support of this hypothesis. In contrast, if the coefficient on an interaction term is not significant, this would support the idea that formal and informal institutions have largely independent effects on regulation.

2.2. Empirical specifications

We wish to test the *Culture Matters Hypothesis* in the broadest possible manner, allowing for both direct and indirect effects of culture on the regulation of entry. As a result, in testing this hypothesis, we do not control for the quality of political institutions. Since political institutions are endogenous to culture (Tabellini, 2008; Licht et al., 2007), such an approach would result in over controlling, and potentially underestimate the role of culture in entry regulation. To make matters more concrete, suppose the data generating mechanisms for entry regulation and political institutions are given by the following equations:

$$\text{entryreg}_i = \alpha_1 + X_i\beta_1 + \gamma_1\text{individualism}_i + \delta_1\text{inst}_i + \varepsilon_{1i} \quad (1)$$

$$\text{inst}_i = \alpha_2 + Z_i\beta_2 + \gamma_2\text{individualism}_i + \varepsilon_{2i} \quad (2)$$

where X and Z are respectively vectors of exogenous determinants of entry regulation and institutions. If we estimate the first equation in isolation, then the coefficient γ_1 provides an estimate of the effect of individualism on entry regulation holding democracy constant, which we refer to as the *direct effect* of individualism on entry regulation. This approach, however, would not produce a consistent estimate of the total effect of individualism, which includes the indirect effect of individualism on entry regulation acting through institution quality: $\gamma_1 + \delta_1\gamma_2$. To obtain an estimate of the total effect of individualism, we estimate a reduced-form version of the system above, which is obtained by substituting (2) into (1):

$$\text{entryreg}_i = \alpha_1 + X_i\beta_1 + (\gamma_1 + \delta_1\gamma_2)\text{individualism}_i + Z_i\beta_2\delta_1 + \delta_1\varepsilon_{2i} + \varepsilon_{1i} \quad (3)$$

This specification differs from Eq. (1) since it controls for exogenous determinants of institutional quality, Z , rather than institutional quality itself. In Section 4, we test the *Culture Matters Hypothesis* by estimating the total effect of individualism on entry regulation using specifications based on (3).

To test the *Strict Hierarchy of Institutions Hypothesis*, we estimate versions of (1). According to the SHIH, culture should only affect entry regulation indirectly, through its impact on political institutions. Thus, we will reject the SHIH if the estimate of γ_1 is significantly different from zero in this empirical model indicating that individualism has a direct effect on the regulation of entry. Finally, we test the *Interdependent Institutions Hypotheses* by estimating empirical models of the form:

$$\text{entryreg}_i = \alpha + X_i\beta_1 + \gamma_1\text{individ}_i + \delta_1\text{inst}_i + \varphi\text{individ}_i * \text{inst}_i + \varepsilon_{1i} \quad (4)$$

where inst_i is a measure of political or legal institutions. The relationship between individualism and institutions is reflected in the sign of the coefficient on the interaction term. In estimating this specification, a significant coefficient on the interaction term may be interpreted as evidence in support of the *Interdependent Institutions Hypothesis*. In contrast, if the coefficients on individualism and institutions are significant, but that on the interaction term is not, this would indicate support for the idea that formal and informal institutions have largely independent effects on social policy.

3. Data

This section discusses the measurement of key variables, including the regulation of entry and individualism. Information on the sources and definitions on the remaining variables used in the analysis may be found in [Appendix 1](#).

Following [Djankov et al. \(2002\)](#), we use three measures of the regulation of entry that measure the legal obstacles to starting a domestically owned business: the number of procedures necessary to legally register a new firm for business, number of days necessary to comply with those procedures, and the cost of regulatory compliance, expressed as a share of per capita income.⁵ In computing the cost of compliance, [Djankov et al. \(2002\)](#) include only the legal, explicitly stated costs of compliance. That is, the measure does not attempt to address bribes paid or other extra legal costs of regulation. For all three variables, we use data from 2008, which is the most recent year available prior to the onset of the financial crisis. The rationale for this choice is that data collected during the downturn may reflect disequilibrium phenomena.⁶

Measures of entry regulation based on time, procedures and cost are highly correlated, suggesting they may reflect a single underlying tendency to regulate the entry of new firms. This impression is confirmed by principle component analysis, which indicates the existence of a single eigenvector for which the eigenvalue is greater than one. We therefore construct the first principle component of these measures, which we use as our primary measure of entry regulation.⁷

We measure a society's position on the individualism–collectivism continuum by employing four separate measures of individualism from [Hofstede \(1980, 2001\)](#), [Schwartz \(1994, 2006\)](#), [Davis \(2016\)](#), and [Beugelsdijk et al. \(2015\)](#). [Hofstede's \(1980, 2001\)](#) cultural data is based on surveys of IBM employees in over 70 countries designed to understand differences in corporate culture. Hofstede uses factor analysis to identify four dimensions of cultural variation – individualism, power distance, masculinity and uncertainty avoidance – with the individualism score being the first and most important factor. [Hofstede's \(2001, p. 225\)](#) individualism stresses differences in the expected scope of individual responsibility, contrasting an individualistic society in which “everyone is expected to look out for themselves,” with a collectivist society in which people are “integrated into strong, cohesive in-groups, which ... protect them in exchange for unquestioning loyalty.”

The [Schwartz \(1994, 2006\)](#) data is based on surveys of K-12 school teachers and college students administered in more than fifty countries and comprising over 75,000 responses. Schwartz creates a cultural mapping based on answers to a survey consisting of 56–57 value items. In Schwarz's cultural system, the relationship between the individual and the collective is captured by three variables that measure affective autonomy, intellectual autonomy, which are related to cultural preference for individual autonomy in the realms of action and thought, and embeddedness. “In autonomy cultures, people are viewed as autonomous, bounded entities. They should cultivate and express their own preferences, feelings, ideas, and abilities, and find meaning in their own uniqueness. Important values include pleasure, exciting life, and varied life.” In contrast, in “cultures with an emphasis on *embeddedness*, people are viewed as entities embedded in the collectivity. Meaning in life comes largely through social relationships, through identifying with the group, participating in its shared way of life, and striving toward its shared goals” ([Schwartz, 2006](#), p. 140). Because these measures are highly correlated, we use their first principle component as a summary of the Schwartz individualism variables.

[Davis \(2016\)](#) employs a measure of individual responsibility from the five waves of the World Values Survey developed by [Inglehart \(2008\)](#). Respondents are asked to indicate their position on a ten-point scale where *one* corresponds to the position that “People should take more responsibility to provide for themselves,” and *ten* corresponds to the position that “The government should take more responsibility to ensure that everyone is provided for.” [Davis \(2016\)](#) averages these responses across individuals and waves and reorders them to produce a country-level measure of individual responsibility. [Di Tella et al. \(2010\)](#) use a similar measure.

Among these measures of individualism, Hofstede's has the most recognition and support. [Gorodnichenko and Roland \(2011\)](#) show that Hofstede's individualism is the most important cultural dimension for economic outcomes when compared to other dimensions (for example, other Hofstede measures, [Schwartz \(1994, 2006\)](#) and WVS data). However, one criticism of Hofstede is that it is based on survey data collected 45 years ago ([Shenkar, 2001](#)). As a country develops, economic growth is likely to impact cultural values. [Beugelsdijk et al. \(2015\)](#) address this issue by updating Hofstede's measures using data from the World Values Surveys for two birth cohorts (before or after 1958). Their results show that individualism is increasing but cultural change is absolute rather than relative.⁸ Cultural differences between countries have stayed the same suggesting that individualism is stable over time.

This measure is based on World Values Surveys from 1981 to 2008.⁹ The four questions used to proxy Hofstede's individualism pertain to: (1) private vs. government ownership of business, (2) one of the main goals in life is to make parents proud, (3) justifiability of abortion, and (4) justifiability of homosexuality. The authors use factor analysis to compile the

⁵ We are unaware of any study addressing the regulation of *foreign* entry. In a preliminary investigation of this issue, we find a negative relation between individualism and the regulation of foreign entry, though this association is not always significant at standard levels. Results are available from the authors upon request.

⁶ Our baseline results are similar, but somewhat weaker, using regulation data from 2014. Results available from the authors upon request.

⁷ An earlier version of this paper used the cost measure of entry regulation as the primary dependent variable. Most results are robust to this choice and are available upon request.

⁸ Since linear regression estimates are isomorphic to linear transformations of the variables, absolute changes in our main dependent variable should not affect our estimates.

⁹ [Beugelsdijk et al. \(2015\)](#) update Hofstede's data splitting the respondents into two cohorts based on being born before or after 1958. We focus on the second, most recent cohort as it is most relevant to the time of our study.

Table 1
Summary statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Entry regulation:</i>					
lnproc	84	2.05	0.46	0.69	2.89
lndays	84	3.08	0.83	0.69	5.00
lncost	84	2.29	1.51	-2.30	6.52
entryreg	84	-0.12	1.48	-4.37	2.58
<i>Culture measures:</i>					
idv_bmh	74	42.69	27.11	0.00	110.00
hof_idv	56	46.13	23.93	12.00	91.00
hof_pdi	56	57.79	21.26	11.00	104.00
hof_mas	56	51.88	19.15	5.00	110.00
hof_uai	56	66.88	22.44	8.00	112.00
schw_pca	44	0.11	1.56	-2.82	3.76
indresp	84	5.07	0.96	3.36	7.27
<i>Main controls:</i>					
english	84	0.27	0.45	0.00	1.00
disteq	84	33.49	16.93	0.23	63.89
landlock	84	0.20	0.40	0.00	1.00
trust	77	25.25	13.40	3.80	69.25
gdppc	83	9.19	1.24	4.91	11.41
<i>Instruments:</i>					
rain_var	84	-0.36	0.24	-0.77	0.44
gendist_swe	83	559.19	609.33	0.00	1708
pronoun_drop	75	0.67	0.47	0.00	1.00
<i>Democracy measures:</i>					
voice	84	0.23	0.95	-1.59	1.60
polity2	82	5.41	5.67	-10.00	10.00
gastil	84	8.24	3.50	0.36	12.00
democ	83	0.70	0.44	0.00	1.00

overall individualism index.¹⁰ According to Beugelsdijk et al. (2015, p. 16–17), “these four items are consistent with how Hofstede describes the meaning of Individualism and its implications.” Hofstede (2001) relates this dimension to autonomy and self-orientation (p. 227), the right to a private life (p. 227), weak family ties (p. 236), less conformity behavior (p. 236), individual incentives (p. 245), and market capitalism and competition (p. 251).” Each of the four questions from WVS relates to one or more of the characteristics mentioned by Hofstede. The updated dimension (idv_bhm) is attractive to us as we can include 17 additional countries in the analysis. The new index correlates 0.78 with Hofstede’s original individualism dimension.

All four measures of individualism are positively correlated and have a similar conceptual basis. We focus on the variable from Beugelsdijk et al. (2015), which we denote *idv_bmh*, due to its greater availability and overlap with the countries for which we have regulation data. However, we employ all four variables at key points in the analysis as a form of robustness check.

We present the summary statistics in Table 1 below. We include up to 84 countries with levels of development ranging from Zimbabwe (\$135 per person) to Luxembourg (\$89,900 per person). The entry regulation index has a mean of -0.12, standard deviation of 1.48, and ranges from -4.37 to 2.58 with higher values representing greater regulation of entry. Countries with low regulations on entry include Australia, Canada, and New Zealand. At the other extreme, Indonesia, Venezuela, and Zimbabwe have higher entry regulation. Our preferred measure of individualism, *idv_bhm*, ranges from 0 to 110 with an approximate mean of 43 and a standard deviation of 27. Low individualism countries include Egypt, Jordan, and Indonesia, while high individualism countries include Germany, Netherlands, and Sweden. We have 23 common law countries in our sample and countries range from extremely autocratic to highly democratic. We discuss the rest of our data throughout the paper below.

4. The culture matters hypothesis

4.1. Total effects of individualism on entry regulation

We begin by testing the total effect of culture on entry regulation using the extended Hofstede individualism measure developed by Beugelsdijk et al. (2015). In each specification, we include exogenous proxies for institutional quality. This includes two geographic control variables, landlocked and distance from the equator, and English legal origin. Distance from

¹⁰ Following Hofstede (1980, 2001), they rescale the scores for each dimension so that country scores for the first cohort are between 0 and 100. The formula used is as follows: Individualism = 123 - 45 x (Make parents proud) + 56 x (Government vs. private ownership) - 78 x (Justifiability of homosexuality) + 90 x (Justifiability of abortion).

Table 2A
Total effect of individualism on entry regulation.

	(1) lnproc	(2) lndays	(3) lncost	(4) entryreg
idv_bmh	−0.0071*** (−2.845)	−0.0074 (−1.592)	−0.0267*** (−4.125)	−0.0239*** (−3.314)
english	−0.333*** (−2.670)	−0.437* (−1.869)	−0.884** (−2.478)	−1.047*** (−2.934)
disteq	−0.0066* (−1.767)	−0.0154** (−2.066)	−0.0274*** (−2.851)	−0.0287** (−2.647)
landlock	0.101 (0.979)	0.149 (0.850)	0.672* (1.964)	0.477* (1.700)
constant	2.663*** (22.19)	4.013*** (17.15)	4.468*** (17.11)	2.093*** (6.711)
Observ.	74	74	74	74
R ²	0.37	0.25	0.50	0.48

Note. Dependent variables as listed in column. See Appendix 1 and the body of the paper for variable description and sources. OLS regressions with robust t-statistics in parentheses,

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.1$.

the equator is an exogenous geographic measure that has been linked to institutional quality through its effect on colonization and institutional transfer (see, Hall and Jones, 1999; Williamson and Kerekes, 2011). We include a dummy variable for whether a country is landlocked as a proxy for Olson's (1982) argument that exposure to international trade increases the pressure to reform inefficient regulation. We also include a dummy variable for English legal heritage to capture the influence of the English common law tradition on regulatory choice.¹¹ Common law countries tend to regulate markets less than civil law countries where governments have a higher proclivity to intervene in the economy including creating higher levels of regulations (La Porta et al., 1999, 2008).

We view this specification as capturing the total effect individualism has on entry regulation, including any indirect effect of culture acting through the level of democracy, since we control for exogenous determinants of institutions rather than for institutional quality itself.¹²

Our results are shown in Table 2A. There is a significant negative association between individualism and number of procedures and cost of entry. The number of entry procedures and the cost of complying with regulations are all lower in countries with higher levels of individualism. In addition, these relations are economically significant as a one-standard deviation increase in individualism is associated with a 19.2% decrease in the number of entry procedures and a 72.4% decrease in the cost of entry. Number of days to comply with regulations is negatively related to individualism though this association is not statistically significant.¹³ This suggests that, to some degree, culture influences the type of entry regulation adopted.

In the last column, we test the role of individualism and overall regulations of entry by using principal component analysis to create an overall entry regulation index. We find a one standard deviation increase in individualism, the difference between Estonia and France, is associated with almost a 2/3rds standard deviation decrease in the overall regulation of entry index. This is equal to the observed difference in entry regulation between Trinidad and Tobago and Turkey or between Turkey and the United Kingdom. Moving from the lowest to highest-ranking country on the individualism-collectivism spectrum, from Egypt to Sweden, decreases the entry regulation index by over 1/3, or 1.77 standard deviations. Because the overall index captures all measures of entry costs, we use this as our primary measure of entry regulation in the remainder of the paper.

Fig. 2 illustrates the conditional association between individualism and entry regulation estimated in column 4 of Table 2A. As seen in this figure, there is no evidence that this association is influenced by outliers.¹⁴

In Table 2B, Panel A, we test if our result is sensitive to the year the data is collected. In columns (1)–(8), we use the regulation index, compiled in the same manner, from each year from 2009 to 2016 as the dependent variable. In column

¹¹ Some other aspect of a colonizer's identity may matter for regulation rather than legal origin per se, e.g. Price (2003). Hypotheses based on the impact of legal origin have the benefit of being grounded in well-developed theory. As a practical matter, it is very hard to distinguish empirically between the effects of British legal origin and other aspects of British colonization.

¹² In all specifications, we attempt to control for exogenous determinants of institutional quality instead of direct measures of institutional quality, such as corruption, as these measures suffer from extreme endogeneity with our main variable of interest, individualism. In untabulated results using IV regressions, we show that individualism strongly determines measures of institutional quality. Thus, we prefer to omit such direct measures from our specifications to avoid misspecification.

¹³ It is possible that this is due to the manner in which the time necessary to comply with entry regulations is computed. For example, in computing the number of days to comply with entry regulations, Djankov et al. (2002) assume that entrants can complete at most one procedure per day.

¹⁴ We drop Canada, Singapore, New Zealand, and Australia as potential outliers and find a similar coefficient and t-statistic.

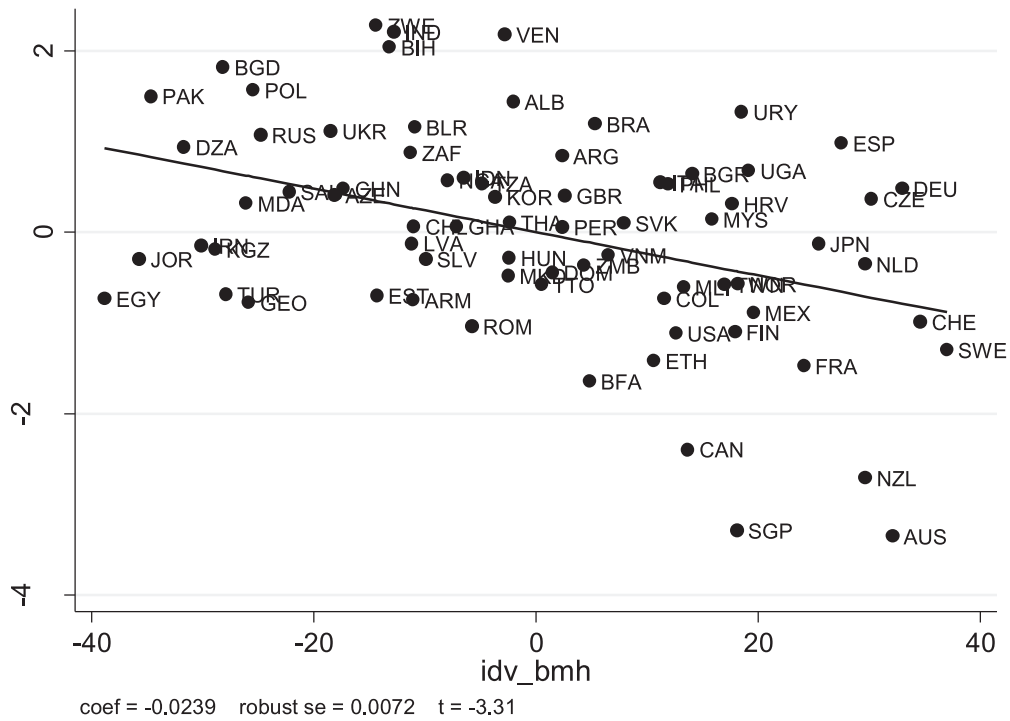


Fig. 2. Regulation of entry and individualism.

Note: Conditional correlation between *entryreg* and *idv_bmh*, based on regression specification in Table 2, column (4). *entryreg* is the overall index of entry regulations combining time, procedures and cost using principal component analysis. Measured in 2008 (World Bank Doing Business, 2014); *idv_bmh* is the measure of individualism from Beugelsdijk et al. (2015). Labels are World Bank country codes.

Table 2B

Total effect of individualism on alternative measures of entry regulation.

	Panel A: Domestic entry regulation								Panel B: Foreign entry regulation	
	2009 (1)	2010 (2)	2011 (3)	2012 (4)	2013 (5)	2014 (6)	2015 (7)	2016 (8)	2008–2016 (9)	2010–2012 (10)
<i>idv_bmh</i>	-0.0214** (-2.644)	-0.0180** (-2.197)	-0.0189** (-2.267)	-0.0205** (-2.536)	-0.0191** (-2.425)	-0.0162** (-2.006)	-0.0168** (-2.144)	-0.0149** (-2.006)	-0.0189** (-2.483)	-0.0155* (-1.6672)
<i>english</i>	-0.978** (-2.622)	-0.847** (-2.181)	-0.736* (-1.892)	-0.575 (-1.500)	-0.510 (-1.355)	-0.533 (-1.387)	-0.493 (-1.346)	-0.524 (-1.456)	-0.723* (-1.911)	-0.6397* (-1.9124)
<i>disteq</i>	-0.0300** (-2.627)	-0.0312** (-2.576)	-0.0276** (-2.228)	-0.0198 (-1.566)	-0.0215* (-1.763)	-0.0284** (-2.304)	-0.0283** (-2.352)	-0.0351*** (-3.016)	-0.0282** (-2.501)	-0.0226* (-1.8380)
<i>landlock</i>	0.111 (0.347)	-0.194 (-0.552)	-0.234 (-0.652)	-0.174 (-0.472)	-0.127 (-0.336)	-0.286 (-0.695)	-0.287 (-0.703)	-0.457 (-1.018)	-0.124 (-0.350)	-0.5905 (1.6386)
constant	2.125*** (6.566)	2.011*** (5.875)	1.898*** (5.350)	1.620*** (4.576)	1.595*** (4.633)	1.786*** (5.126)	1.816*** (5.434)	1.990*** (6.220)	1.896*** (5.943)	1.5794*** (4.3603)
Observ.	75	75	75	75	75	75	75	75	74	63
R ²	0.41	0.35	0.33	0.30	0.29	0.29	0.31	0.34	0.36	0.22

Note. In Panel A, the dependent variable in the first eight columns is the first principle component of the natural log of entry procedures, entry days and entry cost for that year. In column (9), the dependent variable is the average of this index from 2008 to 2016. In Panel B, column (10), the dependent variable is the first principle component of the natural log of foreign entry procedures and days, averaged for 2010 and 2012. See Appendix 1. OLS regressions with robust t-statistics in parentheses,

- *** $p < 0.01$.
- ** $p < 0.05$.
- * $p < 0.1$.

(9), the dependent variable is the average of the regulation indices over the years 2008–2016. In each column, individualism is negatively and significantly related to entry regulation. These results suggest that this association is not sensitive to the choice of year in which we observe entry regulation.¹⁵

¹⁵ An anonymous reviewer raised an interesting issue regarding regulation dynamics. We believe this is indeed an interesting topic that is ripe for analysis; however, it is beyond the scope of this paper given the necessity to develop additional theory and identification strategies.

As an additional robustness check, in the final column of Table 2B, Panel B, we consider the relation between individualism and the regulation of entry by foreign firms. We construct a foreign entry regulation index, extracting the first principle component of the natural log of number of days and procedures needed to comply with entry regulation for foreign firms (*Investing across Borders*, 2010, 2012). As seen in column (10), individualism reduces foreign entry regulation, but it is less significant than the association with domestic entry regulation. For the remainder of the paper, we focus on explaining the regulation of entry by domestic firms in 2008.

Overall, our results are consistent with the hypothesis that culture plays a significant role in regulation of entry, including both the number and costs of procedures entrants must undertake to be in compliance with the law. In addition, consistent with existing studies, we find English legal heritage is associated with significantly less regulations, affecting all measures of entry regulations. Likewise, distance from the equator is significantly associated with lower levels entry regulation in all four regressions. Our measure of exogenous openness, landlocked, is significant in two regressions, associated with higher cost of entry and higher overall entry regulations—consistent with Olson (1982). Given the importance of all three exogenous controls, we continue to control for English legal origin, landlocked, and distance from the equator in the subsequent analysis.

4.2. Robustness to cultural values and beliefs

Next, we consider two sets of concerns regarding our measure of individualism. First, as with other measures of cultural values or beliefs, there is no single, definitive measure of individualism. This raises the possibility that our results are particular to the measure developed by BMH. Second, because cultural values and beliefs are often clustered, a second potential concern is that the observed relationship between individualism and entry regulation may in fact represent the influence of individual values or beliefs, or even some larger cultural aggregate, that is correlated with both individualism and entry regulation.

In Table 3 we show the results using alternative measures of individualism from Hofstede (2001), Schwartz (2006) and Davis (2016). For comparison, Column (1) reproduces our baseline regression from Table 2, column (4). Our results for the alternative measures of individualism largely confirm our earlier findings. In all three cases, there is a negative association between individualism and entry regulation, and this relationship is statistically significant for two of the three individualism variables (*hof_idv* and *indresp*).¹⁶ Both of these associations are economically significant. For example, a one standard deviation increase in the Hofstede measure reduces the entry regulation index by approximately $\frac{1}{2}$ standard deviation, a somewhat lower impact than the BMH measure. A one standard deviation increase in individual responsibility decreases the entry regulation index by about $\frac{2}{5}$ ths standard deviation. Moreover, consistent with our earlier results, we find that entry regulations are lower for more individualist countries and higher for more collectivist countries. In sum, the evidence presented does not suggest that the association between individualism and entry regulation is specific to a particular measure of individualism.

Next we consider the possibility that our results are driven by some omitted value or set of cultural values. We test for this possibility in several ways. First, we include as regressors several other dimensions of cultural variation from Hofstede (2001), including power distance, masculinity, and uncertainty avoidance. Power distance, *hof_pdi*, measures the degree to which individuals accept that power is distributed unequally among various member of society. Masculinity, *hof_mas*, reflects lack of emphasis on caring for others, solidarity, and quality of life. Uncertainty avoidance, *hof_uai*, measures the degree to which members of society are comfortable in unstructured situations. Our results, shown in columns (5) and (6), indicate that the association between individualism and entry regulation is robust to the inclusion of Hofstede's additional measures of cultural variation.¹⁷ Moreover, none of the additional measures are significant at the five percent level or better. Thus, the relation between individualism and entry regulation does not appear to be driven by omitted dimensions of cultural variation.

As noted earlier, several previous studies find that trust is associated with few business regulations (Aghion et al., 2010; Pinotti, 2012). Using a measure of trust derived from the WVS, we find that trust is positively correlated with individualism (*corr.* = 0.49). It may, therefore, be that the relation between individualism and entry regulation is spurious, driven by the correlation of both variables with trust. To see whether this is the case, we include trust in our baseline specification with individualism. As reported in column (7), the association between individualism and entry regulation is robust to the inclusion of trust. In contrast, the relation between trust and entry regulation, though negative as expected, is only significant at the ten percent level.

A third concern is that individualism may simply proxy for conservative economic or political ideology and these ideological factors, rather than individualism itself, drive changes in the level of entry regulation. To test whether this is indeed the case, we include proxies for the average level of a country's economic and political ideology collected from WVS. For economic ideology, we use three measures. First, we measure the degree to which respondents view economic competition

¹⁶ The lack of significance of the Schwartz measure may reflect the relative paucity of observations or its strong correlation with a country's distance from the equator.

¹⁷ The significance of individualism is not robust to the inclusion of the updated Hofstede dimensions by BMH. This is attributable to the exceedingly high correlation between updated measures of individualism and power distance in the updated data, *corr.* = -0.80, relative to the same measure using the original Hofstede data, *corr.* = -0.610.

Table 3
Total effect of individualism on entry regulation, alternative cultural variables.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
idv_bmh	−0.0239*** (−3.314)				−0.0232** (−2.340)		−0.0208*** (−2.896)	−0.0211* (−1.708)	−0.0239** (−2.404)	−0.0316** (−2.1087)	−0.0054 (−0.2287)
hof_idv		−0.0316*** (−3.128)				−0.0285** (−2.523)					
schw_index			−0.121 (−1.042)								
indresp				−0.417*** (−3.742)							
hof_pdi					0.0150 (1.452)	0.0075 (0.881)					0.0223 (1.2888)
hof_mas					0.0045 (0.603)	0.0132* (1.770)					0.0054 (0.4627)
hof_uai					0.0127 (1.460)	0.0101 (1.235)					0.0132 (0.8095)
trust							−0.0167* (−1.836)			0.0126 (0.6486)	0.0062 (0.2063)
comp_bad								0.0991 (0.3173)		−0.1058 (−0.3445)	−0.2339 (−0.3439)
state_own								0.0288 (0.1098)		−0.1071 (−0.518)	0.5645 (0.7117)
nationalism								−0.1202 (−0.1053)		0.3976 (0.3239)	1.6269 (0.7059)
right_wing								−0.2442 (−1.0266)		−0.3231* (−1.7467)	0.0710 (0.1764)
religion									Yes	Yes	Yes
regions									Yes	Yes	Yes
english	−1.047*** (−2.934)	−0.932** (−2.278)	−1.832*** (−3.323)	−1.094*** (−3.095)	−1.081** (−2.521)	−0.743* (−1.850)	−0.993*** (−2.862)	−1.1075** (−2.4763)	−0.860* (−1.924)	−0.9956* (−1.8171)	−1.0411 (−1.3834)
disteq	−0.0287** (−2.647)	−0.0298** (−2.103)	−0.0684*** (−4.440)	−0.0538*** (−7.437)	−0.0246 (−1.659)	−0.0253* (−1.754)	−0.0257** (−2.329)	−0.0434** (−3.0273)	−0.0256 (−1.136)	−0.0455* (−1.8042)	−0.0387 (−0.9101)
landlock	0.477* (1.700)	0.753** (2.668)	0.861* (1.815)	0.354 (1.331)	0.412 (0.779)	0.407 (1.129)	0.353 (1.217)	0.3821 (1.23261)	0.273 (0.880)	0.1425 (0.4661)	0.1487 (0.1798)
constant	2.093*** (6.711)	2.311*** (5.897)	2.452*** (3.913)	4.016*** (6.144)	0.0200 (0.0177)	0.197 (0.178)	2.291*** (6.638)	3.5182 (1.405)	0.810 (0.595)	4.854* (1.859)	−4.1377 (−0.6142)
Observ.	74	56	44	84	48	56	74	62	74	62	40
R ²	0.48	0.54	0.49	0.47	0.62	0.59	0.50	0.44	0.64	0.63	0.67

Note. Dependent Variable is entryreg. See Appendix 1 and the body of the paper for variable description and sources. OLS regressions with robust t-statistics in parentheses.

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.1$.

as harmful, *comp_bad*. Second, we proxy for preferences for state ownership of business, *state_own*. Third, we include a measure of nationalism, which represents a belief that when jobs are scarce priority should be given to nationals instead of immigrants. Our measure of political ideology is the average of respondents' self-reported position on a left-right political scale, *right_wing*.

The belief that economic competition is harmful, a preference for more state ownership of business and a preference for jobs going to nationals would tend to be associated with a preference for greater business regulations, while more right-leaning individuals would tend to prefer less regulation. As seen in column (8) of [Table 3](#), however, when added to our baseline regression, none of these measures of ideology is significant at standard levels. Moreover, the significance of individualism is robust to the inclusion of these variables. Thus, our results do not support the hypothesis that individualism is simply a proxy for the existence of rightward economic or political ideology.

Our final approach to addressing the issue of omitted cultural variables is to control for religious affiliation and regional location. The idea that cultural groupings roughly correspond to regional location and broad religious and philosophical traditions underlies such diverse work as [Weber \(1930\)](#), [Huntington \(1993\)](#), [Landes \(1998\)](#) and [La Porta et al. \(1999\)](#). It has gained support from recent empirical analyses, e.g. [Schwartz \(2004\)](#) and [Pryor \(2007\)](#). In particular, we control for two sets of cultural aggregates. First, we control for four measures of religious affiliation from [McCleary and Barro \(2006\)](#), the percent of population that is Catholic, Protestant, Orthodox, and Muslim in 2000. Second, we include the familiar set of World Bank regional dummy variables. Our results are shown in column (9). The statistically significant relation between individualism and the regulation of entry survives the inclusion of both sets of cultural aggregates.

In the last two columns, we include our alternative culture measures simultaneously. In column (10), we include trust, *comp_bad*, *state_own*, nationalism, *right_wing*, religion, and regional dummies to our baseline model. Individualism is robust at the five percent level to this inclusion. In column (11), we add the three additional Hofstede measures of culture to column (10)'s specification. All of the variables in this specification are insignificant, including individualism. We do not place much weight on this specification given that we have only 42 observations and 23 regressors, suggesting very limited independent variation in the data from which to generate estimates. We address identification issues in a more satisfactory manner, using IV regressions, at the end of this section.

Our results in [Table 3](#) do not suggest that the relation between individualism and regulation is particular to a given data set or measure of cultural variation. These results address the robustness of our findings to the use of alternative measures of individualism and to the addition of controls for additional dimensions of cultural values, social trust, political and economic ideology, and two sets of cultural aggregates.

4.3. Robustness to institutional controls

Next we consider whether our results are robust to the inclusion of a variety of alternative institutional control variables. In doing so, we continue to control for the institutional variables used in our baseline specification (*english*, *disteq*, *landlock*). First, in column (1), we include two additional legal variables, reflecting Scandinavian and German legal origins. In this regression, the excluded category is French legal origin.¹⁸ We find that our results are robust, as both individualism and English remain negative and significant with similar size coefficients. In addition, the coefficients on Scandinavian and German legal origin are not significant. This suggests that these legal traditions are not significantly different from French legal origin (our reference group), suggesting we can drop them from the analysis. In other words, the critical empirical distinction is between English common law heritage and all others civil traditions.

Next we consider the possibility that our previous estimates may be biased if individualism is correlated with the social structure of the countries in our sample. For example, the social salience hypothesis suggests that social identity is heightened among individuals belonging to minority groups. Thus, it is possible that the strength of collectivist social ties reflects the size or number of social groups in a society. Moreover, a number of studies find that the ethnic and religious makeup of a society also influences the quality of its economic policy-making ([Easterly and Levine, 1997](#), [Alesina et al., 2003](#), [Alesina et al, 1999](#)).

In particular, we control for the influence of social composition by using two approaches. First, we include measures of ethnic (*ethnicfrac*), language (*langfrac*), and religious (*religfrac*) fractionalization. Each measure the probability that two randomly selected individuals from a country's population will belong to the same ethnic, language, or religious group, respectively. As suggested by [Easterly and Levine \(1997\)](#) and [Alesina et al. \(2003\)](#), fractionalized societies tend to have a greater prevalence of redistributive policies. Second, we include a measure, *partitioned*, capturing the share of a country's population that belongs to an ethnic group that is partitioned by the country's borders. As argued by [Alesina et al. \(2011\)](#), countries with highly partitioned populations are "artificial states" that may have difficulty pursuing policies that favor national interest. The results of these regressions are shown in [Table 4](#), columns (2) and (3), respectively. No measure of fractionalization or partitioned is significant. Moreover, the coefficient on individualism is virtually unchanged by the inclusion of the fractionalization measures and only slightly lower to the inclusion of *partitioned*. Thus, our results do not appear to be biased due to the omission of variables related to a country's ethnic makeup.

¹⁸ We use the updated data on legal origin from [La Porta et al. \(2008\)](#), which does not include socialist legal tradition as a category. For formerly socialist countries, La Porta et al. (2008) identifies the legal tradition that is the source of a country's commercial law.

Table 4
Total effect of individualism on entry regulation, additional controls.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
idv_bmh	−0.0243*** (−2.951)	−0.0241*** (−3.300)	−0.0217*** (−2.940)	−0.0251*** (−3.376)	−0.0234*** (−2.769)	−0.0221*** (−2.766)	−0.0188** (−2.244)	−0.023** (−2.9277)	−0.0147* (−1.712)	−0.007 (−0.312)
scan	−0.202 (−0.385)									0.630 (0.442)
german	0.481 (1.473)									0.104 (0.182)
ethnicfrac		−0.798 (−0.861)								0.218 (0.115)
langfrac		0.505 (0.795)								0.333 (0.243)
religfrac		−0.262 (−0.421)								0.139 (0.119)
partitioned			0.0046 (0.733)							−0.005 (−0.486)
lwheatsugar				1.749* (1.936)						2.906 (1.337)
comm					0.0928 (0.169)					−0.789 (−0.485)
transition						0.285 (0.717)				0.667 (0.506)
manufact							0.0422* (1.694)			0.049 (1.191)
agricult							0.0135 (0.818)			−0.055* (−1.913)
resources							0.0132 (1.249)			0.042** (2.081)
trade							−0.007** (−2.597)			−0.002 (−0.343)
independence								0.0002 (0.2381)		−0.001 (−0.367)
length								−0.0003 (−0.3972)		0.001 (0.302)
gdppc									−0.387** (−2.095)	−0.898** (−2.523)
english	−0.955** (−2.644)	−1.026** (−2.609)	−1.332*** (−2.889)	−0.915** (−2.393)	−1.037*** (−2.789)	−1.016*** (−2.773)	−0.983** (−2.506)	−1.057** (−2.8554)	−1.020*** (−3.047)	−1.421* (−2.033)
disteq	−0.0311*** (−2.840)	−0.0318** (−2.618)	−0.0346*** (−2.743)	−0.0468*** (−3.976)	−0.0298** (−2.159)	−0.0341** (−2.394)	−0.0324*** (−3.073)	−0.028** (−2.5259)	−0.0239** (−2.214)	−0.063** (−2.539)
landlock	0.420 (1.507)	0.498 (1.598)	0.301 (0.999)	0.394 (1.397)	0.458 (1.434)	0.375 (1.099)	0.572* (1.764)	0.457 (1.5822)	0.119 (0.382)	0.098 (0.200)
constant	2.071*** (6.283)	2.459*** (4.260)	2.144*** (4.969)	2.472*** (7.076)	2.093*** (6.659)	2.125*** (6.656)	1.537** (2.087)	1.724 (1.0182)	5.116*** (3.356)	10.896* (2.036)
Observ.	74	73	60	66	74	74	70	73	73	51
R ²	0.49	0.48	0.49	0.56	0.48	0.48	0.54	0.43	0.53	0.54

Note. Dependent Variable is entryreg. See Appendix 1 and the body of the paper for variable description and sources. OLS regressions with robust t-statistics in parentheses,

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.1$.

Next, we consider another variable believed to exert an independent, exogenous influence on the evolution of a country's institutions, the natural log of land suitable for wheat cultivation divided by land suitable for sugar cultivation. This was first introduced by [Easterly \(2007\)](#) to provide an empirical test of [Engermann and Sokoloff's \(1997, 2002\)](#) hypothesis that a country's agricultural endowments influence its institutional development. The regulation of entry seems to fit particularly well with [Sokoloff and Engermann's \(2000, p. 221\)](#) argument that areas with high sugar cultivation adopted institutions that "restricted opportunities for the broad mass of the population to participate fully in the commercial economy." In keeping with this hypothesis, [Easterly \(2007\)](#) finds that institutional quality is increasing with the relative share of land suitable for wheat cultivation. Column (4) provides support for this argument whereas sugar cultivation increases relative to wheat, entry regulations increase (significant at 10% level). However, individualism retains its respective relationship.

In columns (5) and (6), we consider two variables related to a country's political history. The first, communism, is the share of the period from 1915 to 2000 that a country had a communist government.¹⁹ A history of communism plausibly affects both a country's regulatory structure and its level of individualism, e.g. [Alesina and Fuchs-Schündeln \(2007\)](#) and [Davis \(2016\)](#). The second measure of political history is a dummy variable for whether a country is a transition economy. As seen in columns (5) and (6), however, neither of these variables are a significant determinant of entry regulations. In addition, the inclusion of these variables has little impact on the coefficient of individualism. Our results do not suggest that our earlier finding were biased by the omission of a country's communist history or its status as a transition economy.

The breakdown of a country's economy may exert influence on business regulations. Thus, in column 7, we control for GDP composition, including percent manufacturing, agriculture, natural resource rent, and international trade. As reported, individualism is negative and significant at the five percent level. Manufacturing is positive and significant at the ten percent level. In addition, the effect of trade on regulation is consistent with [Olson \(1982\)](#) with a negative and significant coefficient. These results should be interpreted with caution, as the equation is not identified. For example, [Tabellini \(2008\)](#) argues that culture affects a country's comparative advantage, and thus the pattern of sectoral development.

We also consider a country's experience with colonization including duration of colonization. By doing so, we control for the possibility that colonization transferred not only legal institutions but also culture. The longer a country was under colonial rule, the greater likelihood of cultural transfer. We include date of independence and length of colonization as additional controls in column (8) ([Hensel, 2014](#)). As shown, independence and duration of colonization are insignificantly associated with entry regulation while individualism retains its negative and significant association.

A final potential concern involved the role of economic development. While there is not a direct theoretical link between the level of per capita income and the regulation of entry, economic development is associated with dramatic shifts in the structure of society ([Kuznets, 1973](#)). As such, in controlling for per capita income, we simultaneously hold constant a large number of factors that vary systematically with per capita income. Our results are shown in column (9). Higher income is negatively and significantly associated with entry regulation. A one standard deviation increase in GDP per capita decreases the entry regulation index by 0.48 units. Individualism remains negative and significant, though only at the 10% level, and with a reduced economic impact, about a 2/5th standard deviation.

Some care is necessary in interpreting these results. Since per capita income is clearly endogenous, the estimated equation is not identified. In particular, since individualism has a large causal effect on economic development ([Gorodnichenko and Roland, 2010, 2011, Davis, 2016](#)), the estimated effect of individualism in this specification is subject to bias due to over-controlling. We revisit this issue when we instrument for individualism in the next subsection.

As one final check, we include all additional control variables in the same specification, reported in column (10). Individualism is no longer significant, possibly due to endogeneity similar to our findings in column (11) in [Table 3](#). Income per capita and GDP composition remain significant. Given the limited degrees of freedom in the data for this regression and significant identification issues associated with the inclusion of variables that are endogenous to culture, we do not place much weight on the non-robustness of individualism in this specification.

Overall, our results are consistent with the first hypothesis showing a significant empirical relationship between individualism and the regulation of entry. This finding is robust to the use of alternative measurement of individualism and to controls for additional dimension of culture, the level of social trust, proxies for economic and political ideology, and cultural aggregates related to religious traditions and regional location. The relation between individualism and entry regulation is also robust to the inclusion of a wide variety of variables related to institutional structure, including legal origins, geography, ethnicity, political history, exogenous determinants of institutions, and economic development. We turn next to the issues raised by the endogeneity of culture.

4.4. IV Estimation

The coefficients for the relation between individualism and entry regulation reported above potentially suffer from two sources of bias. First, as argued by [Bowles \(1998\)](#), cultural values may be influenced by a wide variety of social phenomena, including economic and political variables. A particular concern in our case is reverse causation. Greater regulation of entry may increase the value of collectivist social norms, leading individuals to invest more heavily in social ties. For example, the

¹⁹ This variable was computed by the authors using dummy variables from [McCleary and Barro \(2006\)](#) capturing whether a country was communist in six periods, measured in 15 year intervals starting in 1925. See appendix for details.

regulation of entry is well known to increase the size of the informal sector, and social ties may be particularly valuable to informal sector participants (Johnson et al., 1998; Friedman et al., 2000; Schneider and Enste, 2000; Djankov et al., 2002). An additional concern is that some third factor, such as economic development, may influence both the regulation of entry and social norms regarding individualism and collectivism. For example, Davis (2006) argues that economic development, with its attendant increases in urbanization and geographic mobility, may undermine traditional social structures. In either case, the level of individualism will be endogenous and the estimates identified above cannot be interpreted as causal effects.

The second source of bias stems from our use of survey data to measure individualism. Differences in the interpretation of survey questions may lead to classical measurement error, resulting in attenuation bias. In addition, survey data are subject to measurement error due to cognitive errors and to the perceived social desirability of particular answers. As Bertrand and Mullainathan (2001) point out, these sources of measurement error will tend to bias regression results when survey data is used as an explanatory variable.

In this section, we address issues associated with measurement error and endogeneity of individualism by estimating two-stage least squares regressions. In particular, we instrument for individualism using three instruments identified in the literature on the economics of culture, pronoun drop (Kashima and Kashima, 1998; Davis and Abdurazokzoda, forthcoming), rainfall variation (Davis, 2016) and genetic distance (Spolaore and Wacziarg, 2009; Gorodnichenko and Roland, 2010, 2011).

Pronoun drop refers to the grammatical rules of pronominal expression, which govern whether a speaker may drop a pronoun in subject position. Thus, for example, pronoun drop is permitted in Spanish, such that the English sentence “I speak” may be translated as either “Ablo” or “Yo ablo,” but it is not permitted in English, as the pronoun “I” is required to make sense of the sentence. In languages that permit pronoun drop, the identity of the subject is understood in the context of the rest of the sentence. In contrast, in languages that do not permit pronoun drop, the subject stands apart from the context. Pronoun drop is therefore associated with less individualistic cultures. Kashima and Kashima (1998) were the first to present empirical evidence of a relation between pronoun drop and measures of individualism, and their work motivated the use of pronoun drop as an instrument for individualism by Licht et al. (2007) and Tabellini (2008). Here we use a version of this variable developed by Davis and Abdurazokzoda (forthcoming), which is based on authoritative linguistic data from the World Atlas of Linguistic Structures. The variable `pronoun_drop` equals the share of a country’s population that speaks a language in which pronoun drop is permitted.

A second instrumental variable comes from Davis (2016). Davis develops a model of optimal socialization in which households adopt more collectivist attitudes in order to facilitate informal risk-sharing arrangements. Collectivist attitudes increase the disutility of renegeing on a risk sharing arrangement, and thus allow individuals to credibly commit to greater transfers in the face of an adverse income shock. Davis also presents evidence that rainfall variation has a robust, statistically significant, negative effect on contemporary attitudes toward individual responsibility. The variable `rain_var` is the natural log of coefficient of intertemporal variation of monthly rainfall.

The third instrument is a measure of a country’s genetic distance from Sweden based on the similarly non-expressed genetic material. Spolaore and Wacziarg (2009, p. 471) argue that, like genetic information, cultural values are transmitted from parent to child, making genetic distance “an excellent summary statistic capturing divergence in the whole set of implicit beliefs, customs, habits, biases, conventions, etc. that are transmitted across generations.” Gorodnichenko and Roland (2010, 2011) extend this logic of this argument to propose using the genetic distance between a given country and the US, an individualistic country, as an instrument for individualism. Since Sweden has the highest value for individualism in our dataset, here we use a measure of genetic distance from Sweden, `gendist_swe`, from Spolaore and Wacziarg (2009).

All three instruments are negatively and significantly correlated with `idv_bhm` (0.50 to 0.51) at the 1% level. This implies greater rainfall variation, the use of pronoun drop, and greater distance from Sweden lead to lower levels of individualism. First stage results support the use of these instruments as shown in Table 5 below.

In Table 6 above, we present the IV regressions in which we instrument for individualism with the variables described above. In each specification, we continue to control for our exogenous determinants of institutional quality, English legal origin, distance from the equator, and landlocked, as these variables cannot be caused by individualism or entry regulations. Column (1) shows our main specification using the BHM measure of individualism. Our findings suggest that the exogenous component of individualism has a strong negative effect on the regulation of entry. This effect is statistically significant at the 1% level. In addition, our point estimate indicates that a one standard deviation increase in individualism leads to a reduction in the entry regulation index by almost 1.2 standard deviations— which is almost double the size of the impact indicated from the OLS estimations. The larger IV coefficient is consistent with the argument that the OLS estimate suffers from a sizeable attenuation bias.

As a robustness test, in columns (2) and (3), we repeat our estimation using the Hofstede and WVS measures of individualism. Our results are very much in line with those reported above. The coefficient on individualism is negative, highly significant and with magnitudes between eight-five to one hundred-fifty percent larger than those in the analogous regression in Table 3. Thus, it does not appear our results are driven by our choice of individualism measure.

In the final columns of Table 6, we consider specifications motivated by concerns regarding the exclusion restriction. Previous work finds that climate variation is linked to the level of social trust (Durante, 2010) and to ethnic fractionalization (Michalopoulos, 2012), raising questions about whether rainfall variation affects regulation through these channels. We address this concern by including trust and ethnic fractionalization in columns (4) and (5), respectively. As seen, the significance of individualism is robust to the inclusion of both variables.

Table 5
Total effect of individualism on entry regulation, first stage regressions.

Dep. Var:	(1) idv_bmh	(2) hof_idv	(3) indresp	(4) idv_bmh	(5) idv_bmh	(6) idv_bmh	(7) idv_bmh	(8) idv_bmh
rain_var	−30.81*** (−2.893)	1.161 (0.107)	−0.519 (−1.072)	−34.02*** (−3.288)	−28.81*** (−2.840)	−32.02*** (−2.998)	−28.69*** (−2.883)	−32.39*** (−3.502)
gendist_swe	−0.0086** (−2.337)	−0.0054 (−1.406)	−0.0003* (−1.786)	−0.0082** (−2.268)	−0.0081** (−2.316)	−0.0033 (−0.730)	−0.0028 (−0.619)	−0.0004 (−0.0976)
pronoun_drop	−13.33* (−1.942)	−14.18** (−2.550)	−0.907*** (−3.182)	−9.339 (−1.353)	−15.24** (−2.441)	−9.571 (−1.390)	−4.757 (−0.700)	−4.202 (−0.604)
english	1.513 (0.308)	12.20** (2.199)	−0.102 (−0.413)	1.227 (0.229)	3.280 (0.656)	1.865 (0.388)	1.243 (0.280)	2.944 (0.623)
disteq	0.722*** (4.869)	0.815*** (5.155)	−0.0105 (−1.439)	0.594*** (3.522)	0.553*** (3.824)	0.723*** (4.824)	0.654*** (4.587)	0.467*** (2.950)
landlock	2.295 (0.363)	8.971 (0.968)	−0.139 (−0.412)	3.572 (0.606)	5.294 (0.780)	3.290 (0.529)	3.184 (0.487)	6.913 (1.036)
trust				0.425** (2.497)				0.344* (1.979)
ethnicfrac					−26.39** (−2.635)			−18.80 (−1.663)
indo_european						12.36** (2.115)		12.67* (1.879)
ling_prox							10.38** (2.172)	3.698 (0.825)
constant	23.67* (2.001)	25.91*** (2.806)	6.139*** (12.16)	12.36 (0.977)	40.28*** (3.334)	9.636 (0.720)	8.505 (0.686)	6.399 (0.409)
Observ.	65	53	74	65	65	65	64	64
R ²	0.64	0.68	0.26	0.67	0.67	0.67	0.67	0.72

Note: Dependent variables as listed in column. See Appendix 1 and the body of the paper for variable description and sources. First stage regressions with robust t–statistics in parentheses,

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.1$.

Table 6
Total effect of individualism on entry regulation, IV regressions.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
idv_bmh	−0.0436*** (−3.229)			−0.0416*** (−2.862)	−0.0441*** (−3.276)	−0.0511*** (−3.207)	−0.0514** (−2.370)	−0.0424** (−2.249)
hof_idv		−0.0585*** (−2.695)						
indresp			−1.047*** (−2.934)					
trust				−0.0045 (−0.428)				−0.0028 (−0.229)
ethnicfrac					−0.959 (−1.278)			−1.179 (−1.396)
indo_european						0.970** (2.313)		1.076** (2.405)
ling_prox							0.372 (1.090)	−0.211 (−0.764)
english	−1.001*** (−3.110)	−0.473 (−0.806)	−0.988*** (−2.672)	−0.994*** (−3.162)	−0.904*** (−2.609)	−1.044*** (−3.166)	−1.083*** (−3.338)	−0.912*** (−2.661)
disteq	−0.00477 (−0.251)	0.00115 (0.0406)	−0.0463*** (−4.352)	−0.00535 (−0.294)	−0.0101 (−0.533)	−0.0086 (−0.454)	−0.00609 (−0.288)	−0.0214 (−1.262)
landlock	0.370 (0.810)	1.039*** (2.600)	0.120 (0.216)	0.344 (0.751)	0.463 (1.027)	0.638 (1.299)	0.507 (1.008)	0.702 (1.415)
constant	2.128*** (6.943)	2.311*** (5.799)	6.945*** (4.235)	2.179*** (6.254)	2.655*** (4.878)	1.970*** (5.750)	2.221*** (6.791)	2.587*** (3.926)
Observ.	65	53	74	65	65	65	64	64
R ²	0.41	0.47	0.34	0.42	0.42	0.42	0.34	0.48
OIR p-value	0.45	0.15	0.53	0.45	0.56	0.23	0.25	0.28
First stage F-stat	9.51	2.89	7.19	8.81	10.55	6.81	4.01	6.14

Note. Dependent Variable is entryreg. See Appendix 1 and the body of the paper for variable description and sources. IV regressions with instruments rain_var, pronoun_drop, gendist_swe as shown in Table 5. Robust t–statistics in parentheses,

* $p < 0.1$.

*** $p < 0.01$.

** $p < 0.05$.

A second concern is that variation in the linguistic variable, pronoun drop, is not independent owing to the relatedness of languages. In particular, the association between grammar and culture may reflect the influence of unobserved linguistic elements correlated with the rules of pronominal expression. We control for linguistic relatedness in two ways.

First, we include a dummy variable for membership in the Indo-European language family based on language categories reported in WALS. Indo-European is the most common language family for the languages in our dataset and is negatively correlated with pronoun drop at the 1% level. Second, we employ a more refined measure of linguistic relatedness developed by Spolaore and Wacziarg (2009), the number of shared nodes in a tree showing the relations among languages. In particular, we control for a country's linguistic proximity to Sweden, the most individualistic country in our sample. If unobserved linguistic elements are driving the association between language and individualism, these elements will be more common in languages closely related to Swedish (Davis and Abdurazokzoda, forthcoming).

As seen in columns (6) and (7) of Table 6, individualism is robust to the inclusion of these two measures, providing further support that pronoun drop satisfies the exclusion restriction. Finally, in column (8), we include all four controls simultaneously. Individualism remains negative and significant in this specification. Thus, our findings suggest that the exogenous component of individualism has a strong negative effect on the regulation of entry.

We also present p-values from Sargen's over-identifying restrictions test. Our results indicate that in none of the regressions can we reject the null hypothesis that the instruments are valid, conditional on at least some subset of instruments being valid. The fact that our instruments are motivated by a diverse set of linguistic, climatic, and genetic arguments strengthens the case that the exclusion restriction is in fact met. However, in several specifications the first-stage F-statistic, reported in the final row of Table 6, is below the standard threshold, indicating that these estimates may suffer from bias due to weak instruments. Because of this, we do not place great value on the coefficient estimates reported in the final three columns, though we do note the similarity of the estimates across specifications.

The results of our IV estimation confirm our earlier findings regarding the significance of individualism for the regulation of entry. If anything, they suggest that endogeneity and attenuation biases may cause OLS estimates to *understate* the role of culture in shaping the regulation of entry. In sum, cultural values appear to play an important role in regulating entry, with more individualistic societies regulating the entry of new firms less intensively than collectivist societies. Next, we ask how culture shapes regulation.

5. The strict hierarchy of institutions hypothesis

In this section, we consider the *Strict Hierarchy of Institutions Hypothesis*, which holds that culture influences social policy exclusively through its impact on formal institutions. Economic theory does not suggest a significant hierarchical relationship between cultural and legal origin. For most countries, the existence of a common law or civil law tradition was determined by the pattern of colonization and, as a result, is largely viewed as exogenous to cultural values. For this reason, we focus here on the relationship between culture and political institutions. One of the key findings of previous work on the regulation of entry is that democracies regulate entry more lightly (Djankov et al., 2002). However, because this work fails to consider a potential role for cultural values, it is possible that this finding overstates the role of democracy in regulation. If this were the case, we would expect the inclusion of individualism to reduce the estimated effect of democracy on entry regulation. It is also possible that individualism only affects regulation indirectly, as posited by the *Strict Hierarchy of Institutions Hypothesis*. In this case, one would expect the coefficient on individualism to be insignificant controlling for democracy.

To reduce the degree to which our results are driven by any one particular definition or dataset, we use four separate measures of democracy. These are Accountability and Voice (voice), from the Worldwide Governance Indicators (Kaufmann et al., 2012), polity2 from the Polity IV database (Jagers and Marshall, 2000), the Gastil Index of Democracy (gastil) from Freedom House (2014), and a dichotomous democracy variable (democ) developed by Przeworski et al. (2000) and updated in Cheibub et al. (2010). In each case, we average the measure in question from 1998 to 2008 under the assumption that entry regulation responds to changes in political institutions with a lag. See Appendix 1 for further details.

To highlight the comparison with Djankov et al. (2002), who find that political institutions play an important role in determining the regulation of entry, we first present regressions that control for democracy but not for individualism. In each specification, we continue to control the exogenous determinants of institutional quality, including legal origin, distance from the equator, and landlocked. Results are shown in columns (1)–(4) of Table 7 and provide moderate support for Djankov et al.'s (2002) findings. Two of the four measures of democracy, voice and gastil, are significant at the one percent level, with more democratic societies regulating entry more lightly.²⁰ The size of these effects is also economically significant: depending on the measure used, a one standard deviation increase in democracy is associated with a reduction in entry regulation of almost 1/4th to over a 1/3rd standard deviation.

In columns (5)–(8), we repeat this exercise, but this time we control for individualism. In three of four specifications, individualism is negative and significant at the five percent level or better. According to these specifications, a one standard deviation increase in individualism impacts entry regulation by at least a 3/5ths standard deviation decrease, which is almost

²⁰ Our results are more similar with those found by Djankov (2002) if we do not include geographic controls. In this case, all four measures of democracy are negative and significant, statistically and economically.

Table 7
Direct effect of individualism on entry regulation, OLS and IV regressions.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	IV	IV	IV	IV
idv_bmh					−0.0160 (−1.641)	−0.0260*** (−3.017)	−0.0235** (−2.539)	−0.0259*** (−3.148)	−0.0560* (−1.680)	−0.0710*** (−3.058)	−0.0614** (−2.501)	−0.0628*** (−3.361)
voice	−0.564*** (−3.825)				−0.261 (−1.423)				0.591 (0.902)			
polity2		−0.0331 (−1.497)				0.0217 (0.790)				0.150** (2.314)		
gastil			−0.103*** (−2.816)				−0.0039 (−0.0847)				0.187* (1.646)	
democ				−0.296 (−0.917)				0.226 (0.642)				1.369** (2.345)
english	−1.021*** (−2.699)	−1.170*** (−2.692)	−1.143*** (−2.770)	−1.240*** (−2.748)	−1.015*** (−2.828)	−1.014*** (−2.829)	−1.048*** (−2.915)	−1.025*** (−2.801)	−1.131*** (−3.202)	−0.870** (−2.485)	−1.011*** (−2.961)	−0.771** (−2.292)
disteq	−0.0402*** (−4.971)	−0.0536*** (−6.503)	−0.0477*** (−5.983)	−0.0548*** (−6.354)	−0.0304*** (−2.655)	−0.0296** (−2.641)	−0.0289** (−2.489)	−0.0283** (−2.479)	−0.00890 (−0.376)	0.00995 (0.417)	−0.00148 (−0.0652)	0.00759 (0.356)
landlock	0.254 (1.042)	0.461* (1.777)	0.352 (1.391)	0.453 (1.650)	0.369 (1.410)	0.572** (2.030)	0.472* (1.700)	0.513* (1.764)	0.560 (1.025)	0.662 (1.207)	0.608 (1.160)	0.649 (1.181)
constant	1.566*** (4.715)	2.058*** (5.596)	2.558*** (5.599)	2.179*** (4.897)	1.862*** (5.727)	2.040*** (6.378)	2.112*** (4.855)	1.996*** (5.089)	2.678*** (4.073)	1.924*** (5.491)	1.224* (1.846)	1.494*** (3.534)
Observ.	74	73	74	73	74	73	74	73	65	65	65	64
R ²	0.47	0.40	0.42	0.38	0.48	0.49	0.48	0.48	0.38	0.29	0.36	0.33

Note. Dependent Variable is entryreg. See Appendix 1 and the body of the paper for variable description and sources. OLS regressions, reported in columns (1)–(8), and IV regressions with instruments rain_var, pronoun_drop, gendist_swe, reported in columns (9)–(12). Robust t-statistics in parentheses,

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.1$. IV regressions with instruments rain_var, pronoun_drop, gendist_swe.

the exact same size of individualism's impact from the OLS specifications without controlling for democracy. Moreover, with the inclusion of individualism, none of the political variables is significant. These results contrast relatively strongly with those of Djankov et al. (2002). They find that five of six political variables examined are significantly related to the regulation of entry. Our finding suggests that their result may in part reflect the omission of cultural variables. Indeed, Djankov et al. (2002, p. 33) appear to recognize this possibility, "It is possible, of course, that both the political and regulatory variables are simultaneously determined by some deeper historical factors." Our findings suggest this may indeed be the case. In particular, the failure to examine the role of cultural values related to individualism and collectivism appears to have led previous research to identify a spurious relationship between political institutions and the regulation of entry.

Since it is likely that both culture and political institutions are endogenous, we instrument for individualism with our instruments from Table 6. Due, in part, to the close empirical association between democracy and individualism, we are unable to find an acceptable strategy to identify democracy and individualism simultaneously. The results instrumenting for individualism are presented in columns (9)–(12). After controlling for endogeneity, individualism is now negative and significant in all four specifications. These coefficients, ranging from 2.4 to 3.5 times higher than the OLS counterparts, reflect the impact on entry regulation of the exogenous variation in individualism that is orthogonal to democracy. In addition, we find that all four democracy measures are *positive*, and three coefficients are significant. Combined, these results suggest that individualism's impact on entry regulation is more consistent than the effect from democracy.

The results from Table 7 require further elaboration since they directly contrast Djankov et al.'s (2002) seminal finding that democracies regulate entry less than dictatorships. First, our evidence strongly rejects the *Strict Hierarchy of Institutions Hypothesis* as individualism is negative and significant in six of eight specifications controlling for democracy. This suggests that individualism has an economically significant direct effect on entry regulation. As such, informal institutions appear to influence regulation independent of their influence on formal political institutions.

Second, our results suggest a significant revision to the understanding of the association between democracy and entry regulation—an association that is rarely questioned since it was originally documented. In our specifications, the negative and significant relation between democracy and entry regulation fails on two accounts. For one, it is not robust. The negative association between democracy and entry regulation is insignificant in two of four regressions once we control for geography and in all four regressions once we control for individualism (columns 5–8). These results suggest that the previous findings suffer from omitted variable bias.²¹

Perhaps more intriguing are the results from the IV specifications in columns (9)–(12). The coefficients on democracy are positive in all regressions and significant in three specifications. This indicates that the portion of variation in democracy that is unrelated to deep cultural factors captured by our instruments increases entry regulation. Perhaps the most natural interpretation of this finding is that individualism and democracy are complements in constraining entry regulation. More generally, it may be that the influence of democracy on regulation depends on a society's cultural values, as suggested by the *Interdependent Institutions Hypothesis*. We turn now to an investigation of this question.

6. The interdependent institutions hypothesis

6.1. Individualism and legal origins

In this section, we investigate the *Interdependent Institutions Hypothesis*. We begin by considering the potential for interactions between culture and legal origin. To test the culture-and-law version of the *Interdependent Institutions Hypothesis*, we employ a variety of specifications that include interactions between individualism and legal origin. In each specification, we control for the two geographic characteristics to proxy for exogenous determinants of institutional quality. A significant coefficient on the interaction term would be consistent with the *Interdependent Institutions Hypothesis*.

Results are presented in Table 8. In column (1), we include a term that interacts individualism and the dummy for English legal heritage. This interaction is negative and significant at the 1% level suggesting that common law increases the role of culture for regulating entry. For example, the marginal effect of a one standard deviation increase in individualism in a common law country significantly reduces entry regulation by approximately 1.61 units, which is equivalent to over a one standard deviation reduction. Thus, our results imply that cultural values influence the role of legal heritage in the formation of entry regulations. In particular, individualism has a much larger correlation with the regulation of entry in common law countries than in civil law countries. Put differently, the common law tradition has a much greater impact on entry regulation in an individualistic country than in a collectivist country.

This finding is consistent with the *Interdependent Institutions Hypothesis* and the adaptability channel, which holds that local conditions, potentially including local cultural values, influence the evolution of law in the common law tradition. In contrast, the coefficient on English legal origin is not significant, indicating an absence of support for the political channel. The coefficient on individualism is also significant in this specification, suggesting that individualism affects the regulation of entry through channels other than its interaction with the legal system.

In our next two regressions, we consider subsamples of common and civil law countries. As seen in columns 2 and 3, there is a strong negative, statistically significant association between individualism and entry regulation in common law

²¹ This finding complements the conclusion from Pinotti (2012) who argues that Djankov et al.'s finding suffers from omitted variable bias as the effect of entry regulation and 'bad' market outcomes disappears once trust is included in the specification.

Table 8
Interactions between individualism and legal origin on entry regulation.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	OLS	OLS	OLS	OLS	OLS	OLS	IV
	Full	Common	Civil	Full	Full	Full	Full	Full
idv_english	−0.0462*** (−4.891)				−0.0359*** (−3.072)	−0.0417*** (−4.035)	−0.0409*** (−2.740)	−0.0545*** (−5.430)
idv_french				0.0215* (1.958)	0.0173 (1.474)			
idv_bmh	−0.0132** (−2.143)	−0.0765*** (−6.494)	−0.0088 (−1.492)	−0.0324*** (−3.477)	−0.0225** (−2.492)	−0.0076 (−1.036)	−0.0151 (−1.595)	−0.0251* (−1.893)
gdppc						−0.269 (−1.441)		
regions							Yes	
french				−0.525 (−1.169)	−0.903 (−1.332)			
english	0.654 (1.604)				−0.0196 (−0.0283)	0.505 (1.158)	0.477 (0.772)	0.844* (1.756)
disteq	−0.0268** (−2.582)	0.0203 (0.727)	−0.0380*** (−3.797)	−0.0129 (−1.123)	−0.0287*** (−2.774)	−0.0237** (−2.223)	−0.0200 (−1.021)	−0.0140 (−0.731)
landlock	0.373 (1.600)	1.524** (2.371)	0.183 (0.761)	0.596** (2.193)	0.422* (1.829)	0.132 (0.468)	0.431 (1.384)	0.189 (0.598)
constant	1.546*** (5.278)	1.670*** (3.408)	1.800*** (6.576)	1.519*** (4.393)	2.220*** (3.330)	3.700** (2.453)	1.000 (1.188)	1.613*** (5.321)
Observ.	74	21	53	74	74	73	74	64
R ²	0.61	0.790	0.465	0.44	0.62	0.63	0.64	0.60
Shea's Partial R-squared, idv								0.23
Shea's Partial R-squared, idv_english								0.56

Note. Dependent Variable is entryreg. See Appendix 1 and the body of the paper for variable description and sources. OLS regressions with robust t-statistics in parentheses.

*** $p < 0.01$,

** $p < 0.05$,

* $p < 0.1$. Interaction terms include idv_bhm*english (idv_english) and idv_bhm*french (idv_french). In columns 2 and 3, the sample is restricted to common and civil law countries, respectively. Column 8 is the IV regression with standard instruments rain_var, pronoun_drop, gendist_swe, and interactions between english*rain_var, english*pronoun_drop, and english*gendist_swe.

countries, while among civil law countries, this relation is statistically insignificant at conventional levels. Thus, in keeping with the *Interdependent Institutions Hypothesis*, the effect of culture on entry regulation appears to depend on a country's legal tradition, specifically the ability of common law to adapt to cultural preferences.

Fig. 3A and B illustrate the partial association between individualism and entry regulation in these two subsamples. As is clear from the figures, the correlations are not driven by outliers.

Next we test specifications that explicitly consider the potential for interactions between individualism and the French civil law tradition. As reported in column (2), the interaction term between individualism and a French civil law tradition is positive and weakly significant. However, because it fails to account for the potential interactions between culture and the British common law tradition, this specification may suffer from omitted variable bias. In fact, in column (3) where we control simultaneously for interactions between culture and both legal traditions, only the interaction with British common law is significant. This finding supports our result from column (1) and fits well with the discussion of comparative legal theory above, which stresses the superiority of common law in adapting to local conditions, potentially including local cultural values.

Next we consider two specifications to control for the influence of omitted variables. In column (4), we include the level of per capita income, and in column (5) we include a set of regional dummies. Our results show a significant interaction between individualism and British legal heritage, consistent with the *Interdependent Institutions Hypothesis*. The independent effect of individualism on entry regulation is not robust to the inclusion of these controls.

Finally, we address concerns over the endogeneity and measurement of individualism by instrumenting for both individualism and the interaction between individualism and common law. Our set of instruments includes the three variables discussed in the previous section (rainfall variation, pronoun drop, and genetic distance from Sweden) and interactions between these variables and the common law dummy variable. Our IV estimation supports the findings that the effect of individualism is enhanced in common law countries. Moreover, the magnitude of the interaction term is high compared to its value estimated under OLS, suggesting that OLS may understate the interdependent effect. For example, the marginal effect suggests that a one standard deviation increase in individualism under common law leads to almost a 1.50 standard deviation reduction in entry regulation at the 1% significance level. Individualism continues to have an independent negative and significant coefficient suggesting that in a civil law country a one standard deviation increase in individualism could lower entry regulation by about 2/3rds standard deviation.

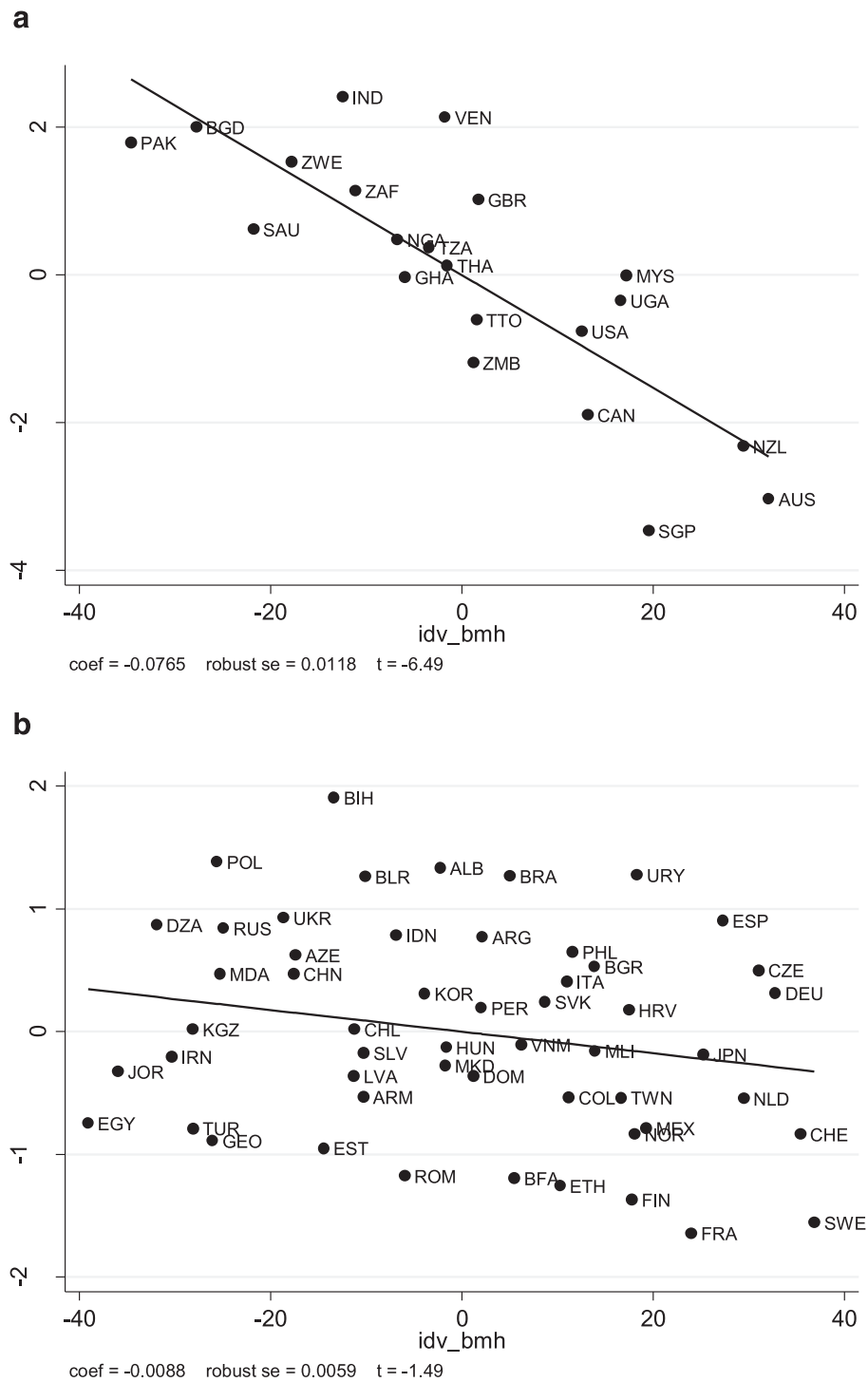


Fig. 3. Regulation of entry and individualism by legal origin. (A) Common Law Sample. (B) Civil Law Sample.

Note: Conditional correlation between *entryreg* and *idv_bmh*, split by legal origin, and based on regression specifications in Table 8, columns (2) and (3), respectively. *entryreg* is the overall index of entry regulations combining time, procedures and cost using principal component analysis. Measured in 2008 (World Bank Doing Business, 2014); *idv_bmh* is the measure of individualism from Beugelsdijk et al. (2015). Labels are World Bank country codes.

Table 9
Interactions between individualism and democracy on entry regulation.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
idv_bmh	0.0030 (0.340)	0.00014 (0.0111)	0.0166 (1.122)	0.0278 (1.506)	0.0088 (1.065)	0.0086 (0.891)	0.0278** (2.422)	0.0372*** (2.711)
voice	0.332 (1.366)				0.486** (2.150)			
polity		0.0761** (2.375)				0.0892*** (3.019)		
democ			1.146*** (2.698)				1.359*** (3.348)	
gastil				0.123** (2.132)				0.143** (2.639)
idv_voice	-0.0141*** (-2.918)				-0.0163*** (-4.093)			
idv_polity		-0.0019* (-1.793)				-0.0023** (-2.633)		
idv_democ			-0.0351** (-2.603)				-0.0409*** (-3.784)	
idv_gastil				-0.0040*** (-2.666)				-0.0044*** (-3.540)
gdppc					-0.314 (-1.559)	-0.282 (-1.473)	-0.326* (-1.677)	-0.297 (-1.495)
idv_english	-0.0462*** (-5.168)	-0.0475*** (-5.163)	-0.0467*** (-5.016)	-0.0469*** (-5.186)	-0.0413*** (-4.288)	-0.0427*** (-4.299)	-0.0412*** (-4.102)	-0.0419*** (-4.261)
english	0.805* (1.944)	0.792* (1.981)	0.702* (1.735)	0.784* (1.917)	0.659 (1.511)	0.647 (1.529)	0.545 (1.287)	0.632 (1.449)
landlock	0.201 (0.860)	0.382 (1.426)	0.326 (1.278)	0.268 (1.043)	-0.0630 (-0.236)	0.116 (0.426)	0.0380 (0.138)	0.0042 (0.0155)
disteq	-0.0274** (-2.532)	-0.0265** (-2.491)	-0.0256** (-2.375)	-0.0258** (-2.328)	-0.0231** (-2.023)	-0.0227** (-2.057)	-0.0210* (-1.873)	-0.0220* (-1.920)
Constant	1.182*** (3.954)	1.113*** (4.017)	0.690** (2.017)	0.394 (0.818)	3.728** (2.250)	3.298** (2.109)	3.130** (2.032)	2.623 (1.603)
Observ.	74	73	73	74	73	72	72	73
R ²	0.64	0.64	0.63	0.63	0.67	0.67	0.67	0.66

Note. Dependent Variable is entryreg. See Appendix 1 and the body of the paper for variable description and sources. OLS regressions with robust t-statistics in parentheses,

*** $p < 0.01$,

** $p < 0.05$,

* $p < 0.1$. Interaction terms include idv_bhm*voice (idv_voice), idv_bhm*polity2 (idv_polity2), idv_bhm*democ (idv_democ), idv_bhm*gastil (idv_gastil), and idv_bhm*english (idv_english).

The final rows of Table 8 report the results of an over-identification restrictions test and Shea's partial R-squared for the two endogenous variables. These results indicate that we cannot reject the exclusion restriction on the maintained hypothesis that at least a subset of the instruments is valid. In addition, our estimates do not appear to suffer from bias due to weak instruments.

Overall our results suggest that legal traditions alter the way in which individualism determines entry regulations, with common law countries enhancing individualism's ability to limit such regulations. Indeed, both our OLS and IV results suggest that common law traditions have no impact of entry regulation in a sufficiently collectivist country, e.g. Zimbabwe or Iran. Our findings differ from previous work that finds a significant relation between legal origins *per se* and the regulation of entry. Our findings suggest that the key distinction between legal systems is that common law systems are sensitive to cultural preferences over the intensity of regulation while civil law systems are not. Thus, the degree to which legal origin matters depends on the structure of preferences. In particular, legal origin may play little role in determining the regulation of entry in a collectivist society. More broadly, our findings regarding culture and legal institutions support the *Interdependent Institutions Hypothesis*.

6.2. Individualism and democracy

We test the culture-and-politics version of the *Interdependent Institutions Hypothesis* by testing for interactions between individualism and democracy. We consider specifications in which individualism is interacted with each of the four measures of democracy used above. We continue to control for English legal origin, distance from the equator and landlocked in each specification. In addition, given our findings from Table 8 we also always include the interaction term between individualism and common law. The results are reported with and without controlling for income per capita. As we are unable to find an acceptable instrumentation strategy for simultaneously addressing the endogeneity of individualism, democracy and their interaction, we report OLS estimates. The results should not be interpreted as representing causal effects.

Table 9 shows the results. As seen in the first four columns, we find that the interaction terms between democracy and individualism are negative and significant indicating that democratic political institutions and individualism are com-

Table 10
Individualism, legal origin and democracy on entry regulation, evidence from split samples.

Panel A:	(1) High Idv	(2) Low Idv	(3) High Idv	(4) Low Idv	(5) High Idv	(6) Low Idv	(7) High Idv	(8) Low Idv	(9) High Idv	(10) Low Idv
english	−3.022*** (−5.924)	−0.260 (−0.679)	−1.920*** (−3.729)	−0.130 (−0.375)	−2.253*** (−4.003)	−0.129 (−0.370)	−2.228*** (−4.141)	−0.119 (−0.355)	−2.074*** (−3.826)	−0.125 (−0.356)
voice			−0.753*** (−2.875)	−0.169 (−0.756)						
polity2					−0.0840 (−0.885)	0.0213 (0.761)				
democ							−0.583 (−0.608)	0.664* (1.940)		
gastil									−0.160* (−1.892)	0.0023 (0.0429)
disteq	−0.0838*** (−3.840)	−0.0107 (−0.656)								
landlock	0.182 (0.495)	0.408 (0.514)								
constant	3.285*** (3.074)	0.917** (2.117)	−0.0960 (−0.342)	0.639*** (2.801)	0.0875 (0.106)	0.639*** (2.796)	−0.194 (−0.212)	0.406 (1.484)	0.947 (1.078)	0.678 (1.683)
Observ.	37	36	37	36	36	36	36	36	37	36
R ²	0.56	0.03	0.47	0.02	0.38	0.02	0.36	0.11	0.41	0.004
Panel B:										
english	14.80***		7.99***		9.24***		9.86***		8.21***	
voice			4.38**							
polity2					3.02*					
democ							5.93**			
gastil									4.72**	

Note. In Panel A: Dependent Variable is entryreg. See Appendix 1 and the body of the paper for variable description and sources. OLS regressions with robust t-statistics in parentheses,

*** $p < 0.01$,

** $p < 0.05$,

* $p < 0.1$. Regressions are split by the mean of individualism. Odd columns are high individualism countries with $idv_bhm > 42$ and even columns are low individualism countries with $idv_bhm < 43$. Panel B reports the χ^2 and level of significance after testing for the equality of coefficients across the split samples. We test after running seemingly unrelated estimation with robust clustering.

plements in restraining the regulation of entry. As seen in columns (5) through (8), we obtain similar results controlling for per capita income. In all specifications, we permit individualism to interact simultaneously with both legal and political institutions. The results hold for both sets of interaction terms, suggesting that individualism is more effective in countries with both democratic checks and common law traditions.

Here we highlight two implications of our results. First, democracy increases the importance of individualism in limiting the regulation of entry. Conditional on high levels democracy, the marginal effect of individualism on entry regulation is negative and significant. For example, these estimates imply that in a highly democratic country, with a level of democracy one standard deviation above the mean, a one standard deviation increase in individualism leads to a decrease in entry regulation of a 1/4th to 1/3rd standard deviation. Alternatively, in a relatively undemocratic country, with a level of democracy one standard deviation below the mean, the marginal effects are positive but insignificant. Using point estimates from columns (2) through (4), we find the threshold level of democracy at which individualism may be expected to reduce entry regulation varies from 0.43 to 1.01 standard deviations below the mean, consistent with governance in Albania and Ethiopia. A natural interpretation of this result is that the policy preferences of a country's citizens have little or no effect on entry regulation in a sufficiently autocratic society.

Second, we note that in seven of eight regressions, the coefficient on democracy is positive and significant. Combined with the negative interaction terms, this implies that the relation between democracy and entry regulation may be either positive or negative, depending on a society's cultural values. Indeed, point estimates from columns (2)–(8), provide similar results regarding the level of individualism above which democracy is negatively associated with entry regulation, ranging from 29.82 (Singapore) to 40.05 (Armenia or Bosnia and Herzegovina). A similar range holds when controlling for income. Thus, in sufficiently collectivist countries, the presence of more democratic institutions is associated with greater regulation of entry. Because most countries are above this threshold, one would expect to find a negative association between democracy and entry regulation in regressions that do not control for individualism, as in Djankov et al. (2002) and the first four columns of Table 7 above.

Overall, these results are consistent with the *Interdependent Institutions Hypothesis* and with a complementary relation between democracy and individualism. Both act to reduce the regulation of entry and the impact of democratic political institutions on the cost of regulation is greater in more individualistic societies. These outcomes are also broadly consistent with theories of democracy that view it as a mechanism for aggregating social preferences.

Lastly, Table 10 considers the robustness of our finding that individualism and democracy and individualism and legal institutions are complementary in reducing the cost of entry. In particular, we split our sample into high and low individ-

ualism countries. To avoid complications that arise due to the endogeneity of individualism, we divide the sample based on the predicted level of individualism from column 1 of Table 5.²² Odd columns are more individualist countries and even columns are more collectivist countries. Due to low sample size, we do not control for geography in all regressions. Our results from Table 9 are largely confirmed. All ten specifications suggest that common law is associated with a greater reduction in entry regulation in more individualistic countries. In addition, two of four measures show that democracy reduces entry regulations in high individualistic countries, and one measure reports that democracy increases regulations in low individualism countries, supporting the results from our interaction effects.

Panel B presents Chi-squared statistics for the hypothesis that legal and political institutions have an equal effect on entry regulation in high and low individualism countries. We can reject the equality of the effect of British legal origin across subsamples at the 1% level in all five specifications. Moreover, we can reject the equality of the effects of democracy in three of four specifications at the 5% level. We interpret these results as additional support for the *Interdependent Institutions Hypothesis* and for the idea that both common law heritage and democratic political institutions are responsive to a society's cultural values in the determination of entry regulation.

7. Conclusion

While a large literature investigates the consequences of regulating the entry of new firms, our understanding of the determinants of entry regulation has advanced very little since Djankov et al. (2002) highlighted the important roles of legal and political institutions. We advance the state of this literature by showing that culture is an important determinant to the regulation of entry. In particular, we find that a society's position on the individualism–collectivism spectrum plays a significant role in determining the degree to which it regulates the entry of new firms. This result is robust to the use of alternative measures of individualism, a variety of controls for omitted dimensions of culture, exogenous determinants of institutional quality, and to the use of IV techniques to address measurement error and endogeneity bias.

We interpret these results as strong support for the *Culture Matters Hypothesis*, which holds that culture is an important determinant of the regulation of entry. In contrast, we reject the *Strict Hierarchy of Institutions Hypothesis*, which holds that culture influences social policy exclusively through its impact on formal political institutions. Instead, we find a strong negative correlation between individualism and entry regulation controlling for democracy, which is consistent with the idea that culture influences entry regulation directly through its effect on preferences.

Finally, we find strong support for the *Interdependent Institutions Hypothesis*, which holds that formal and informal institutions interact in the determination of social policy. In particular, we find that individualism complements both democracy and the common law tradition in reducing entry regulation. In keeping with prominent legal and political theories, we interpret this evidence as indicating that democracy and common law are more responsive to social preferences regarding optimal policy than are dictatorship and the civil law tradition. These findings constitute a significant refinement to the dominant public choice and legal origins perspectives on the regulation of entry.

Like other work on the economics of culture, pinpointing specific policy implications of our study may be difficult. Most scholars view culture as changing very slowly, and given the deep links between culture and personal identity, the idea of treating cultural values as a policy variable subject to public manipulation is typically regarded as illiberal and historically is associated with totalitarian or imperial regimes. Instead, we view our work as suggesting that culture may place constraints on policymakers. This implication is in line with recent work in development economics that stresses the long run determinants of economic development, the perceived failures of the Washington Consensus, and the relatively limited room for policy reform.²³ Policymakers may be limited in their attempts to find expedient solutions to aggregate-level phenomena as culture tends to be slow-moving and potentially difficult to change.

Second, evidence of the interdependence between culture and formal institutions suggests that policymakers should proceed with caution in forming expectations regarding the potential gains to institutional transfers: a given policy or set of formal institutions may function very differently in diverse cultural environments. As a result, changes to top-down formal rules may be met with limited success if local norms and conditions are not taken into consideration, a perspective that has previously been stressed by Easterly (2008).

Finally, to the degree that cultural values influence preferences over the kind of society an individual wants to live in, and thus how they view the trade-offs influenced by policy choices, optimal policy will differ across societies with different cultural values. The search for “best practice” policies may be a somewhat misguided exercise, since what constitutes best practice for a given society may depend on its cultural values. Thus, not only do our results suggest that culture “ties the hands” of policymakers in terms of what kinds of policies will be successful in a particular cultural context, it also suggests this may be a good thing.

²² The threshold level of predicted individualism used to split the sample varies slightly across the regressions depending on the measure of democracy used.

²³ See, for example Acemoglu et al. (2001), Comin et al. (2010) and Rodrik (2006).

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Appendix 1. Data description

Dep. variable	Description	Source
Indays	The total number of days required to register a firm. The measure captures the median duration that incorporation lawyers indicate is necessary to complete a procedure with minimum follow-up with government agencies and no extra payments. Measured in 2008.	World Bank Doing Business, 2014
Incost	Cost is recorded as a percentage of the economy's income per capita. It includes all official fees and fees for legal or professional services if such services are required by law. Measured in 2008.	World Bank Doing Business, 2014
Inproc	Total number of procedures required to register a firm. A procedure is defined as any interaction of the company founders with external parties. Measured in 2008.	World Bank Doing Business, 2014
entryreg	Overall index of entry regulations combining time, procedures and cost using principal component analysis. Measured in 2008.	World Bank Doing Business, 2014
foreign_entryreg	Foreign entry regulation index is the first principle component of the natural log of foreign entry procedures and days, averaged for 2010 and 2012.	World Bank Investing across Borders, 2010; 2012
Culture variables:		
idv_bhm	Update to Hofstede's individualism based on World Values Surveys between 1981–2008 using individual responses for respondents born after 1958. The four questions from WVS: 1) private vs. government ownership of business, 2) one of the main goals in life is to make parents proud, 3) justifiability of abortion, and 4) justifiability of homosexuality.	Beugelsdijk et al., 2015
indresp	Mean score from 1–10 to the question: People should take more responsibility to provide for themselves (10) or government should take more responsibility to ensure that everyone is provided for (1). Average of first five waves. Reordered so that higher values correspond to greater individual responsibility.	WVS, 1981–2008
schw_index	Principal component analysis of affective autonomy, intellectual autonomy, and embeddedness. Autonomy measures the degree to which individuals find value in pursuing their own goals, experiences ideas and beliefs. Embeddedness captures emphasis on the individual as part of a group and commitment to maintaining group solidarity and traditional order. Higher score implies greater individualism.	Schwartz, 2006
hof_idv	The degree to which individuals are integrated into groups; assumes weak ties among group members. Denotes the extent to which society sees people primarily as individuals looking after themselves (high individualism) or primarily as members of tightly knit communities (low individualism).	Hofstede, 2001
hof_pdi	Measures the degree to which less powerful members of society accept and expect power is distributed unequally capturing how society handles inequalities among people. In low power distance cultures, people strive to equalize the distribution of power and demand justification for inequalities of power.	Hofstede, 2001
hof_uai	The degree to which members of society are comfortable in unstructured situations. Highly uncertainty avoidant cultures are characterized by a strong need for predictability and control over the environment.	Hofstede, 2001
hof_mas	Reflects the emphasis in society on caring for others, solidarity, and quality of life (Femininity), as opposed to achievement and success (Masculinity).	Hofstede, 2001
trust	Percentage of respondents answering 'yes' most people can be trusted. Average of first five waves.	WVS, 1981–2008
comp_bad	Mean score from 1–10 to the question: Competition is good (1) or competition is harmful (10). Average of first five waves.	WVS, 1981–2008
state_own	Mean score from 1–10 to the question: Private ownership of business should be increased (1) or government ownership of business should be increased (10). Average of the first five waves.	WVS, 1981–2008
nationalism	Percentage of 'yes' respondents to the WVS question: when jobs are scarce should priority be given to nationals instead of immigrants?	WVS, 1981–2008
right_wing	Mean score from 1–10 to the question: In political matters, people talk of "the left" and "the right". How would you place your views on this scale, left (1) to right (10). Average of first five waves.	WVS, 1981–2008
religion	Percent of population that is catholic, protestant, orthodox, muslim. Measured in 2000.	McCleary and Barro, 2006
Control variables:		
disteq	Measured as the absolute value of the latitude of the country, scaled to values between 0 and 1 (0 is the equator).	CIA World Fact Book
landlock	Dummy variable for whether a country is landlocked.	CIA World Fact Book

(continued on next page)

(continued)

Dep. variable	Description	Source
english	Dummy variable coded 0 or 1: 1 indicates a country has English legal traditions.	La Porta et al., 2008
french	Dummy variable coded 0 or 1: 1 indicates a country has French legal traditions.	La Porta et al., 2008
scan	Dummy variable coded 0 or 1: 1 indicates a country has Scandinavian legal traditions.	La Porta et al., 2008
german	Dummy variable coded 0 or 1: 1 indicates a country has German legal traditions.	La Porta et al., 2008
ethnicfrac	Measures the probability that two randomly selected individuals from a country's population will belong to the same ethnic group. Ranges from 0 to 1.	Alesina et al., 2003
langfrac	Measures the probability that two randomly selected individuals from a country's population will belong to the same language. Ranges from 0 to 1.	Alesina et al., 2003
religfrac	Measures the probability that two randomly selected individuals from a country's population will belong to the same religion. Ranges from 0 to 1.	Alesina et al., 2003
partitioned	Share of a country's population belonging to an ethnic group that is partitioned by the country's borders.	Alesina et al., 2011
comm	Share of the period from 1915 to 2000 that a country had a communist government. This variable was computed by the authors using dummy variables from McCleary and Barro (2006) capturing whether a country was communist in six periods, measured in 15 year intervals starting in 1925.	McCleary and Barro, 2006
transition	Dummy variable equals 1 if a country is a transition country.	CIA World Fact Book
independence	Year of independence from colonization.	Hensel, 2014
length	Number of years a country was under colonial rule; 0 if never colonized.	Hensel, 2014
gdppc	PPP Converted GDP Per Capita (Chain Series), at 2005 constant prices, log form. Measured in 2008.	Penn World Tables, 7.0
manufact	Manufacturing, value added (% of GDP). Averaged from 1998–2008.	WDI, 2015
agricult	Agriculture, value added (% of GDP). Averaged from 1998–2008.	WDI, 2015
resources	Total natural resources rents (% of GDP). Averaged from 1998–2008.	WDI, 2015
trade	Trade (% of GDP). Averaged from 1998–2008.	WDI, 2015
regions	Dummy variables reflecting a country's location in the following regions: East Asia Pacific, Eastern and Central Europe, Middle East and North Africa, South Asia, Western Europe, Sub-Saharan Africa, Latin America and the Caribbean, and North America.	WDI, 2015
gastil	Freedom House's ranking for political and civil liberties. Scaled between 1–7, averaged from 1998–2008, and reordered so that higher values indicate greater democracy.	Freedom House, 2014
polity2	Polity2 is captures the level of democracy versus autocracy and ranges from –10 to 10 with 10 representing strong democracy. Averaged from 1998–2008.	Polity IV, Jagers and Marshall, 2000
voice	Captures perceptions to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Averaged from 1998–2008.	Worldwide Governance Indicators, 2012
democ	Dichotomous democracy ranking from Przeworski et al. (2000). Updated in Cheibub et al. (2010). Average from 1998–2008.	Cheibub et al., 2010
lwheatsugar	Natural log of land suitable for wheat cultivation divided by land suitable for sugar cultivation.	Easterly, 2007
indo_european	Dummy variable equal to 1 if the official language belongs to the Indo-European language family; equals 0 otherwise.	Dryer and Haspelmath, 2013
ling_prox	Measures linguistic proximity to Sweden using data on linguistic relatedness from Spolaore and Wacziarg (2009).	Davis and Abdurazokzoda, forthcoming
Instruments:		
gendist_swe	Genetic distance from the Sweden.	Spolaore and Wacziarg, 2009
pronoun_drop	Equals the share of a country's population that speaks a language in which pronoun drop is permitted. Update to Kashima and Kashima (1998).	Davis and Abdurazokzoda, forthcoming
rain_var	The natural log of the coefficient of variation of monthly precipitation, 1900–2009.	Davis, 2016

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