

The Cultural Legacy of Communism in Entrepreneurship: Entrepreneurial Perceptions and Activity in Central and Eastern Europe (CEE)

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I. Introduction

A recent New York Times article laments the increasing division between Western and Eastern Europe in the European Union, this time marked by the victory of the anti-establishment party, Ano, in the Czech Republic. Whereas the Visegrad Group¹ “once stood as a beacon for post-Communist integration, ...today it symbolizes the failure of the West to completely integrate Central and Eastern Europe” (Bittner 2017). Bittner blames both Western Europe for treating its Eastern counterpart like “second-class citizens,” as well as CEE’s “lack of cultural preparedness for the new competitiveness” in the EU due to communism’s legacy of immense distrust. He points to CEE’s failure, perhaps not by fault but by nature, to change the culture and mindset of its people: “while liberalizing their economies, they have forgotten to liberalize their minds.” This last criticism may extend beyond politics into the state of entrepreneurial motivations in the post-socialist transition economies of CEE as well. Whereas transition is formally considered complete in terms of formal economic infrastructure from command to market economies, have the informal institutions that motivate entrepreneurship changed sufficiently? Are entrepreneurial perceptions and motivations the same in the post-socialist CEE countries as they are in the West? Or is there evidence to believe that they are behind in terms of “cultural preparedness,” to put it in Bittner’s language?

¹ Czech Republic, Poland, Slovakia, and Hungary, all of which joined the EU in 2004.

While entrepreneurial actions and outcomes have been studied extensively, motivations and perceptions surrounding entrepreneurship have been subject to significantly less scholarship, particularly in a cross-country or regional comparison context. Most of the literature on entrepreneurship in post-socialist countries focuses on the most visible levels of transition regarding entrepreneurship policy and infrastructure, as well as their effect on entrepreneurial activity and outcomes. Research on entrepreneurial motivations tends to be in the space of leadership psychology, which assumes that entrepreneurs are largely innately motivated, using cross sectional data that ignores cultural contexts that may change over time. However, it makes sense to study motivations and perceptions at the country level and across years because there are significant differences and changes in the country-level annual Global Entrepreneurship Monitor reports² and, presumably, what differs between countries is culture and shared history³.

I seek to fill these gaps by examining the differences in entrepreneurial perceptions between CEE countries and non-CEE countries, and then the effects of these perceptions on entrepreneurial motivation and overall levels of activity. I find that CEE countries⁴ do differ significantly from non-CEE countries in fear of failure and opportunity perception with more pessimistic outlooks, but not in self-efficacy or public opinion of entrepreneurs. Moreover, CEE countries respond differently to the 2008 recession with a greater and longer lasting increase in fear of failure and decrease in opportunity perception, as well as an increase in necessity rather than opportunity entrepreneurship. I also find that, while the nature of entrepreneurship in CEE countries differs in terms of lower overall levels of entrepreneurship and more necessity-

² <http://www.gemconsortium.org/report>

³ And, of course, development level, access to resources, economic conditions, etc., but let us say that those are encompassed by “shared history.”

⁴ I am interested in CEE countries, including the Baltic states, because they are widely considered the “beacon of post-communist integration,” in Bittner’s terms. Central and Eastern Europe integrated market economy infrastructure relatively rapidly and smoothly compared to other formerly communist countries, where many still lack structural institutions (or were in the mid-2000s; see Table 1 of EBRD Transition Indicators) and suffered a prolonged turnaround time from economic decline to growth in the post-transition period throughout the 1990s.

motivated entrepreneurship, entrepreneurial perceptions, save opportunity perception, do not have a differential effect on entrepreneurial activity in CEE countries. There is evidence of a higher threshold for opportunity perception, even in cases of necessity entrepreneurship, for one to be an entrepreneur in a CEE country.

Although the Berlin Wall fell over 25 years ago, and although most barriers⁵ at the time of formal transition in the 1990s no longer exist today, it is possible that a cultural legacy of communism persists in the entrepreneurial ecosystem. The rest of the paper explores this possibility by proceeding as follows: Section II discusses the existing literature, Sections III and IV examine the data and empirical strategy, Section V analyses the results, and finally, Section VI presents the conclusions.

II. Literature Review

A. Entrepreneurship in Post-Socialist Economic Transition

There were two principal schools of thought regarding economic transition: 1) reform should take place gradually and cautiously in order to mitigate side effects as much as possible and 2) it is best to cut our losses through an immediate and expedient liberalization of prices and privatization of state firms. Whereas China and Vietnam, for example, belong to the former camp, much of Eastern Europe followed the latter. The reasoning is that although private ownership is not a sufficient condition to ensure the efficient operation of a market economy, it is a prerequisite (Dana 2005). Many reformers also drew from the ideas of Schumpeter (1934) and Kirzner (1973), believing that the creation of numerous new firms would be the principal mechanism whereby heavily industrialized planning structures would be transformed into a

⁵ E.g. legal insecurity, political instability, lack of financial resources.

market system for allocating resources (Estrin and Mickiewicz 2010). However, the reforms of the early 1990s concentrated on stabilization and privatization of existing firms rather than supporting new ones, and Aidis, Estrin, and Mickiewicz (2008) show that entrepreneurship levels were lower in transition economies as a group than in other developed and developing economies.

Szerb and Trumbull (2016) continue this analysis of entrepreneurship in post-socialist countries into the 2000s and most recent decade. Their results imply that transition is over and that these post-socialist countries (except Russia) are on a normal capitalist path, with any differences being attributable to different levels of economic development rather than having a fundamentally different economic system. My own analysis of EBRD transition indicators confirms these results of the completion of transition in terms of formal institutions; transition indicators for CEE countries have remained for the most part unchanged since 2003⁶. However, Szerb and Trumbull also point out that some “informal” characteristics among the former socialist countries likely stem from their shared socialist heritage, for example low levels of opportunity perception and cultural support. Thus, rather than homogeneous entrepreneurship support policies, they posit that effective policies in CEE should fit the particular entrepreneurial inhibitors of the targeted territory.

Informal institutions like norms and values are as important as formal institutions in shaping economic behavior and attitudes. Sztompka (1996)⁷ argues that communism left a legacy of norms, which he calls a “bloc culture,” that are not conducive to entrepreneurship: priority of dependence over self-reliance, conformity over individualism, and rigidity and extremism over tolerance and innovation. Generalized trust is another value that is lacking in

⁶ See EBRD transition indicators table in appendix.

⁷ As cited in Minniti 2013.

transition economies, confirmed by the World Value Surveys reported by Howard (2000)⁸, which affects expectations and risk-taking. Informal institutions may even have a longer lasting effect than formal ones because of their generational transfer.

The literature on post-Socialist transition economies also draws a distinction between the countries of Central and Eastern Europe (CEE) and those of the former Soviet Union (FSU). CEE economies largely inherited a stronger legal, institutional, and cultural framework for successful entrepreneurship, partly because many CEE countries had thriving capitalist economies in the nineteenth century and interwar period, and also because of CEE countries' accession to the European Union (Estrin et al. 2009).

B. Necessity versus Opportunity Entrepreneurship

An early attempt to define opportunity as opposed to necessity entrepreneurship was undertaken by the Global Entrepreneurship Monitor (GEM) when it began its global surveys in 1999. GEM asks, "Are you involved in this start-up to take advantage of a business opportunity or because you have no better choices for work?" However, because this definition is subjective and generally unavailable in other datasets, Fairlie and Fossen (2017) set out to create an operational definition of necessity versus opportunity entrepreneurship using data readily available most economic datasets. They propose using initial unemployment status as a proxy for entrepreneurial motivation: individuals who are initially unemployed before starting businesses are defined as "necessity" entrepreneurs, and individuals who are wage/salary workers, enrolled in school or college, or are not actively seeking a job are defined as "opportunity" entrepreneurs. With one of the most important puzzles in entrepreneurship literature being the apparent counter-

⁸ As cited in Minniti 2013.

cyclical of business creation, as Bögenhold and Staber (1990)⁹ demonstrated a positive correlation between self-employment and unemployment across OECD countries, Fairlie and Fossen find that “opportunity” entrepreneurship is pro-cyclical and “necessity” entrepreneurship is countercyclical. Since necessity entrepreneurship is thought of as business creation in the face of limited alternative opportunities, this implies that the entrepreneur’s wage-earning income is low. Given the downward wage rigidity in the labor market, the main cause of low earnings in the wage and salary sector will more likely be through unemployment rather than a reduction in wages, so it makes sense to associate unemployment with necessity entrepreneurship. Fairlie and Fossen also show that “opportunity” entrepreneurship is associated with the creation of more growth-oriented businesses.

Ultimately, one of the goals of constructing these motivation taxonomies is to better predict entrepreneurial outcomes in order to drive policy that encourages entrepreneurs to be the types that are more likely to succeed or drive economic growth. GEM reports indicate that opportunity entrepreneurship is correlated with higher growth, more innovative and niche-focused ventures, and a higher export-orientation (Reynolds et al. 2002). In German GEM reports, opportunity entrepreneurs are said to have higher rates of survival and are characterized as “good entrepreneurship,” or the type that will contribute to national economic development in the long run (Bergmann and Sternberg 2007). Necessity entrepreneurship is then viewed as a negative determinant of national growth and development.

C. Entrepreneurial Perceptions

Van der Zwan et al. (2016) examine the determinants of being a necessity versus an opportunity entrepreneur, tying the motivation taxonomy to entrepreneurial perceptions. While

⁹ As cited in Fairlie and Fossen 2017.

their study finds socio-economic differences—opportunity entrepreneurs tend to be male, younger, wealthier, more proactive, and more optimistic—they do not find significant differences in entrepreneurial perceptions and other personality traits as determinants of entrepreneurial motivation. My contribution to this line of literature is to examine these characteristics in a country context to identify the cultural legacy effects; while there may not be universal personality and perception differences, there may be cultural context-specific ones.

The effect of natural disasters on entrepreneurial actions and perceptions is studied by Monllor and Altay (2016). They find that natural disasters have a positive impact on entrepreneurial opportunity perceptions and actions, but not on perceptions of self-efficacy, fear of failure, or entrepreneurial intentions. They take these results as evidence of Schumpeter's creative destruction theory, viewing natural disasters as disruptive processes that create an environment ripe for innovation and entrepreneurship. Results show a higher perception of entrepreneurial opportunity and more entrepreneurial action, specifically opportunity-motivated entrepreneurial activity, reaffirming that this increase is not out of necessity or constraint. Although I am not looking at natural disasters specifically, Monllor and Altay's analysis of entrepreneurial perceptions in response to an unpredictable, exogenous event may be relevant because a recession can also be seen as such an event. However, my analysis of CEE countries produces the opposite results, likely because Monllor and Altay only use pre-recession data from 2000 to 2007, and natural disasters tend to be locally confined whereas the Great Recession was felt globally.

The novel contribution of this paper is to explore the intersection of these three sections: the post-socialist context, the opportunity-necessity motive distinction, and entrepreneurial perceptions as socio-cultural determinants.

III. Data Description

I primarily rely on data from the Global Entrepreneurship Monitor (GEM) dataset to examine the relationships among entrepreneurial motivation, perception, country, and changes over time. The GEM Adult Population Survey (APS) measures attitudes toward entrepreneurship and prevalence of startup activity and business ownership in over 80 countries from the general population of both entrepreneurs and non-entrepreneurs, with at least 2000 respondents per represented country per year surveyed. Surveys are conducted annually, but not consistently for every country (not every country has data for each year, and they are not conducted at regular intervals). The goal of GEM's APS is to explore the role of the individual in the lifecycle of the entrepreneurial process, collecting data on socio-economic characteristics of populations as well as subjective perceptions of the entrepreneurial environment.

This paper uses GEM data from the years 2003 through 2013 (the most recent and complete data that include the CEE countries of interest). By aggregating the years 2003 through 2013, my dataset includes over 1.5 million observations¹⁰ from the general population, of which approximately 100,000 are entrepreneurs. Summary statistics are shown in Table 1, a country-level breakdown of summary statistics in Table 2, and variable descriptions in the appendix.

Caveats of the Data

While entrepreneurship research has increased in specificity over recent years, its definition and conception and still very broad, although there has been consensus about its

¹⁰ I should note that this data is **not** a panel dataset at the individual level; respondents in each country are not the same across years. At the country level, however, this data can function as an (unbalanced) panel by taking country-year averages.

multidimensionality (Wennekers & Thurik 1999; Acs & Audretsch 2010)¹¹. Szerb and Trumbull point out that GEM's total early-stage entrepreneurial activity index (TEA), which measures the prevalence of entrepreneurship, "equates a Silicon Valley entrepreneur with a new Ugandan shepherd or with a recently opened grocery shop in Thailand." For this reason, I attempt to distinguish between different types of entrepreneurs by their entrepreneurial motive in order to add an additional degree of specificity to the analysis on entrepreneurship in a transition country context.

Fear of failure and entrepreneurial motivation are both fairly subjective, nebulous concepts. GEM attempts to define these using the questions, "would fear of failure inhibit you from starting a business?" which assumes a hypothetical scenario, and "are you involved in this start-up to take advantage of a business opportunity or because you have no better choices for work?" to assign a binary definition to each of fear of failure and entrepreneurial motivation. Critics point out the obvious subjectivity of these definitions, and that an individual's answer may depend on the success of the business launch instead of pre-launch motivations or different language interpretations of the concepts of failure and necessity.

While the GEM dataset is robust, it is so expansive that it would be very difficult to administer centrally the same number of surveys for every country in every consecutive year, so each country has a team that handles the data collection on its own. This means that in a given year, there may be 40,000 observations for one country, 2,000 for several others, and zero for the rest; and this is inconsistent across years.

¹¹ As cited in Szerb and Trumbull 2016.

IV. Methodology

Because of the unbalanced time series nature of this data where only some countries are represented in some years, I am concerned about countries being consistently represented over time, especially when examining changes in time related to the recession. Since some countries are only represented in one or two years, it does not make sense to look at time trends for those countries, and they may potentially skew the data for particular years in which particular countries are overrepresented. Thus, I drop the countries that only appear in three or fewer years. The CEE countries represented in my refined dataset are: Hungary, Romania, Poland, Latvia, Croatia, and Slovenia (6 out of the 12 CEE countries). To make sure that this selection process does not skew my variables of interest in favor of more developed countries where accessibility of conducting representative surveys may be greater, I compare the summary statistics of the original dataset to my reduced dataset in Table 2. It is worth noting that the overall averages of the reduced dataset do differ slightly from those of the original data: most dropped countries were African, South American, Asian, and Middle Eastern countries¹²; and the remaining countries have lower levels of entrepreneurship overall and less optimistic entrepreneurial perceptions¹³. This means that my reduced sample looks more like CEE countries, which may mean that differences could be understated.

The number of observations per country per year also presents an inconsistency problem. Most countries have around 2000 observations in a given year¹⁴, but some countries, like the UK, have absurdly high numbers of observations in some years (e.g. 43,000 observations in 2006). I

¹² In that order of most dropped.

¹³ Looking back at the dropped African and South American countries, they do have substantially higher levels of entrepreneurship and optimistic perceptions. I do wonder how much this is due to skewed survey methodology (since most were one-off surveys) and different interpretations of entrepreneurship?

¹⁴ And I cleaned the data so that none have fewer than 1600 observations in any given year.

am concerned about the overrepresentation of these (Western and highly developed countries like the UK, Spain, and Switzerland), so I introduce weights in my analysis so that each country has approximately the same weight in any given year, and I also use cluster analysis by country.

Most of the variables I work with are binary indicators. Questions were asked as yes or no questions to individual respondents, so I coded “don’t know” or “refuse to answer” observations as missing. My variables of interest that indicate entrepreneurial perceptions were presented as self-assessment statements that respondents could choose to agree or disagree with: fear of failure (“fear of failure would prevent you from starting a new business,” coded as fearfail), opportunity perception (“in the next 6 months, there will be good opportunities to start a business,” coded as oport), self-efficacy (“you have the knowledge and skills to start a new business,” coded as suskill), and public opinion of entrepreneurs¹⁵.

Variables of interest that indicate entrepreneurial activity are: total entrepreneurial activity (is the individual currently a nascent entrepreneur? Coded as tea) and opportunity motivated entrepreneurship (“are you involved in this startup to take advantage of a business opportunity or because you have no better choices for work?” Coded as teaopp)¹⁶. Other independent variables include country, a binary indicator for CEE¹⁷, year, and a binary indicator for post-recession years. Depending on the particular specification model, I control for gender, age, education, work status, and income. I also include country-year fixed effects when I am not

¹⁵ This last public opinion entrepreneurial perception indicator is actually derived from three separate questions (“in your country, most people consider starting a new business a desirable career choice,” “in your country, those successful at starting a new business have a high level of status and respect,” “in your country, you will often see stories in the public media about successful new businesses”) that seem to measure the same sentiment and trended very similarly across countries and time, so I simply use the first question (coded as nbgoodc) to represent public opinion of entrepreneurs in general.

¹⁶ See end of variable descriptions table for different versions of teaopp.

¹⁷ I did also look at the country coefficients to confirm that individual CEE countries behaved similarly, not just one or two countries driving these effects.

interested in time-varying effects to control for general macroeconomic conditions that vary by country, by year.

The first question I ask is: do entrepreneurial perceptions and activity differ for CEE countries? I regress the CEE indicator on fear of failure, opportunity perception, self-efficacy, public opinion, TEA, and opportunity-motivated entrepreneurship with the following controls:

$$y_{ict} = \alpha + \beta_1 * CEE_c + \beta_2 * Year_t + \beta_3 * Educ_i + \beta_4 * Female_i + \beta_5 * Age_i + \beta_6 * Age_i^2 + \beta_7 * Work_i + \beta_8 * Income_i + \varepsilon_i \quad (\text{Model A})$$

Then, if CEE countries do have a systematically more pessimistic outlook in entrepreneurial perceptions from the model above, I ask if CEE countries are also less resilient in perceptions in the face of hardship. Does the 2008 recession have a differential effect on entrepreneurial perceptions in CEE countries? I interact the recession indicator with the CEE indicator as shown in the following equation:

$$y_{ict} = \alpha + \beta_1 * CEE_c + \beta_2 * PostRec_t + \beta_3 * CEE_c * PostRec_t + \beta_4 * Educ_i + \beta_5 * Female_i + \beta_6 * Age_i + \beta_7 * Work_i + \beta_8 * Income_i + \varepsilon_i \quad (\text{Model B})^{18}$$

where y takes on the values of fear of failure, opportunity perception, self-efficacy, public opinion, TEA, and opportunity-motivated entrepreneurship.

The purpose of examining entrepreneurial perceptions is not just for its own sake, but because we assume that entrepreneurial perceptions (fear of failure, opportunity perception, and self-efficacy) actually affect entrepreneurial actions (total entrepreneurial activity and opportunity-motivated entrepreneurship). For this reason, I run a fundamental assumptions check to confirm that this is true with the following equation:

¹⁸ For all following regressions, I leave out Age² because it does not change the results by much.

$$y_{ict} = \alpha + \beta_1 * \text{FearFail}_c + \beta_2 * \text{Opport}_c + \beta_3 * \text{Suskill}_c + \beta_4 * \text{Educ}_i + \beta_5 * \text{Female}_i + \beta_6 * \text{Age}_i + \beta_7 * \text{Country}_c * \text{Year}_t + \varepsilon_i \quad (\text{Model C})$$

where y is tea and teaopp. I control for the usual individual level controls except work status and income because those are highly correlated with tea and teaopp, and I use country-year fixed effects to absorb macroeconomic conditions.

Finally, after establishing that entrepreneurial perceptions do in fact affect entrepreneurial activity, I ask whether these perceptions have a differential effect on activity for CEE countries. I use the following equation that simply adds CEE interaction terms with each of the entrepreneurial perception indicators to Model C:

$$y_{ict} = \alpha + \beta_1 * \text{FearFail}_c + \beta_2 * \text{Opport}_c + \beta_3 * \text{Suskill}_c + \beta_4 * \text{Educ}_i + \beta_5 * \text{Female}_i + \beta_6 * \text{Age}_i + \beta_7 * \text{Country}_c * \text{Year}_t + \beta_8 * \text{FearFail}_c * \text{CEE}_c + \beta_9 * \text{Opport}_c * \text{CEE}_c + \beta_{10} * \text{Suskill}_c * \text{CEE}_c + \varepsilon_i \quad (\text{Model D})$$

V. Results and Discussion

A. Entrepreneurial Perceptions and Activity

The regression results for Model A are summarized in Table 3. With high degrees of significance, fear of failure and opportunity perception do differ for CEE countries. Being in a CEE country increases the likelihood of fear of failure preventing someone from starting a business by 5%, significant with a p-value of 0.02. Fear of failure can also be interpreted as risk aversion, so those in CEE countries are on average more risk averse. The controls in this first regression in Column 1 also make sense: being female increases risk aversion, being retired or in school reduces risk aversion because presumably the pressure to maintain a stable income is off,

and being in the top third of the income distribution also reduces risk aversion because one likely has some degree of a financial cushion. There does not seem to be an obvious correlation, however, between education level and risk aversion.

Being in a CEE country decreases the likelihood of a perceived business opportunity by 14%, and this is especially significant with a p-value of 0.001. The time fixed effects seem consistent with 2008 recession trends: opportunity perception increases from 2003-2007, reaches a maximum, drops in 2008-2009, and slowly recovers thereafter. Being female and being of older age both reduce opportunity perception because these demographic groups do have more constrained access to opportunities. Being unemployed has the most negative effect on opportunity perception, and being a student or retired also has a negative effect compared to employed respondents who presumably see the most opportunities as active members of the workforce.

However, the CEE indicator is insignificant for self-efficacy (skill self-perception) and public opinion of entrepreneurs (nbgoodc, nbstatus, nbmedia)¹⁹. There does not appear to be a measurable difference in how entrepreneurs are perceived and how qualified people feel to be entrepreneurs in CEE countries^{20, 21}. This might be explained by the idea of an external locus of control as part of Communism's legacy: less optimistic perceptions in CEE countries may not be due to individual ownership of problems in the entrepreneurial ecosystem (i.e. "I have lower relative skills"), but a generalized lack of agency due to the external environment (e.g. fear of failure, lack of opportunity). Figure 1 illustrates the relative average self-efficacy compared to

¹⁹ Although I only list nbgoodc in Table 4 because all of the nb* variables produce approximately the same results.

²⁰ I also tested if there are differences along gender or other dimensions (i.e. CEE interacted with female, etc.), and there are no significant differences with these specifications either.

²¹ Again, as a sanity check, the controls make sense: females have lower self-perceived skill, unemployed and retired/students have lower self-perceived skill, and higher income has greater likelihood to perceive skill. Although, one would think that a higher level of education is correlated with more skill perception, and it turns out that work status and income absorb most of this effect, which is only significant for grad school (more likely to perceive skill) when I tested this without work status and income.

relative opportunity perception by country, and we can observe that CEE countries are grouped approximately in the middle for average self-efficacy, whereas they are grouped on the lower end of opportunity perception.

The controls for self-efficacy and public opinion are significant in ways that make sense intuitively, so there is further reason to believe the insignificance of the CEE indicator is not just due to noise. Male, older, working, and wealthier respondents are more likely to believe they have the skills to start a business²². Older and more highly educated respondents are less likely to think their country views entrepreneurship as a desirable career choice, which makes sense because opportunity cost is much higher for these demographics, and they are more likely to operate in social circles with more traditional or conventional notions of success. Those who are not working (unemployed and retired/student categories) are slightly more likely to view entrepreneurship as desirable, again because they have a lower opportunity cost of becoming an entrepreneur²³.

Columns 5 and 6 show that one is significantly less likely to be an entrepreneur or choose opportunity entrepreneurship in CEE countries, which is consistent with the literature on the lower overall levels of entrepreneurship and higher prevalence of necessity entrepreneurship in these countries (Scase 1997; Aidis, Estrin, and Mickiewicz 2008; Szerb and Trumbull 2016).

²² Interestingly enough, education is not significantly correlated with self-efficacy in these results. One would think that they would be positively correlated, but it could be that the reference group changes as education increases, so people perceive their own skills relative to the people around them.

²³ Also interestingly, whereas females have much lower self-efficacy on average, there is no significant difference in their view of public opinion of entrepreneurs. Entrepreneurship is just as desirable and externally validated for females, but they feel like they do not have the requisite personal ability; females appear to view themselves differently than they do public perceptions.

B. Entrepreneurial Perceptions, Activity, and Post-Recession Time Trends

Given the overall more pessimistic outlook of CEE countries in entrepreneurial perceptions from the subsection above, are there time trends that drive shifts in these pessimistic attitudes? The results summarized in Table 4.1 show that the 2008 recession does seem to have a differential effect on entrepreneurial perceptions in CEE countries, which may be evidence that entrepreneurship is less enduring and resilient in times of economic hardship in CEE countries.

Column 1 shows that fear of failure increases significantly for all countries post-recession, but to a much greater degree for CEE countries. For other countries, fear of failure increases by 5% post-recession; for CEE countries, almost 15%—the effect for CEE countries is almost three times as large as it is for other countries. In Column 2, opportunity perception also has a differential effect for CEE countries, as it is significantly lower in CEE post-recession. It appears that most of the significant difference in opportunity perception and fear of failure is due to the post-recession difference for CEE countries, with pre-recession CEE having no significant differences. Self-efficacy (Column 3) drops after the recession for non-CEE countries, but it does not seem to have a measurable effect in CEE countries, reaffirming the external locus of control hypothesis from the previous section. Whereas economic hardships due to the recession seem to be internalized in other countries as a personal failure of lacking skill, CEE countries seem to blame lacking external opportunities.

Figure 2 highlights these time trends for opportunity perception and fear of failure for CEE countries. Opportunity perception seems to increase for countries in CEE in 2005 after eight CEE countries joined the European Union in 2004, and then it drops drastically in 2008-2009 after the recession. There is a much greater shock to opportunity perception in CEE countries on average, and they have not yet recovered to 2007 levels of optimism about business

opportunities, whereas non-CEE countries returned to 2007 levels by 2010. Fear of failure has also increased drastically since 2008 for CEE countries, whereas the increase is much slighter for non-CEE countries. This suggests that there may be less “resilience” in optimism regarding entrepreneurship in these countries.

Post-recession years also have a positive effect on entrepreneurship for all countries, and to a significantly greater degree for CEE countries as seen in Table 4.2. This is an added nuance to existing literature that merely warns us of lower levels of entrepreneurship in CEE countries—actually, the negative effect of the CEE indicator on entrepreneurship seems to be mostly pre-recession. Rates of entrepreneurship for CEE and non-CEE countries are converging over time, with less of a differential post-recession, as evidenced in Figure 3. But, it seems like most of that increase in entrepreneurship in CEE countries is necessity-motivated rather than opportunity-motivated entrepreneurship, as the interaction term between the CEE and post-recession indicators has a negative effect on opportunity entrepreneurship. Figure 4 visually depicts this as well; whereas the share of both necessity and opportunity entrepreneurs in CEE countries increases over time, necessity entrepreneurship increases much more drastically. This fits in with Fairlie and Fossen’s findings that necessity entrepreneurship increases after an economic downturn, whereas opportunity is associated with expansions.

C. Effect of Entrepreneurial Perceptions on Entrepreneurial Activity

The results of Model C’s regression in Table 5 confirm that perceptions do matter for entrepreneurial actions. Column 1 in Table 5 indicates that self-efficacy (suskill) has the strongest effect on total entrepreneurial activity and is the greatest determinant in this model by a substantial margin (coefficient of 0.12), followed by opportunity perception (coefficient of 0.06), and then fear of failure (coefficient of -0.03), all of which are hugely significant. Once again as a

sanity check, the controls behave as we expect them to: college and beyond makes a person more likely to be an entrepreneur, whereas female and older age make someone less likely to be an entrepreneur.

In Column 4, we examine the opportunity versus necessity entrepreneurship distinction. Looking only at the subset of entrepreneurs, this specification follows the previous literature in attempting to distinguish differing characteristics between necessity and opportunity entrepreneurs; it should not be interpreted as the effect of certain entrepreneurial perceptions on an individual's choice to pursue opportunity or necessity-motivated entrepreneurship (presumably because they do not have a choice if it is necessity-motivated). This model looks within entrepreneurs to determine who is a willing entrepreneur and who is merely out of luck in the labor market. It appears that all of the explanatory variables affect opportunity entrepreneurship in the same way that they do total entrepreneurial activity: those with lower fear of failure, higher opportunity perception, and higher self-efficacy are more likely to be willing entrepreneurs. Opportunity perception is the greatest determinant here (with a coefficient of 0.07), which seems obvious given the shared "opportunity" in the variable names. What is interesting to note, however, is that self-efficacy (coefficient of 0.05) is a much smaller determinant of opportunity entrepreneurship—this suggests that necessity entrepreneurs need a substantial degree of self-efficacy as well, as it is not particularly unique to opportunity entrepreneurship but remains the largest determinant of entrepreneurship overall.

Finally, after having established that entrepreneurial perceptions do actually affect entrepreneurial activity and motivations, and that there may be policy implications especially since the shift in perceptions is largely post-recession, I examine the differential effect on activity for CEE countries in Model D. The regression results produced in Column 1 of Table 6

show a significantly negative interaction term between the CEE indicator and opportunity perception, which suggests that the presence of a perceived opportunity in CEE countries is less likely to be associated with overall entrepreneurship than in non-CEE countries. In context, this has a rational interpretation: given higher conditions of constraint and lower levels of trust in post-socialist countries, there is a higher threshold for a perceived opportunity to become a business reality.

VI. Conclusion

The findings of this paper can be summarized as follows: 1) CEE countries have more pessimistic entrepreneurial perceptions, and these differences are driven by post-recession effects, 2) CEE countries have lower levels of entrepreneurship and share of opportunity-motivated entrepreneurship (relative to necessity entrepreneurship), 3) entrepreneurial perceptions do in fact affect entrepreneurial actions and motivations, and 4) opportunity perception has a diminished positive effect on entrepreneurial activity in CEE countries, suggesting a higher threshold for a perceived opportunity to become a business reality in these countries.

These results do evidence, although they cannot prove (as there are infinitely many other factors at play), the cultural legacy of Communism. Despite the formal and prompt transitions to market economies, accession to the European Union, and presence of legal, financial, and educational institutions supportive of entrepreneurship in these post-socialist countries, the generational transfer of informal institutions like norms and values seem to be inescapable. A generalized lack of trust and external locus of control are plausible lingering sentiments because

of the lower levels of risk-tolerance and opportunity perception compared to ordinary levels of self-efficacy and public opinion of entrepreneurs in CEE countries.

The policy implications are substantial, particularly because of the post-recession trends. If there is indeed less resilience during economic shocks in CEE countries as shown by the dominating increase in negative entrepreneurial perceptions and necessity-motivated entrepreneurship, increased entrepreneurial support during economic downturns rather than a one-size-fits-all strategy may be more effective. Entrepreneurial education does not seem to be significantly lacking in CEE countries, evidenced by the lack of difference in self-skill perception between CEE and non-CEE countries, but there could be a benefit to teaching the importance of failure (in order to normalize it) and opportunity recognition, not just skills to succeed.

The opportunities for future research in this area are plenty. The increasingly conservative political climate in countries like Hungary and the Czech Republic sets up what some would argue to be a hostile environment for entrepreneurship. One could also incorporate World Bank data on economic development levels (or speed of development, GDP growth, etc.) into a country-level analysis to see how countries at similar levels of development compare in their entrepreneurial perceptions and activity. Looking at “non-CEE” countries with more specificity would also add depth to this analysis: how does CEE compare to the rest of the EU? All Western countries? Other formerly communist-countries like the former Soviet Union and Asian countries?

To take this analysis a step further, one could also examine not just entrepreneurial perceptions, which affect entrepreneurial activity, but also entrepreneurial outcomes. Are there

differences in firm performance or dropout rates? The share of “gazelles”²⁴ or high-impact entrepreneurs?

I also hope to supplement this data-driven analysis with fieldwork and case studies²⁵. More qualitative data could shed light on the “why” behind the conclusions from this paper, as well as what these differences look like in practice for entrepreneurs in Eastern Europe. Because qualitative data requires much more context for understanding, it would make sense to zoom in on a particular country and its entrepreneurs and cultural history.

VII. References

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²⁴ Only the top 1-4% of young companies experiencing the highest growth, called ‘gazelles,’ are responsible for the critical share of economic growth, and these gazelles are almost exclusively opportunity motivated (Szerb 2007).

²⁵ Which I intend to do during the 2017-18 academic year, with a Fulbright grant to conduct economic research in Hungary!

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VIII. Tables and Figures

Table 1. Summary Statistics for GEM 2003-2013 Data.

	N	mean	sd	min	max
age	1,412,830	42.24	15.36	9	100
female	1,446,831	0.529	0.499	0	1
opport	1,003,211	0.384	0.486	0	1
suskill	1,151,547	0.483	0.5	0	1
fearfail	1,149,396	0.373	0.484	0	1
nbgoode	1,041,099	0.639	0.48	0	1
nbstatus	1,056,423	0.693	0.461	0	1
nbmedia	1,069,999	0.595	0.491	0	1
work status	1,413,228	15.78	8.001	10	30
educ	1,405,885	963.5	587.4	0	1,720
income	971,340	24,656	31,522	33	68,100
tea	1,447,053	0.088	0.283	0	1
opp	177,843	0.653	0.476	0	1

Table 2. Summary Statistics (mean) for Reduced Dataset (years present > 3)

	age	knowent	opport	suskill	fearfail	nbgoode	nbstatus	nbmedia	work	educ	income	female	tea	teaopp
US	51.27	0.298	0.360	0.562	0.281	0.606	0.671	0.659	17.22	1251	24017	0.518	0.088	0.059
Russia	39.87	0.353	0.226	0.267	0.484	0.605	0.619	0.477	15.17	1289	28215	0.546	0.042	0.023
Egypt	37.52	0.428	0.454	0.621	0.335	0.781	0.867	0.642	15.65	846	21551	0.485	0.094	0.049
South Africa	37.98	0.334	0.346	0.408	0.286	0.683	0.679	0.680	19.63	610	31598	0.503	0.061	0.032
Greece	40.65	0.356	0.200	0.541	0.609	0.658	0.697	0.385	15.49	1070	25660	0.512	0.068	0.037
Netherlands	50.60	0.300	0.375	0.409	0.296	0.822	0.670	0.603	16.96	1118	28893	0.562	0.051	0.034
Belgium	43.11	0.285	0.300	0.405	0.341	0.588	0.574	0.438	15.61	1145	26989	0.534	0.035	0.023
France	47.52	0.361	0.267	0.320	0.440	0.617	0.678	0.422	16.99	1006	22487	0.528	0.036	0.024
Spain	42.17	0.324	0.236	0.490	0.492	0.655	0.597	0.433	14.90	838	26164	0.502	0.055	0.033
Hungary	40.22	0.310	0.174	0.404	0.376	0.488	0.668	0.303	15.29	809	27081	0.508	0.064	0.034
Italy	44.82	0.295	0.250	0.384	0.457	0.693	0.678	0.443	17.30	930	19838	0.524	0.034	0.020
Romania	46.50	0.316	0.261	0.323	0.448	0.670	0.676	0.536	18.61	948	22672	0.527	0.053	0.026
Switzerland	45.50	0.336	0.384	0.474	0.332	0.530	0.720	0.553	15.68	972	23765	0.526	0.057	0.037
Austria	41.14	0.411	0.468	0.522	0.434	0.436	0.740	0.568	14.10	883	21239	0.511	0.068	0.037
UK	47.29	0.246	0.330	0.483	0.339	0.515	0.734	0.546	15.65	1102	15085	0.587	0.045	0.027
Denmark	41.73	0.441	0.584	0.392	0.387	0.508	0.736	0.351	13.97	1322	20129	0.527	0.050	0.036
Sweden	43.45	0.438	0.452	0.414	0.351	0.542	0.637	0.572	14.65	819	24958	0.496	0.036	0.026
Norway	46.28	0.376	0.509	0.405	0.282	0.568	0.703	0.669	15.94	1233	28097	0.512	0.062	0.048
Poland	40.26	0.446	0.277	0.562	0.593	0.665	0.575	0.510	15.41	1188	25460	0.516	0.091	0.042
Germany	43.61	0.358	0.294	0.460	0.437	0.505	0.759	0.490	14.60	919	24017	0.526	0.054	0.033
Peru	35.38	0.566	0.642	0.744	0.322	0.819	0.753	0.783	15.02	846	23028	0.515	0.272	0.168
Mexico	36.66	0.484	0.459	0.585	0.321	0.591	0.590	0.501	15.86	752	24878	0.511	0.105	0.060
Argentina	43.16	0.365	0.506	0.619	0.309	0.718	0.686	0.727	16.80	955	24401	0.538	0.135	0.068
Brazil	37.31	0.383	0.486	0.551	0.387	0.832	0.818	0.814	15.12	641	21258	0.521	0.148	0.085
Chile	43.01	0.426	0.584	0.610	0.317	0.781	0.704	0.599	15.92	1011	28218	0.545	0.163	0.100
Colombia	37.93	0.342	0.697	0.613	0.323	0.895	0.753	0.690	14.63	934	28648	0.527	0.202	0.125
Malaysia	39.60	0.483	0.395	0.329	0.395	0.514	0.565	0.727	14.66	742	28224	0.415	0.066	0.044
Australia	47.96	0.345	0.482	0.539	0.355	0.539	0.682	0.647	16.20	1001	28208	0.590	0.086	0.059
Singapore	39.70	0.256	0.203	0.295	0.387	0.509	0.587	0.710	14.78	1056	26134	0.499	0.068	0.048
Thailand	40.05	0.351	0.365	0.433	0.560	0.804	0.784	0.830	14.01	813	25325	0.551	0.172	0.111
Japan	43.76	0.221	0.088	0.153	0.354	0.301	0.514	0.568	14.33	1269	21224	0.515	0.032	0.021
Korea	39.73	0.339	0.134	0.315	0.387	0.613	0.688	0.649	16.01	1155	25792	0.494	0.074	0.037
China	38.51	0.565	0.336	0.392	0.319	0.709	0.744	0.787	14.06	778	25576	0.519	0.151	0.069

Turkey	37.93	0.352	0.378	0.520	0.332	0.717	0.790	0.614	17.66	834	19940	0.535	0.070	0.035
India	36.06	0.519	0.469	0.595	0.355	0.679	0.806	0.787	15.12	952	16166	0.394	0.093	0.055
Iran	34.87	0.443	0.372	0.607	0.344	0.617	0.805	0.604	17.87	832	26747	0.455	0.103	0.049
Canada	45.38	0.349	0.434	0.537	0.252	0.734	0.690	0.759	15.95	1192	10139	0.562	0.067	0.050
Uganda	33.22	0.677	0.758	0.861	0.249	0.828	0.858	0.791	15.36	320	21696	0.545	0.323	0.150
Portugal	39.56	0.336	0.228	0.535	0.439	0.664	0.687	0.501	14.42	675	29674	0.503	0.067	0.044
Ireland	43.76	0.388	0.357	0.503	0.365	0.581	0.813	0.721	15.04	1142	21615	0.565	0.068	0.042
Iceland	42.16	0.641	0.549	0.534	0.365	0.610	0.676	0.787	13.34	902	28388	0.524	0.107	0.075
Finland	42.13	0.483	0.498	0.409	0.335	0.419	0.857	0.696	14.57	1025	23681	0.497	0.052	0.033
Latvia	40.94	0.433	0.320	0.426	0.396	0.611	0.679	0.620	14.59	1156	24848	0.537	0.079	0.047
Croatia	45.44	0.422	0.318	0.550	0.378	0.681	0.498	0.502	19.06	790	23208	0.551	0.055	0.028
Slovenia	41.19	0.485	0.337	0.511	0.324	0.540	0.729	0.577	16.75	969	21263	0.523	0.044	0.031
Bosnia and Herzegovina	43.25	0.384	0.323	0.593	0.343	0.782	0.651	0.475	18.49	997	26372	0.520	0.065	0.022
Venezuela	38.50	0.520	0.556	0.755	0.287	0.808	0.741	0.504	14.99	799	23039	0.547	0.219	0.117
Ecuador	38.09	0.412	0.497	0.751	0.366	0.824	0.754	0.637	14.79	710	29561	0.542	0.212	0.122
Uruguay	45.73	0.379	0.491	0.625	0.315	0.667	0.700	0.582	16.94	725	25716	0.566	0.101	0.058
Hong Kong	42.09	0.336	0.370	0.275	0.367	0.583	0.658	0.703	17.07	699	26697	0.542	0.043	0.026
Jamaica	38.07	0.520	0.548	0.796	0.290	0.813	0.821	0.759	13.48	641	23560	0.535	0.217	0.107
Israel	40.74	0.361	0.305	0.391	0.428	0.589	0.708	0.506	15.72	1239	22616	0.529	0.055	0.032
Reduced dataset mean	41.60	0.396	0.389	0.496	0.371	0.644	0.701	0.605	15.72	939	24303	0.522	0.093	0.054
Original expanded dataset mean	39.73	0.438	0.440	0.558	0.353	0.688	0.724	0.631	15.57	883	25067	0.520	0.124	0.071
CEE mean	42.43	0.402	0.281	0.463	0.419	0.6092	0.638	0.508	16.62	977	24089	0.527	0.064	0.035

Table 3. Do entrepreneurial perceptions and activity differ for CEE countries? Linear regressions.

VARIABLES	(1) fearfail	(2) opport	(3) suskill	(4) nbgoodc	(5) tea	(6) teaopp2
CEE	0.0512** (0.0243)	-0.137*** (0.0377)	-0.0317 (0.0416)	-0.0437 (0.0428)	-0.0277*** (0.00998)	-0.0215*** (0.00666)
2004.year	0.0758*** (0.00279)	0.114*** (0.00466)	0.0782*** (0.00396)	0.187*** (0.00332)	0.0293*** (0.00126)	0.0202*** (0.000735)
2005.year	-0.122*** (0.0220)	0.281*** (0.0257)	0.241*** (0.0257)	0.125*** (0.0275)	0.0523*** (0.00861)	0.0354*** (0.00607)
2006.year	-0.106*** (0.0181)	0.310*** (0.0300)	0.262*** (0.0265)	0.167*** (0.0243)	0.0666*** (0.0119)	0.0448*** (0.00860)
2007.year	-0.104*** (0.0187)	0.347*** (0.0322)	0.258*** (0.0274)	0.181*** (0.0273)	0.0673*** (0.0105)	0.0417*** (0.00601)
2008.year	-0.0852*** (0.0167)	0.287*** (0.0267)	0.267*** (0.0271)	0.190*** (0.0230)	0.0640*** (0.00834)	0.0405*** (0.00519)
2009.year	-0.0887*** (0.0140)	0.253*** (0.0258)	0.290*** (0.0282)	0.161*** (0.0243)	0.0704*** (0.00942)	0.0425*** (0.00658)
2010.year	-0.0623*** (0.0132)	0.281*** (0.0279)	0.249*** (0.0255)	0.173*** (0.0201)	0.0639*** (0.00968)	0.0357*** (0.00651)
2011.year	0.000616 (0.0207)	0.296*** (0.0370)	0.185*** (0.0283)	0.169*** (0.0343)	0.0725*** (0.0114)	0.0497*** (0.00828)
2012.year	-0.0275* (0.0156)	0.268*** (0.0272)	0.200*** (0.0239)	0.149*** (0.0228)	0.0814*** (0.0100)	0.0537*** (0.00732)
2013.year	-0.00980 (0.0197)	0.258*** (0.0328)	0.166*** (0.0244)	0.125*** (0.0269)	0.0755*** (0.0100)	0.0526*** (0.00865)
educ = some HS	0.00759 (0.0121)	-0.0570*** (0.0191)	-0.00517 (0.0193)	-0.0507*** (0.0154)	-0.0235*** (0.00871)	-0.0225*** (0.00750)
educ = HS grad	-0.00896 (0.0162)	-0.0627** (0.0300)	0.000433 (0.0322)	-0.0849*** (0.0232)	-0.0351** (0.0137)	-0.0255** (0.0106)
educ = college	-0.00835	-0.0666*	0.0117	-0.150***	-0.0364**	-0.0217*

	(0.0166)	(0.0344)	(0.0379)	(0.0272)	(0.0154)	(0.0114)
educ = grad school	-0.00599	-0.0319	0.0422	-0.185***	-0.0379**	-0.0187
	(0.0206)	(0.0367)	(0.0389)	(0.0266)	(0.0150)	(0.0115)
female	0.0653***	-0.0383***	-0.129***	-0.00162	-0.0232***	-0.0204***
	(0.00517)	(0.00655)	(0.0109)	(0.00563)	(0.00414)	(0.00280)
age	0.00878***	-0.00730***	0.00571***	-0.00718***	-0.00209***	-0.00245***
	(0.00103)	(0.00157)	(0.00146)	(0.00123)	(0.000652)	(0.000432)
age ²	-0.000106***	5.75e-05***	-7.23e-05***	6.48e-05***	7.57e-06	1.53e-05***
	(1.11e-05)	(1.77e-05)	(1.48e-05)	(1.57e-05)	(5.86e-06)	(3.71e-06)
not working	0.0156*	-0.0545***	-0.0565***	0.0216**	-0.0698***	—
	(0.00795)	(0.0103)	(0.0112)	(0.00969)	(0.0107)	—
retired/student	-0.0125*	-0.0509***	-0.134***	-0.00174	-0.0870***	-0.0524***
	(0.00731)	(0.0102)	(0.0117)	(0.00788)	(0.00894)	(0.00575)
inc = middle 33%tile	-0.0102	0.0241***	0.0388***	0.00231	0.000244	0.00441*
	(0.00793)	(0.00887)	(0.00626)	(0.00706)	(0.00236)	(0.00221)
inc = upper 33%tile	-0.0453***	0.0717***	0.0928***	-0.00339	0.0195***	0.0279***
	(0.00641)	(0.0112)	(0.00990)	(0.00978)	(0.00411)	(0.00397)
Constant	0.271***	0.379***	0.211***	0.762***	0.166***	0.127***
	(0.0331)	(0.0556)	(0.0581)	(0.0323)	(0.0304)	(0.0206)
Observations	753,410	659,205	753,563	682,108	919,311	721,786
R-squared	0.019	0.029	0.057	0.019	0.033	0.024

Robust standard errors in parentheses, clustered by country

*** p<0.01, ** p<0.05, * p<0.1

Table 4.1. Do entrepreneurial perceptions differ for CEE countries to a different degree post-recession? Linear regressions.

VARIABLES	(1) fearfail	(2) opport	(3) suskill	(4) nbgoodc
1.CEE	-0.00521 (0.0248)	-0.0831 (0.0532)	-0.0613 (0.0653)	-0.0448 (0.0470)
1.postrec	0.0531*** (0.0125)	-0.0225 (0.0241)	-0.0462** (0.0180)	-0.0116 (0.0151)
1.CEE#1.postrec	0.0934** (0.0361)	-0.0829* (0.0457)	0.0542 (0.0522)	-0.000337 (0.0411)
educ = some HS	0.00940 (0.0136)	-0.0566*** (0.0196)	-0.0119 (0.0211)	-0.0560*** (0.0150)
educ = HS grad	-0.00746 (0.0181)	-0.0592* (0.0302)	-0.00897 (0.0341)	-0.0863*** (0.0229)
educ = college	-0.00203 (0.0188)	-0.0649* (0.0350)	0.00145 (0.0403)	-0.154*** (0.0269)
educ = grad school	0.000957 (0.0219)	-0.0291 (0.0373)	0.0273 (0.0401)	-0.189*** (0.0258)
female	0.0672*** (0.00532)	-0.0392*** (0.00656)	-0.128*** (0.0109)	-0.00286 (0.00555)
age	-0.000466 (0.000343)	-0.00230*** (0.000411)	-0.000603 (0.000511)	-0.00155*** (0.000389)
not working	0.00925 (0.00821)	-0.0522*** (0.0104)	-0.0576*** (0.0115)	0.0258** (0.00989)
retired/student	-0.0467*** (0.00743)	-0.0333*** (0.0106)	-0.157*** (0.0119)	0.0207** (0.00930)
inc = middle 33%tile	-0.00658 (0.00869)	0.0200** (0.00899)	0.0418*** (0.00711)	0.00176 (0.00689)
inc = upper 33%tile	-0.0436*** (0.00640)	0.0682*** (0.0107)	0.104*** (0.0101)	-0.00209 (0.00918)
Constant	0.355*** (0.0277)	0.578*** (0.0472)	0.600*** (0.0518)	0.820*** (0.0328)
Observations	753,410	659,205	753,563	682,108
R-squared	0.014	0.025	0.051	0.016

Robust standard errors in parentheses, clustered by country

*** p<0.01, ** p<0.05, * p<0.1

Table 4.2 Do entrepreneurial activity and motivations differ for CEE countries to a different degree post-recession? Linear regressions.

VARIABLES	(5) tea	(6) teaopp2	(7) teanec	(8) teaopp if tea = 1
1.CEE	-0.0354*** (0.00945)	-0.0234*** (0.00568)	-0.00962** (0.00416)	-0.0197 (0.0312)
1.postrec	0.0133** (0.00505)	0.0107** (0.00451)	0.00330* (0.00171)	-0.000372 (0.0174)
1.CEE#1.postrec	0.0154** (0.00742)	0.00318 (0.00555)	0.00835** (0.00318)	-0.0864*** (0.0223)
educ = some HS	-0.0156* (0.00898)	-0.0158** (0.00754)	-0.0115** (0.00530)	0.0173 (0.0115)
educ = HS grad	-0.0234 (0.0142)	-0.0155 (0.0105)	-0.0222*** (0.00820)	0.118*** (0.0143)
educ = college	-0.0136 (0.0157)	-0.00430 (0.0112)	-0.0277*** (0.00894)	0.197*** (0.0152)
educ = grad school	-0.00333 (0.0152)	0.00667 (0.0111)	-0.0300*** (0.00877)	0.255*** (0.0174)
female	-0.0367*** (0.00274)	-0.0253*** (0.00248)	-0.00410*** (0.00106)	-0.0658*** (0.00806)
age	-0.00167*** (0.000224)	-0.00125*** (0.000155)	-0.000416*** (9.87e-05)	-0.00274*** (0.000438)
Work status FE	—	—	—	—
Income FE	—	—	—	—
Constant	0.190*** (0.0250)	0.131*** (0.0171)	0.0617*** (0.0129)	0.593*** (0.0279)
Observations	1,372,987	1,073,429	1,372,987	108,100
R-squared	0.015	0.013	0.005	0.040

Robust standard errors in parentheses, clustered by country

*** p<0.01, ** p<0.05, * p<0.1

Table 5. Do entrepreneurial perceptions affect entrepreneurial activity? Linear regressions.

VARIABLES	(1) tea	(2) teaopp2	(3) teanec	(4) teaopp if tea=1
fearfail	-0.0275*** (0.00180)	-0.0254*** (0.00180)	0.000316 (0.000564)	-0.0530*** (0.00588)
opport	0.0553*** (0.00332)	-0.00378 (0.00369)	-0.00441 (0.00274)	0.0717*** (0.00475)
suskill	0.117*** (0.00498)	0.00415 (0.00439)	-0.0102*** (0.00353)	0.0555*** (0.00723)
educ = some HS	0.00109 (0.00392)	0.0166*** (0.00490)	-0.0164*** (0.00412)	0.0342** (0.0158)
educ = HS grad	0.00740 (0.00453)	0.0229*** (0.00526)	-0.0220*** (0.00472)	0.116*** (0.0182)
educ = college	0.0192*** (0.00496)	-0.0120*** (0.00259)	-0.000400 (0.00129)	0.189*** (0.0199)
educ = grad school	0.0224*** (0.00527)	-0.00103*** (9.86e-05)	-0.000159*** (4.89e-05)	0.240*** (0.0216)
female	-0.0206*** (0.00263)	0.0463*** (0.00309)	0.00568*** (0.000900)	-0.0565*** (0.00715)
age	-0.00119*** (0.000120)	0.0868*** (0.00434)	0.0252*** (0.00234)	-0.00314*** (0.000399)
country-year FE	Yes	Yes	Yes	Yes
Constant	0.0937*** (0.00768)	0.0669*** (0.00632)	0.0317*** (0.00423)	0.530*** (0.0272)
Observations	912,105	705,963	912,105	92,648
R-squared	0.113	0.092	0.038	0.091

Robust standard errors in parentheses, clustered by country

*** p<0.01, ** p<0.05, * p<0.1

Table 6. Do entrepreneurial perceptions affect entrepreneurial activity differently for CEE countries? Linear regressions.

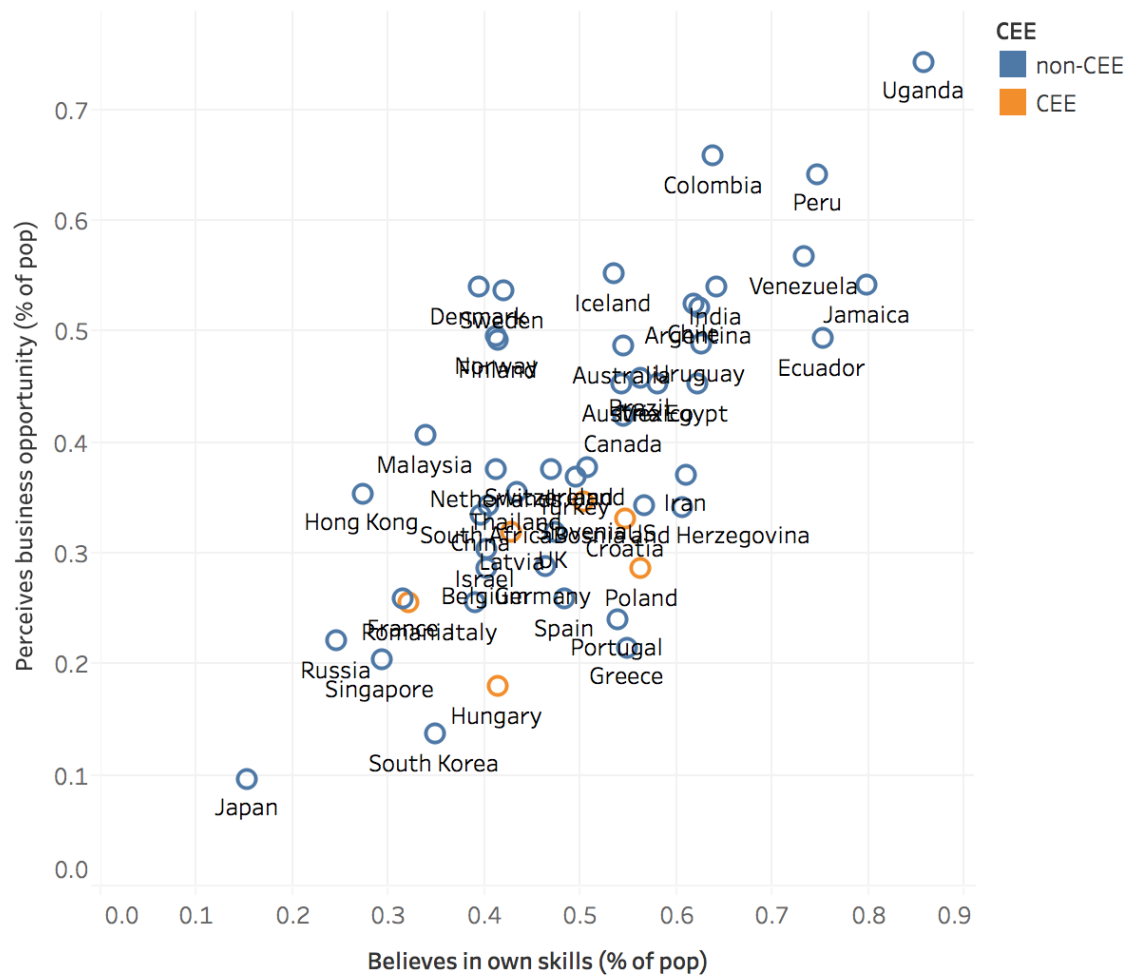
VARIABLES	(1) tea	(2) teaopp2	(3) teanec	(4) teaopp if tea=1
fearfail	-0.0276*** (0.00196)	-0.0251*** (0.00200)	0.000228 (0.000574)	-0.0483*** (0.00575)
opport	0.0565*** (0.00363)	0.0468*** (0.00343)	0.00624*** (0.000956)	0.0665*** (0.00459)
suskill	0.117*** (0.00555)	0.0889*** (0.00482)	0.0238*** (0.00248)	0.0596*** (0.00741)
educ = some HS	0.00106 (0.00392)	-0.00382 (0.00370)	-0.00440 (0.00273)	0.0343** (0.0158)
educ = HS grad	0.00737 (0.00454)	0.00419 (0.00440)	-0.0102*** (0.00351)	0.116*** (0.0182)
educ = college	0.0192*** (0.00497)	0.0168*** (0.00491)	-0.0165*** (0.00409)	0.190*** (0.0199)
educ = grad school	0.0224*** (0.00527)	0.0231*** (0.00528)	-0.0221*** (0.00469)	0.240*** (0.0215)
female	-0.0206*** (0.00263)	-0.0120*** (0.00259)	-0.000376 (0.00129)	-0.0566*** (0.00714)
age	-0.00119*** (0.000120)	-0.00103*** (9.88e-05)	-0.000158*** (4.88e-05)	-0.00313*** (0.000399)
fearfail#CEE	4.67e-05 (0.00413)	-0.00160 (0.00286)	0.000187 (0.00193)	-0.0497** (0.0205)
opport#CEE	-0.0125*** (0.00416)	-0.00529 (0.00418)	-0.00487*** (0.00108)	0.0572*** (0.0125)
suskill#CEE	-0.00120 (0.00948)	-0.0172** (0.00738)	0.0110** (0.00510)	-0.0448** (0.0217)
country-year FE	Yes	Yes	Yes	Yes
Constant	0.0937*** (0.00767)	0.0669*** (0.00632)	0.0317*** (0.00417)	0.530*** (0.0271)
Observations	912,105	705,963	912,105	92,648
R-squared	0.113	0.092	0.039	0.092

Robust standard errors in parentheses, clustered by country

*** p<0.01, ** p<0.05, * p<0.1

Figure 1. Graph of Self-Efficacy vs. Opportunity Perception

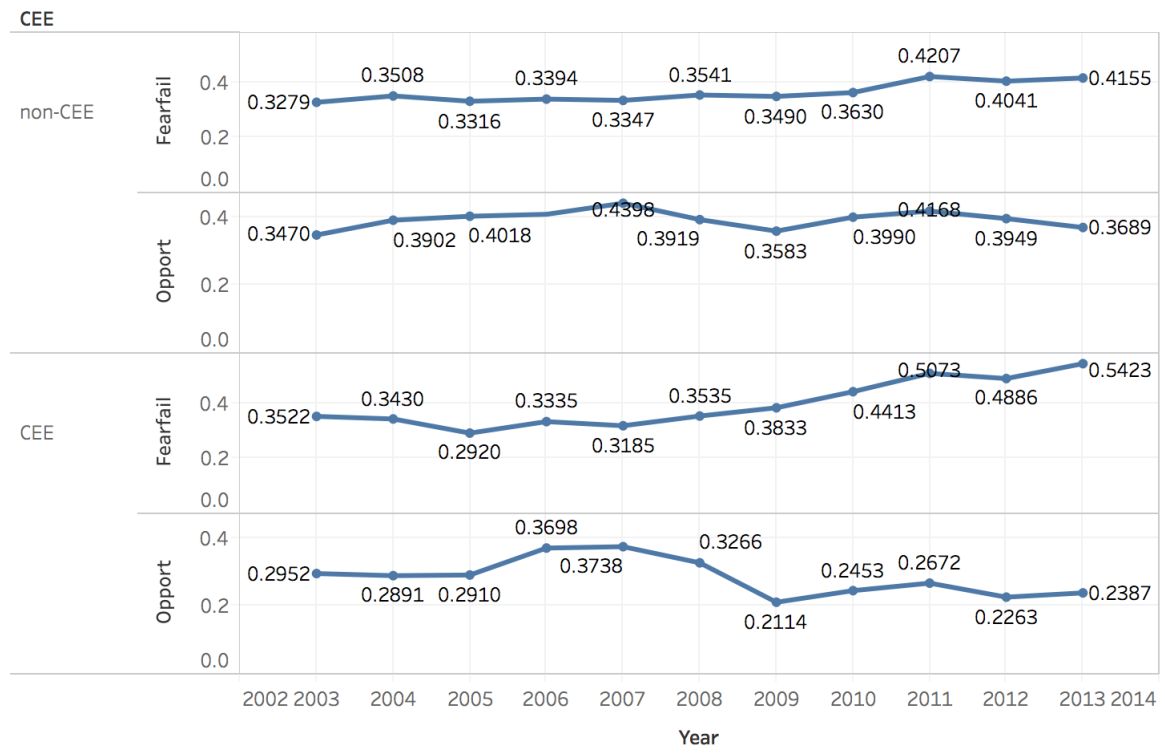
Self Efficacy vs. Opportunity Perception



Average of Suskill vs. average of Opport. Color shows details about CEE. The marks are labeled by Country. Details are shown for Country.

Figure 2. Graph of Opportunity Perception and Fear of Failure over Time

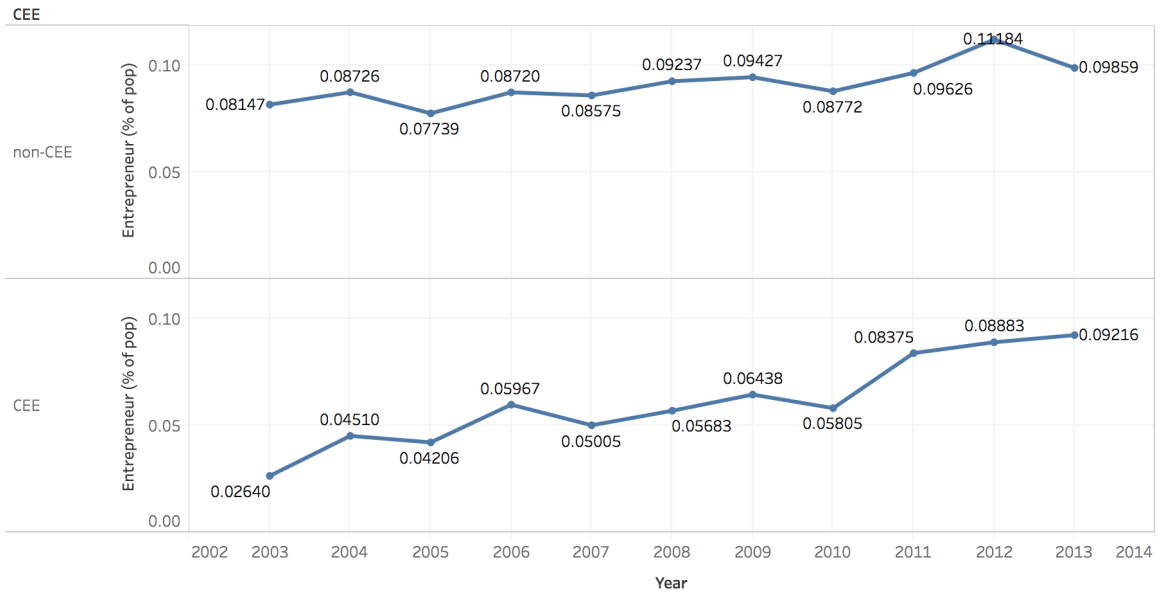
Average Opportunity Perception and Fear of Failure



The trends of average of Fearfail and average of Opport for Year broken down by CEE. The data is filtered on Country, which keeps 52 of 52 members.

Figure 3. Graph of CEE vs. Non-CEE TEA over Time

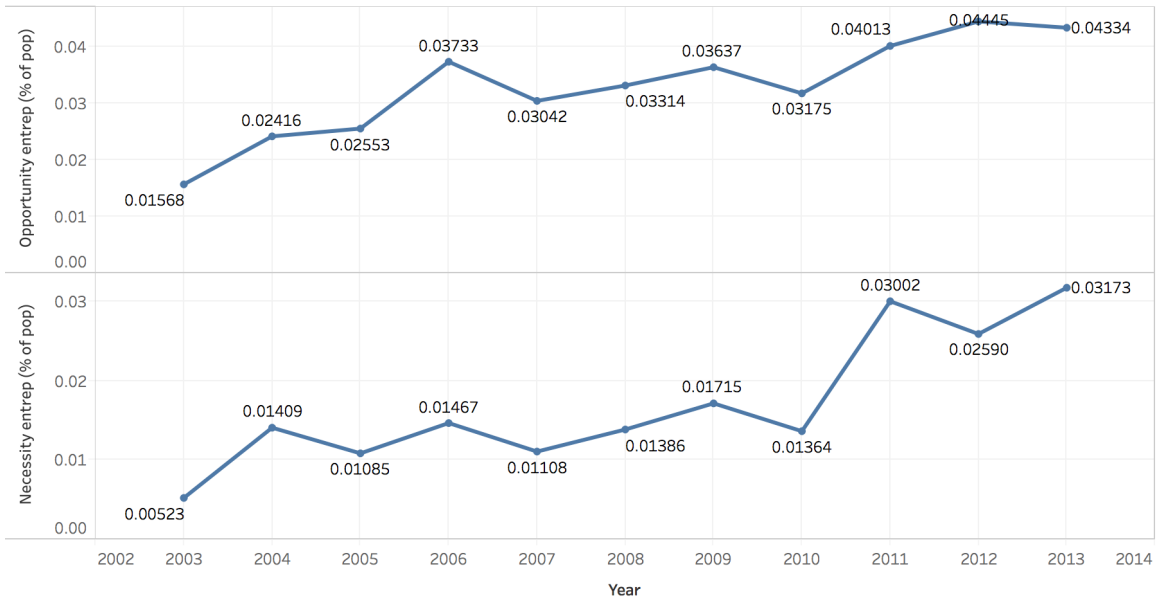
Entrepreneurship Time Trends



The trend of average of Tea for Year broken down by CEE.

Figure 4. Graph of Necessity vs. Opportunity Entrepreneurship in CEE over Time

Entrepreneurship Time Trends by Motivation for CEE Countries



The trends of average of teaopp and average of teanec for Year. The data is filtered on CEE, which keeps CEE.

IX. Appendix

EBRD Transition Indicators

Formerly communist countries		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
CROATIA	Large scale privatisation	1.0	1.0	1.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.3	3.3	3.3	3.3	3.3
	Small scale privatisation	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Governance/enterprise restructuring	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.0	3.0	3.0	3.0
	Price liberalisation	2.7	3.7	3.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Trade & Forex system	2.0	2.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Competition Policy	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.7
ESTONIA	Large scale privatisation	1.0	1.0	1.0	1.0	2.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Small scale privatisation	1.0	1.0	1.0	2.0	3.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Governance/enterprise restructuring	1.0	1.0	1.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.3	3.3	3.3	3.3	3.7	3.7	3.7
	Price liberalisation	1.0	2.3	2.7	2.7	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Trade & Forex system	1.0	1.0	2.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Competition Policy	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.7	2.7	3.0	3.0	3.0	3.3	3.3	3.7	3.7
HUNGARY	Large scale privatisation	1.0	2.0	2.0	2.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Small scale privatisation	1.0	1.0	1.0	2.0	3.0	3.7	3.7	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Governance/enterprise restructuring	1.0	1.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7
	Price liberalisation	2.7	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Trade & Forex system	2.0	3.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Competition Policy	1.0	1.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.3	3.3	3.3	3.3
LATVIA	Large scale privatisation	1.0	1.0	1.0	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.3	3.7	3.7	3.7	3.7	3.7
	Small scale privatisation	1.0	1.0	1.0	2.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Governance/enterprise restructuring	1.0	1.0	1.0	2.0	2.0	2.0	2.0	3.0	2.7	2.7	2.7	2.7	2.7	2.7	3.0	3.0	3.0	3.0	3.0
	Price liberalisation	1.0	1.0	2.7	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Trade & Forex system	1.0	1.0	1.0	2.0	3.0	4.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Competition Policy	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.7	2.7	3.0	3.0	3.0
LITHUANIA	Large scale privatisation	1.0	1.0	1.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.3	3.7	3.7	3.7	4.0	4.0	4.0
	Small scale privatisation	1.0	1.0	1.0	2.7	3.3	4.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Governance/enterprise restructuring	1.0	1.0	1.0	1.0	2.0	2.0	2.0	3.0	2.7	2.7	2.7	2.7	2.7	3.0	3.0	3.0	3.0	3.0	3.0
	Price liberalisation	1.0	2.3	2.7	2.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3
	Trade & Forex system	1.0	1.0	1.0	2.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3

	Competition Policy	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.3	2.3	2.3	2.7	3.0	3.0	3.0	3.0	3.3	3.3	3.3
POLAND	Large scale privatisation	1.0	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
	Small scale privatisation	2.0	3.0	3.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Governance/enterprise restructuring	1.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.3	3.3	3.3	3.3	3.7	3.7	3.7
	Price liberalisation	2.3	3.7	3.7	4.0	4.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Trade & Forex system	1.0	3.0	3.0	3.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Competition Policy	1.0	2.0	2.0	2.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.0	3.0	3.0	3.0	3.3	3.3	3.3
ROMANIA	Large scale privatisation	1.0	1.0	1.7	1.7	2.0	2.0	2.0	2.7	2.7	2.7	2.7	3.0	3.3	3.3	3.3	3.7	3.7	3.7	3.7
	Small scale privatisation	1.0	1.0	1.0	2.0	2.0	2.3	2.7	3.0	3.3	3.3	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
	Governance/enterprise restructuring	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.7	2.7
	Price liberalisation	1.0	1.0	2.7	2.7	3.7	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Trade & Forex system	1.0	1.0	1.0	3.0	3.0	4.0	4.0	3.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Competition Policy	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.7	2.7
SLOVAK REPUBLIC	Large scale privatisation	1.0	1.0	1.0	2.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Small scale privatisation	1.0	1.0	3.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Governance/enterprise restructuring	1.0	1.0	2.0	2.0	3.0	3.0	3.0	3.0	2.7	2.7	3.0	3.0	3.0	3.3	3.3	3.3	3.7	3.7	3.7
	Price liberalisation	1.0	1.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3
	Trade & Forex system	1.0	1.0	3.0	4.0	4.0	4.0	4.0	4.3	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Competition Policy	1.0	1.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.3	3.3	3.3	3.3
SLOVENIA	Large scale privatisation	1.0	1.0	1.0	1.0	2.0	2.0	2.7	2.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
	Small scale privatisation	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Governance/enterprise restructuring	1.0	1.0	1.0	1.0	2.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.0	3.0	3.0	3.0	3.0	3.0
	Price liberalisation	2.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Trade & Forex system	2.0	2.0	3.0	3.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Competition Policy	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.3	2.3	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
CZECH REPUBLIC	Large scale privatisation	1.0	1.0	1.0	2.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Small scale privatisation	1.0	1.0	3.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Governance/enterprise restructuring	1.0	1.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
	Price liberalisation	1.0	1.0	4.0	4.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Trade & Forex system	1.0	1.0	3.0	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
	Competition Policy	1.0	1.0	2.0	2.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.0	3.0	3.0	3.0	3.0	3.0
OTHER NON-CEE FORMERLY COMMUNIST COUNTRIES (AVERAGE)	Large scale privatisation	1.0	1.0	1.0	1.1	1.4	1.5	1.9	2.1	2.3	2.4	2.4	2.5	2.5	2.6	2.7	2.8	2.8	2.8	2.9
	Small scale privatisation	1.4	1.4	1.5	1.7	2.2	2.4	2.8	3.0	3.1	3.1	3.2	3.3	3.4	3.5	3.5	3.6	3.6	3.6	3.6
	Governance/enterprise restructuring	1.0	1.0	1.0	1.0	1.0	1.3	1.6	1.7	1.7	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.0	2.0	2.0
	Price liberalisation	1.4	1.6	1.8	2.8	3.0	3.2	3.4	3.5	3.7	3.6	3.6	3.7	3.9	3.9	3.9	3.9	3.9	3.9	3.9
	Trade & Forex system	1.2	1.3	1.4	1.8	1.9	2.0	2.6	2.8	3.0	2.9	3.0	3.1	3.3	3.4	3.5	3.5	3.6	3.6	3.6
	Competition Policy	1.0	1.0	1.1	1.2	1.4	1.5	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.0

Important Variables and Descriptions

VARIABLE NAME	CODE	VARIABLE LABEL
COUNTRY		NUMERIC COUNTRY [PHONE] CODE
CEE		CEE COUNTRY INDICATOR
	0	Other country
	1	Country = Hungary, Romania, Poland, Latvia, Croatia, or Slovenia
YEAR		YEAR SURVEYED
POSTREC		POST-RECESSION YEAR INDICATOR
	0	Year = 2007 or earlier
	1	Year = 2008 or later
Demographic control variables		
INCOME		HOUSEHOLD INCOME: RECODED INTO THIRDS
	33	lowest 33% tile
	3467	middle 33% tile
	68100	upper 33%tile
EDUC		HIGHEST EDUCATIONAL ATTAINMENT
	111	up to some secondary education
	1212	secondary degree
	1316	post secondary
	1720	graduate experience
WORK		GEM HARMONIZED WORK STATUS: 3 CATEGORIES
	10	working, full-time or part-time
	20	not working
	30	retired, students
FEMALE		RESPONDENT GENDER
	0	male
	1	female
AGE		RESPONDENT EXACT AGE
Entrepreneurial perceptions (asked of general population)		
OPPORT		In the next six months will there be good opportunities for starting a business in the area where you live?
	0	NO
	1	YES
SUSKILL		You have the knowledge, skill and experience required to start a new business?
	0	NO
	1	YES
FEARFAIL		Fear of failure would prevent you from starting a business?
	0	NO
	1	YES
NBGOODC		In your country, most people consider starting a new business a desirable career choice?
	0	NO

	1 YES
NBSTATUS	In your country, those successful at starting a new business have a high level of status and respect? 0 NO 1 YES
NBMEDIA	In your country, you will often see stories in the public media about successful new businesses? 0 NO 1 YES
Entrepreneurial activity and motivations (asked only of entrepreneurs)	
TEA	Identified as nascent entrepreneur or new business owner as part of Total Entrepreneurial Activity (TEA) 0 NO 1 YES
SUREASON/ OMREASON	Entrepreneurial motivation? TAKE ADVANTAGE OF BUSINESS OPPORTUNITY 2 NO BETTER CHOICE FOR WORK 3 COMBINATION OF BOTH OF THE ABOVE HAVE A JOB BUT SEEK BETTER OPPORTUNITY 4
TEAOPP	(Recoded) entrepreneurial motivation, indicator for opportunity entrepreneur ²⁶ 0 NECESSITY OR NON-ENTREPRENEUR 1 OPPORTUNITY ENTREPRENEUR
TEAOPP2	Entrepreneurial motivation among those who have a choice ²⁷ NON-ENTREPRENEUR (but not unemployed; unemployed and necessity entrepreneurs are coded as missing) 0 1 OPPORTUNITY ENTREPRENEUR
TEANEC	Indicator for necessity entrepreneur 0 OPPORTUNITY OR NON-ENTREPRENEUR 1 NECESSITY ENTREPRENEUR

²⁶ Derived from SUREASON (startup reason) and OMREASON (owner-manager reason), both of which ask the respective respondent whether they started their business to take advantage of a business opportunity or had no better choice for work. TEAOPP = 1 if SUREASON/OMREASON = 1 and TEA = 1.

²⁷ I use TEAOPP2 when looking at the opportunity entrepreneurship as a choice relative to the general population sample, but I use TEAOPP when conditioning on being an entrepreneur (if TEA = 1) to act as a binary indicator of opportunity versus necessity entrepreneurship.