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# 373

**Petrik Runst**

**Post-Socialist Culture and Entrepreneurship**

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# Post-Socialist Culture and Entrepreneurship<sup>1</sup>

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## ABSTRACT

In this paper it is argued that locus of control beliefs and preferences concerning state action negatively affect the formation of new firms in former socialist countries. For this purpose Kirzner's theory of costless entrepreneurship is reviewed and criticized. German reunification, in which the formerly Socialist East joined the Federal Republic of Germany, represents an intriguing natural experiment in which the formal institutional structure of one nation was almost fully transplanted into another. Traditional as well as psychological factors are examined. The results suggest that about one third of the east-west gap in new self-employment can be explained by inert informal institutions.

Keywords: Psychology of Entrepreneurship, Self-Employment, Transitional Economies, East Germany

JEL Codes: D00, J24, O12, P20

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<sup>1</sup> Forthcoming in the American Journal of Economics and Sociology

## I. Introduction

The collapse of the communist bloc and accompanying abrupt changes in the lives of many million people represents a profound transformation that touches on deep constitutional and institutional issues. Ultimately, it is a question of how a complex system, such as human society endogenously renews itself so that it might eventually provide a framework in which entrepreneurship is channeled toward productive activities, despite being grounded in a history of zero sum exchange and political corruption.

A successful transformation is intricately linked to the notion of entrepreneurship. Despite a lack of consensus concerning the precise meaning of the term, scholars agree that entrepreneurial behavior represents a key aspect of the workings of a market economy. One scholarly approach to entrepreneurship may ask the question “how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited” [Shane and Venkataraman, 2000]. Of course, entrepreneurs are not necessarily involved in the creation of societal wealth as in the case of arbitrage or innovation. Depending on the incentivizing framework, they may also engage in rent seeking and thereby reduce overall prosperity [Baumol, 1996]. The question is thus, not whether entrepreneurship exists at all but about the specific manifestation it takes. The ubiquity of the human drive toward individual betterment may be channeled into different directions depending on the perceived whereabouts of the most lucrative opportunities.

The framework that guides entrepreneurs toward productive or unproductive activities has been studied under the name of Institutions [see North, 1990; and North, 2005]. Institutions have been defined as the “rules of the game”. There exist three sources of rules: the constitution, policies and informal social rules. In close analogy to Buchanan (1974, and 1985), the game metaphor invokes a two stage process. The first stage is characterized by the creation of rules (e.g. in the form of a constitution). The second stage is then characterized by interactions within the generated set of constraints (e.g. market interaction). The static game-like formulation is utilized by economists who regard themselves as advisors and active manipulators of the social process. In contrast, I will take a positive approach that tries to analyze some of the deep social complexities concerning transitional economies.

Without denying the effect of constitutional and political rules on policies and market outcomes [see Pearson & Tabellini, 2003; Acemoglu and Johnson, 2005], the different development trajectories for highly successful countries such as Poland or the Czech Republic and less successful ones, such as the Ukraine or Russia twenty years after the fall of the Berlin Wall confront us with the limits of the human ability to device and plan complex systems – a theme that has been most potently portrayed by Hayek (1960, 1973). Although we do know that market institutions such as secure property rights and sound monetary policy are the reason for diverging trajectories [See Frye & Shleifer, 1997], we know very little about why some countries transformed their institutions more successfully than others. The transplantation of a western-style constitution into a post-socialist economy is riddled with a myriad of problems and cannot be seen as a copy-paste approach to development. As Boettke et al (2008) demonstrated, institutional transfers are dependent on the structural context in the host environment as influenced by economic, political and social realities that cannot be anticipated in its entirety.

Disregarding bigger issues of constitutional change I intend to explore how minds that developed during a prolonged period of socialism will be influenced in their actions even after the constraints that molded such minds have long vanished into the dust of history. The paper contributes marginally to questions of ideology formation and change [Higgs, 2008]. Most importantly, it combines the particular strand of institutional/transitional economics [North, 2005; Boettke et al. 2008] with entrepreneurship research (Kirzner, 1979; Shane & Venkataraman, 2000) and economic sociology. In response to Pryor (2007) who, on the basis of cluster analysis, claims that there is no cultural difference between east and west Germany, this paper shows that rates of self-employment in East Germany are reduced as a result of finer, less aggregate, finer, and well established cultural differences, namely people's agency beliefs and preferences for state interventions.

The remaining paper is structured as follows. Section II describes the process by which individuals develop certain inert agency beliefs and preferences concerning state intervention in socialist environments. Section III applies these insights to entrepreneurship theory. In section IV the empirical analysis is set up by focusing on rates of self-employment in the eastern and western part of Germany

after 1990. Section V presents alternative hypotheses. Data and results are discussed in section VI, VII, VIII, and IX. Section X concludes.

## I. Imprinting & Societal Change – The Case of East Germany

East Germans lived under totalitarian rule between 1933 and 1989. The conscious design of a new fascist or socialist image of man was, of course, as futile as economic planning itself. As it is impossible to gather and process enough knowledge in order to centrally plan an immensely complex network of production processes efficiently, it is equally impossible to gather enough knowledge and process it in order to engineer millions of minds in a detailed manner. Apart from the knowledge problem, the structure of the polity is another reason for why unintended consequences prevail. The state does not act as a single planner. It is a polycentric arrangement of multiple organizations that represents an array of partly compatible and partly conflicting interests. On the other hand mind and society are not independent and whatever policy emerges from the political network will have some unintended consequences and changes individual perception and therefore, behavior [see Wagner, 2006; Wagner, 2007. p.190]. I claim that a typical set of preferences and beliefs which represents an optimal adjustment to a life under socialism can be described. Preferences are defined as elements in a utility function. Beliefs essentially pertain to constraints, but also to general causal connections in the social world and morality. Once the institutional environment changed, beliefs and preferences traits did not adjust immediately, but displayed inertia.

In contrast to a evolutionary framework in which preferences and beliefs are subject to choice and will be adopted if optimal [see Frank, 1987] or given as genetic endowments [Becker and Stigler, 1977], an alternative approach renders the dynamics of the mind as at least partially resting above the realm of choice. A distinguished minority of economists, such as Adam Smith (1759), Hume (1740), Pareto (1935) and North (2005) have followed a similar approach. In their frameworks, the individual does not have complete control of its inner world, but it is formed by social processes. Smith and Hume stress adolescence as the critical period for the formation of one's character. Individuals discover successful

ways and less successful ways of actions. When successful actions are repeated beliefs about causal connection are engrained in the mind. This belief then serves as a short cut approach to decision making in the future. Despite being a distinct category, beliefs are correlated with personality traits [Rallapalli et al, 1994]. It has been shown that measures of personality, such as Myers-Briggs have been found to be volatile up to the age of thirty, after which they stay remarkably constant [see Costa and McRae, 1997]. People cannot discard their beliefs, preferences, or personality as they see fit. But neither are people trapped in their views of the world. Beliefs are dearly held, like a worn out hat which does not fit this year's fashion trend. At some point the owner is going to exchange it for a new one, but not without a feeling of parting and loss. There is a necessary and ongoing time lag between the change of the external environment and the personal adjustment to it.

Buchanan (1997) suggests that a conjectural history that is not based on free exchange between independent individuals, but one of collectives, where a leader assigns tasks, and no viable exit strategy exists creates a command culture with different presuppositions concerning the economy compared to the one that we take for granted in western societies. In such a context, the person who engages in profit seeking activities necessarily neglects to work toward the assigned group quota and is therefore regarded as a rule breaker. It is true that in this environment the pursuit of individual profit creates spillover damage for the remaining group. Thus, it evokes 'a heightened sense of envy at the differential success at anyone who is seen to have secured such success by departing from group rules (Buchanan, 1997, p.100). Furthermore, in a mostly zero-sum politicized economy with prices below market clearing levels, sellers will not behave as if the customer's interest is his own – but possesses some degree of monopoly power which can be used to receive non-pecuniary payments.

In addition to Buchanan's insight it can be claimed that command economies affect personal agency beliefs which are defined as subjective beliefs about the extent to which one is able to exert influence over the events in one's life. The concept was first introduced by Rotter (1966) and can be subdivided into the related concepts of Locus of Control (LOC) and self-efficacy beliefs. LOC captures whether the individual believes she can manipulate external events or whether they are dependent on luck, fate, powerful others, or other external forces. Self-efficacy refers to the individual belief about whether one



possesses the mental capacity and skill set that is required to make things happen. Where LOC pertains to the general possibility of an individual's influence over its environment, self-efficacy (or competency) beliefs pertain much more narrowly to its ability of actually doing so.

Powerful others are a primary determinant of one's path in life in a command economy. Personal inclinations and effort for example play a smaller role for career trajectories. Instead, factors not subject to rational choice as construed by economics (family ties and background, religious beliefs and so forth) affect what school you attend or whether you would go on to college. The link between deliberate choice and payoff at work is blurred when every worker receives a flat wage in addition to guaranteed job security. The daycare a child attends and the apartment one lives in are assigned, and not a result of conscientious choice. The consumption goods one buys, which reflect a deliberate choice by the individual in western societies, are standardized to a much greater extent. Many East Germans were overwhelmed by the range of choices that grocery shopping involved when they ventured into the West Germany for the first time. Yet, every such choice makes the individual see herself as the ultimate source of change in her life. It reinforces a sense of deliberateness as opposed to being tossed around by forces beyond its reach. Thus, socialism furthers the belief that external forces are the primary determinants of the individual's life events.

The German Democratic Republic was a totalitarian police state. Within a society of less than 20 million, comprehensive files were kept on 6 million citizens, the majority of the adult work force [Fisher, Gelb, 199, p.92]. An intricate network of about 185,000 existed [Fullbrook, 1995,p.46-50]. It included ordinary people who spied on their neighbors and "friends" (*Informelle Mitarbeiter* – IMs). Apart from the inner most private family circle, an individual stands under permanent political surveillance. Because the results of this monitoring feeds back into decision that are made about people's life by political authorities, it can be seen how extra-family sphere requires one to be cautious and constantly alert. It is important to develop a sense of what others think about me. If this practice is repeated a feeling of being judged and evaluated by others becomes an important input into one's beliefs about one's competency. In contrast, a western society in which there is a much weaker link between other's assessment of my behavior and personal gain provides ground for genuine learning about one's self-efficacy in various

areas of life. If I get a feedback from my choices and if the feedback signal is not dominated by political views, clothing or religious preferences it is easier to develop feelings of competency. If the other's judgment affects the quality of the individual's life, it is critical to keep a low profile in a public setting. Self-confidently departing from expected behavioral patterns marks the individual as a deviator and makes him subject to suspicion and gossip.

As discussed above, it is impossible to engineer the socialist man who acts in accordance with official doctrine. People respond to incentives. Effort is a function of pay and monitoring, not a generalized love for the proletariat. After all, it was due to the disillusionment with their state, that millions of East Germans marched on the streets in order to demonstrate their protest. Yet East Germany lacked a history of markets. The natural human instinct towards planned order [Hayek, 1988] was nourished through a lack of counterexamples. Despite their knowledge of the prosperity in western economies individuals in East Germany are critical of the market on justice grounds. They did not experience how the poorest members of society are made better off as a result of developing markets. Thus, even if East Germans were not satisfied with results of the particular socialist state the opposition movement never claimed that socialism is not viable in principle [see Dale, 2005, p.4]. On October 23<sup>rd</sup>, 1989, when more than 300,000 citizen marched through the streets of Leipzig in order to start a 'revolution from below [...] all of the speakers advocated changing the *DDR* [translated GDR], not abandoning it' [Allen, 1991, p.187]. Psychologists Schwartz & Bardi, 1997 have shown how beliefs in hierarchy, propriety and constraint are adopted in order to reduce the discrepancy between what is desired and what can be done. The effect is well established in psychology and is often referred to as 'rationalization' [see Jost & Banaji, 1994; Lerner, 1980].

Of course people will adjust their beliefs once the external environment does not confirm the old mental constructs any longer. The process is not instantaneous and critically depends on individual incentives. People continue to make choices assuming that the socialist constraints are still partially valid. On the hand we would expect the shop owner who was raised in the Soviet Union to abandon his condescending attitude toward customers quite quickly if his income depends on how customers are treated. On the other hand, agency beliefs and attitudes toward socialism are not just behavioral rules as in

the case of the customer care. They have become part of an individual's identity a concept that recently surfaced in economics [Akerlof & Kranton, 2000; Chong, Guillen, Rios, 2010]. People's identity, the belief about who they are depends on it. Any change of such a fundamental concept as people's own self, needs to be justified and cannot be achieved over night. Imagine an American male who was raised believing in manly virtues (resilience, strength, stoicism, etc) as characterized by the game of football who is then plugged into a 17<sup>th</sup> century French aristocratic court. We would expect such an individual to engage in an inner struggle. He knows that this environment demands a new understanding of his manly self which involves appreciation of poetry, dance and sophisticated conversation but he would find this transition to be a hard one nevertheless. The topic of inert preferences and beliefs as an instance of mental rule following behavior has been developed in more detail elsewhere [Runst, working paper] and has been empirically validated [Alesina & Fuchs-Schuendeln, 2007; Schwartz & Bardi, 1997; Runst, working paper].

It is important to note that inert beliefs and preferences have a twofold effect. First, they feed back into the policy sphere. If people do not change their beliefs they will display different voting behavior. In East Germany, 27% of the population voted for the socialist party 20 years after reunification. If the constitutional basis for a market economy is not strong enough policy reversals may follow. In the present paper I am primarily concerned with the second, direct effect of beliefs and preferences on individual action. It is hypothesized that market entrepreneurship as measured by rates of new self-employment can be negatively affected by the typical beliefs and preferences individuals in East Germany have developed.

## II. Mind, Alertness & Entrepreneurial Action

The resurgence of scholarly interest in entrepreneurship can be traced back to the seminal works by Kirzner (1979, 1985). In contrast, to Shane and Venkataram (2000), he regards entrepreneurship as an element of choice that pertains to all human activity and is not confined to the supply of goods and services. Kirzner describes his theory as a necessary tool in order to overcome the problems of

microeconomics. Without the entrepreneurial role it is not conceivable how we should move from a period of disequilibrium toward a situation where consumer desires and productive capacities are properly aligned. The central part of this theory is occupied by the concept of “alertness”. Every individual is a potential entrepreneur and ultimately becomes one by discovering a profit opportunity. This discovery process is not a function of increased knowledge. In fact, even if the individual holds the same stock of knowledge in consecutive periods, she can discover an opportunity that was previously overlooked. If the hunch turns out to be correct, this individual becomes the first person that has spotted this arbitrage profit, seizes it and pushes the price toward equilibrium. Alertness is costless because it is a byproduct of human conscious existence and it is not subject to choice.

Despite his crucial insight into the subject, I contend that Kirzner truncates the entrepreneurial role. By focusing on alertness alone, it appears as if the conviction that one has spotted an arbitrage possibility automatically translates into all the necessary action steps that generate a profit in case the initial insight was indeed correct. In reality, the initial “aha” moment would surely not suffice. The saying “build a better mousetrap and the world will build a path to your door” ignores the complex, uncertain and laborious intermediate tasks required if one intends to sell a product. If a potential profit opportunity is spotted it is not guaranteed that the visionary does in fact act upon it even if he is convinced of its existence. The wanna-be-entrepreneur might feel overwhelmed by the magnitude of the problems ahead or feel incompetent in the face of it. That does not mean the opportunity does not exist, but simply that the task is not taken up. Thus the feeling of infeasibility must not be subsumed under the heading of alertness which speaks to the discovery of an opportunity. If the individual opts out during the entrepreneurial process it does not even mean that, she/he in fact thinks that the task is an impossible one in general. It simply means that she/he holds the belief that the task is an impossible one for her/him at that specific moment in time. She might think that her/his current life circumstances with two young children would not allow for the successful conclusion of her/his plan, but hopes to return to the task at a later date.

The subjective probability which the individual has attached to entrepreneurial success might well have been too low and if the person had continued she/he would have been rewarded. In direct opposition to Kirzner’s smooth and direct link between alertness and action, her/his inner struggle might have been a

fierce one. Yet, a feeling of incompetency might be well engrained in her/him which finally leads her/him to surrender. On the other hand, her/his neighbor across the could have the same insight and act upon it because he/she believes more strongly in his ability. It is precisely because entrepreneurship is linked to personality that human resource managers and head hunters spend time on screening for such character traits as resilience and self-confidence.

Kirzner's conception of entrepreneurship does not do justice to the procedural character of entrepreneurship either. Individuals do not see all the necessary action steps at once. They are not revealed in one major epiphany. Rather, it's a complex process where alertness is but the first step. Once the individual is sufficiently convinced that the lure of revenue indeed exists, he will start utilizing more and more resources toward its realization. These first steps might well take the form of cautious probing after which more and more effort is spent on the realization of the goals. When the financial feasibility is reviewed, the land prices and the suitability of the alternative properties are estimated, and the availability of compatible employees is assessed, the alert individual might be willing to make the final plunge into the project. In fact, it might not even be possible to pinpoint an exact time when the individual has turned entrepreneur.

Entrepreneurship properly understood is thus not costless<sup>2</sup>. The probing and evaluation takes up resources. Entrepreneurship is a complex process and not a single moment in time. The steps that are necessary to bring the project to fruition cannot be anticipated fully because the future is inherently uncertain. The entrepreneurial process is affected by one's agency beliefs. A more cautious person with a constant fear of failure, who thinks that her/his own action have very little impact on outcomes, will estimate a different subjective probability of success than a person who believes in her/his own ability and who has a high degree of resilience. In contrast to Harper (2003) who argues that agency beliefs affect if and how profit opportunities are discovered, I claim that not only alertness, but more importantly, the willingness to engage in the costly entrepreneurial process is affected by Locus of Control and Efficacy beliefs

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<sup>2</sup> For a different critique of Kirzner that is also based on his notion of 'costless' entrepreneurship see Casson & Wadeson (2007)

### III. Post-Socialist Culture & The Entrepreneurial Process in East Germany

For the purpose of this empirical study I define entrepreneurship narrowly [Shane & Venkataraman, 2000]. It is not defined as the general discovery of unnoticed opportunities but will exclusively be applied to individuals who open businesses, i.e. they become self-employed. This is a particular manifestation of entrepreneurship, albeit an important one. Although initial measures of job creation by new firms [see Birch, 1979] have been biased upwards [Haltwanger and Krizan, 1999] start ups are an important contributor to employment and innovation [Reynolds, 1987] and was found to affect GDP growth positively [Audretsch et al, 2002; Audretsch and Thurik, 2002]. The debate on the relation between entrepreneurship and aggregate variables is not yet settled [see for instance Carree & Thurik, 2008; Fritsch & Mueller, 2008; Acs & Mueller, 2008; and Praag & Versloot, 2007 for an overview]. There also exists a wide literature on entrepreneurship in central and eastern European transitional economies in general [ Peng, Mike W., 2006; Tyson et al, 1994; Smallbone & Welter, 2001; Earle & Sakova, 2000; Meyer & Peng, 2005; McMillan & Woodruff, 2002; Estrin & Mickiewicz, 2010; Aidis & Estrin, 2008; Frye & Shleifer, 1997]. In this paper, I will exclusively focus on east and west Germany.

Figure one displays newly founded firms by inhabitants of the former socialist state, adjusted for population size, and as a fraction of western startups. Especially in 1991 and 1992, new eastern startups exceed western ones many times as the restrictions on private enterprising were lifted and entrepreneurs rushed in to fill the market gaps. After this initial spike, the number of eastern entrepreneurial ventures fluctuates around the western one. It is likely that potential entrepreneurs caught up on human capital in this period which enabled them to enter self-employment. It is fair to say that by 1996, the reunification boom had largely faded out. During the following 12 years the polynomial trend line (of degree 2) is consistently below one. Starting in the year 2000 however, eastern startup counts increase slowly and steadily relative to western ones. In 2005, the gap had shrunk to 15 percent.

**Insert Fig.1 about here**

The claims I make in the empirical part of this paper tie together the two literatures of institutional/transition economics and entrepreneurship research. Specifically I test whether agency beliefs that were shaped by 40 years of socialism can explain some portion of the gap in self-employment in East and West Germany between 1996 and 2004. Similarly, I claim that a rejecting attitude toward the market process leads people to prefer employment over firm creation. If the market is seen as chaotic and unjust an individual prefers to not be seen as a profiteer who is entangled in political relationships in order to make things happen.

Empirical Entrepreneurship scholars have argued that individuals with strong agency beliefs, who affirm free market institutions and private property [e.g. Kaufmann et al, 1995; Beugelsdijk & Noorderhaven, 2005; KfW, 2008] choose to be self-employed more frequently. Psychological entrepreneurship research was pioneered by McClelland (1961), and Hofstede (1980) and is not without critics [see Gartner, 1988, and more recently Beugelsdijk & Smeets, 2008]. Recent scholars in the Psychology literature find that the two relevant determinants of entrepreneurship appear to be weaker in the east. First - agency beliefs. Oettingen et al. (1994) find that beliefs in self-efficacy is underdeveloped in East German School Children based on the analysis of survey results from over 800 children about three months after the fall of the Berlin Wall. Frese et al (1996) have shown that East Germans display lower levels of initiative, where initiative can be defined as an active approach to work where the individual goes beyond what's formally required. They present evidence that this effect is explained better by socialization than by selection. Their results are based on about 1,300 qualitative interviews. Second – affirmation of private ownership and the rejection of external intervention. On the basis of the German Socio-economic panel data set, Alesina and Fuchs-Schündeln (2007) show that preferences are not exogenous, but shaped by years of communism. They conclude 'East Germans are much more pro state than West Germans'.

#### IV. Competing Hypotheses

There are several hypotheses competing with a cultural explanation. First, following North (1990) authors who have studied transition economies and entrepreneurship naturally focus on differences in formal institutions. Sound formal institutions reduce uncertainty and provide structures to guide individual human interactions. For example, the risk of state predation determines whether entrepreneurs will inefficiently circumvent the official sector and enter the shadow economy. Alternatively, individuals may enter the state sector itself if the profits to be made exceed the ones in the private sector[Baumol, 1996]. Formal institutional variance must be seen as a fundamental explanation for differences in economic development. As Boettke (2001) asks: ‘Where is the example to the contrary? Where has an economic system which can be characterized as respecting private property, maintaining sound money, free pricing, and freedom of contract collapsed into economic deprivation?’ Therefore, in order to explain the entrepreneurial gap between East and West Germany, the first task must be to confront claims of formal institutional variation. Johnson et al (1998) for example show that countries with lower institutional quality and higher incidents of corruption exhibit a larger informal sector. Multiple studies have shown that there exist a clear and stable relationship between economic freedom, FDI, and growth [e.g.Bengoa & Sanchez-Robles, 2003; Easton & Walker, 1997]. Similarly, Frye and Shleifer (1997) suggest that institutional quality explains the gap in economic performance between Poland Russia after 1990. Aidis & Estrin (2008) show empirically that institutional quality explains different start-up rates in Eastern Europe. However, Estrin & Mickiewicz (2010) show that institutional differences cannot fully explain lower rates of self-employment in eastern European transition economies.

Second, lower levels of entrepreneurship in the East could be caused by tighter credit constraints there than in West. East German Individuals did not own valuable assets that could serve as collateral at the time of the reunification. However, this constraint becomes less important when we consider the multitude of government sponsored investment subsidies, the subsidies in question included write offs that covered up to 50 percent of investment costs and other investment subsidies that covered between 8 and 12 percent of costs between 1990 and 1995 and investment supplements which covered up to 23 percent of founding investments plus infrastructure. Medium sized companies could receive up to 35



percent of inexpensive loans. In addition, multiple support programs provided by the KfW (Kreditanstalt für Wiederaufbau), the DtA (Deutsche Ausgleichsbank) and the EU offered additional assistance [see Friedrich Ebert Stiftung, 1991]. In 1999, the federal-, country- and community level government investment support expenditures for East Germany accounted for € 17.6 billion (\$ 19.3 billion); which amounts to about € 1350 (\$1485) per capita<sup>3</sup>, or roughly € 37,250 (\$ 41,000) per self-employed person<sup>4</sup>. 28-58% of all companies were subsidized between 1997 and 2001 [IWH, 2003, p.4-11], which means that those entrepreneurs who were supported received considerably more than those figures suggest. Furthermore, infrastructural services provided by the state, such as the construction of road and rail access to manufacturing sites are not included in the above figures.

Third, lower levels of human capital could be an obstacle to entrepreneurship. Bird et al. (1994) and Franz and Steiner (2000) find the returns to human capital in the form of schooling in east Germany were quite high after 1990, whereas the returns to socialist job market experience was small. Thus, lower levels of human capital are caused by a lack of experience, not formal education. The latter authors, however, also find that after 1990, the return to job market experience in the east increases rapidly for those individuals who keep their jobs [Franz and Steiner, 2000, p.260]. Thus, individuals in the east caught up with their western peers.

Fourth, if many potential entrepreneurs migrated from east to west; the east might have been trapped in an adverse selection scenario where only those people remain who are least likely to open a business. In fact, between 1991 and 2003, about 850,000, or almost 6 percent of the overall population, have moved to the West [see Bundesregierung, 2004]. In order to test for adverse selection, I will examine the likelihood of opening a business for people who were born in East Germany but moved to the west compared to the ones who remain in the East. In order to show that adverse selection is not the primary driver of the self-employment gap I will use the variable “born in the east” throughout the analysis.

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<sup>3</sup> Note that the average exchange rate of about 1.1 was exceptionally low in 1999.

<sup>4</sup> Assuming that 3.5% of all individuals are self-employed - according to the Statistical Office for the state of Thuringia [Thüringer Landesamt für Statistik, Erfurt 2008]

Finally, infrastructural disadvantages, especially traffic infrastructure, in the east raise the cost of entrepreneurial ventures and could be responsible for the lower start up count. In order to rule out this effect I present and compare a measure of infrastructure below. Furthermore, I will control for the most important remaining ‘traditional’ determinants of self-employment suggested in the literature, namely: unemployment, gender, marital status and age (see table one). If an individual cannot find gainful employment he/she may be pushed into self-employment in order to generate income. Men are expected to have a higher likelihood of self-employment because of different risk attitudes between men and women, lack of career interruptions through child birth and comparatively lower involvement in domestic tasks. Being married may have a negative effect on the self-employment variable because it increases risk aversion. However, it has been argued that it can have a positive effect when monitoring costs when family members are working in the newly founded firm [see Borjas, 1986]. Younger individuals are more likely to open a business as they possess less wealth they respond to earning opportunities more strongly, and the wages they can obtain in employment are comparatively lower to older individuals with more specialized work experience and tenure.

**Insert Table 1 about here**

## V. Data & Methods

In accordance with the literature I run binary probit regressions in order to overcome the problem of probabilities outside the zero to one range of the Linear Probability Model. I am using the German Socio Economic Panel (GSOEP) collected by the German Institute for Economic Research (DIW) for the years between 1990 and 2007. For a more detailed description consult Wagner, Gert G. (2007). The dependent variable ‘Become’ is equal to one if the individual opens a business in a specific year throughout the 1996-2004-period. The variable ‘born\_east’ equals one if the person was born in the eastern part of Germany before 1989, and zero if the person was born in the western part. Since most entrepreneurs are between 20 and 60 years old, and the period of interest lies between 1995 and 2005, this variable captures satisfactorily whether the person was socialized in the east or the west. Foreigners have been excluded

from the sample. 'Exp' represents labor market experience and is measured in years. For easterners, I have only counted years worked in post-socialist organizations. Finally, I have included a dummy that denotes if the person owns territorial or residential property ('house'). In table two, all variables are summarized. Please consult the appendix for a correlation matrix.

Individuals who are working in the construction sector have been omitted from the data set, deleting about 10,000 of overall 266,000 observations. The construction industry boom was fueled by government expenditures throughout the early 1990s, be they in the form of infrastructural construction (roads, utilities, school, etc) or on the individual level, subsidies for home improvement and new construction in order to raise house ownership. Counting construction sector self-employment would introduce an upward bias in favor of the east. However, the bias is small and the change in results is almost zero if construction is included in the analysis.

**Insert Table 2 about here**

## VI. Testing Traditional Explanations

The institutional environments in the eastern and western part of Germany are almost identical. On October 3<sup>rd</sup>, 1990, the formerly socialist GDR joined the Federal Republic of Germany and adopted all its legal and political institutions. Yet, given that the two Germanys are at different stages in their economic development, the modern institutions that are consumed as a luxury good in the west could be inappropriate for the relatively backward economic situation in the east. Specifically, the generous welfare arrangements are potentially less distortionary on the labor market in the west, including self-employment. Therefore, if the formal sector in the east is rendered unattractive due to a lack of economic freedom, specifically high tax rates and regulations, we would expect to see a comparatively larger informal sector. Indeed, according to Schneider (2003) the estimated average size of the shadow economy for central and eastern European transition economies for 2000/2001 amounts to 29.2 percent of GDP, where Macedonia ranks highest (45.1 %) and Slovakia and the Czech Republic lowest (18.3 and 18.4 %). Thus, the size of the shadow economy is inversely related to institutional quality. In comparison,

Germany's shadow economy was estimated at 16.3 percent of GDP. The author also presents the results from the earlier IFAK-study (1998) which is based on about 1,000 telephone surveys. Here, 22 percent of all individuals engaged in informal sector exchanges. East Germany's figure was, however, considerably lower (12.9%) than the western one (24.5%). These results are confirmed by a different estimation method (Schneider, 2001) where individual East German states are shown to lie below the total average size of Germany's shadow economy. Of course, these estimates are inherently noisy. However, exact numbers are not needed for the purpose of this paper. It is sufficient to recognize the smaller size of the informal sector in East Germany in both studies. These figures contradict an institutional explanation for the gap in self-employment because, as I have argued, one would have expected to find a larger informal sector in the East. Moreover, if there are more informal entrepreneurs in the west compared to the east, the gap in formal sector self-employment underestimates the true size of the gap. Furthermore, Estrin & Mickiewicz (2010) have also shown empirically that institutional quality cannot fully explain differences in rates of self-employment.

In treatment (1) reported in table three the plain effect of the variable 'born\_east' is displayed. Simply being born in the east reduces the likelihood of self-employment by 0.09 or 0.12 percent. As the average likelihood of opening a business in the sample is 0.59 percent being born in the east reduces the likelihood by 17 percent in the nine years from 1996 to 2004. Controlling for the variables discussed above actually increases the entrepreneurial gap between east and west [treatment (2)]. In accordance with the literature, having been fired, being male and a University degree increase the likelihood of being self-employed, where involuntary unemployment has the strongest and a tertiary degree the lowest effect. Being married has a negative effect on self-employment, providing evidence that risk aversion increases with the presence of a family. The experience function is U-shaped. Further analysis shows that there are considerable initial gains from experience (up to 12 years), after which additional experience starts to have a negative effect. The age dummies confirm that younger individuals, starting age 25, are more likely to become self-employed than older ones. Treatment (3) tests for the presence of credit constraints. Despite the fact that owning a property or a house raises the likelihood of being self-employed (thus confirming the negative impact of credit constraint), its effect on the entrepreneurial gap between east and

west is miniscule. Treatment (4) tests for adverse selection as it is the only treatment that uses the “living-in-the-east” variable (east), and not the “born-in-the-east” variable (born\_east). In fact, the presence of adverse selection can be confirmed. People who live in the east display a wider entrepreneurial gap than the people who were born in the east. In fact, the likelihood of becoming self-employed for the 9 percent of easterners in the sample who relocated to the west is about 1.1 percent, almost twice as large as the total average for Germany.

Including and examining the control variables that are used in the literature, we are left with an average 27 percent fewer start ups in Germany’s east compared to its western parts that cannot be explained by credit constraints, education or adverse selection. I will thus, examine the fifth hypothesis: infrastructure. Figure two illustrates the traffic infrastructure of East Germany as a fraction of the West. I have used the length of roads per 1000 square kilometer as a proxy [see BMVBS, 2008]. The main disadvantage of this measure is its neglect of quality aspects. Traffic infrastructure is the largest component in terms of total government infrastructure expenditure (30 percent) [Uhde, 2009]. The effect of the second largest component, schooling (22 percent), is already incorporated in the ‘TertEdu’ measure I have presented above. As we can see in figure two, the traffic infrastructure can hardly explain the pattern of self-employment displayed in figure one. It is possible that the expansion of the road network from about 66 to 75 percent of the western level between 1991 and 1996 has contributed to the initial spike in eastern rates of self-employment. Yet, the subsequent fall and slow recovery must be caused by different factors as the fractional length of the road network remains almost constant over the whole period.

**Insert Fig. 2 about here**

**Insert Table 3 about here**

## VII. Testing Cultural Hypotheses

In this section, I present test results that shed some light on whether cultural factors can explain the self-employment gap. In general, if the cultural hypotheses are true, eastern entrepreneurs should be younger than western ones. The reason is that younger individuals will have spent a proportionally larger fraction of their life under market conditions and will therefore, have been influenced less by socialist culture. In fact, during the period 2005-2007 that exhibits the highest degree of convergence in entrepreneurship rates in the two parts of Germany, eastern entrepreneurs are two years younger, on average, than their western peers (38.8 and 40.8, respectively). More specifically, the GSOEP data set includes several variables that allow us to test the (1.) locus of control and the (2.) statism hypothesis. I have also used a (3.) general confidence variable as it might pick up a feeling self-confidence, which is a component of agency beliefs. Three appropriate dummies have been constructed (see table one): For locus of control (1.) I have used two questions that ask for the importance of luck and fate in the individuals life (for the years 1994 through 1996) In terms of statism (2.), I have used five questions that ask whether a certain aspects of life should be controlled by the state or left to private forces (care for financial security of unemployed, elderly, sick, people who need care and families for the years 1997 and 2002). The confidence variable (3.) was directly available in the data set for the years 1995 through 1997. Cronbach's alphas for 'state' and 'nocontrol' are 0.67 and 0.64 respectively. Another variable that captures the experience of low control over one's life ('soc\_cond') is equal to one if the individual feels that his or her life is dominated by social conditions. 'Soc\_cond' is unfortunately only available for the year 1999 and responses for that year had to be used for earlier years in order to create comparability. The bias will be small given that personality traits display high correlations over time. Unreported regression results also suggest that effects are similar if one narrows the analysis to the years 1999 to 2004.

As you can see in table 4, treatment (1), 'Nocontrol' negatively affects the likelihood of self-employment in a statistically significant way. Its magnitude (-0.16 percent) must be seen as moderately strong if we recall that the average likelihood of becoming an entrepreneur equals 0.59 percent. The 'borne\_east' variable, which denotes eastern origin, falls to 0.0014, once the additional control variable has been added. This finding provides evidence for the first part of the cultural explanation as it means that the gap was partly caused by East German's beliefs. In treatment (2) and (3), a stronger preference

for state control has a greater influence on the likelihood of self-employment (-0.19 percent) and the effect of being born in the east declines to 0.11 percent. In treatment (3) I have add the confidence dummy. Although it does affect the dependent variable, it does not appear to impact the East-West gap in any meaningful magnitude. Treatment (4) uses the 'soc\_cond' variable instead of LOC and the results are similar. The east-west gap declines to 0.09 percent.

**Insert Table 4 about here**

**Insert Table 5 about here**

Finally, it should also be true that a certain group of individuals with unusually high exposure to markets during the period of socialism will significantly differ from individuals without such exposure. We expect black market entrepreneurs to hold beliefs and preferences that are less adjusted to life under socialism. Elsewhere [Runst, working paper] I have shown that individuals who operated in the shadow economy in east Germany before 1990 are less likely to belief in external locus of control or that their life is dominated by social conditions, they are more likely to belief in internal locus of control, and they demand less state intervention than non-black-market entrepreneurs. Table 6 shows, these individuals are also more likely to become self-employed after the reunification of Germany. The dummy 'black market' is equal to one if the individuals answered yes to the following question in the 1990 interview wave: "Aside from job, school, household or retirement earnings, do you pursue one or more of the following activities? - Doing occasional work for pay".

In summary, I have found that two cultural differences, locus of control and preferences for state intervention account for at least one third of the gap in self-employment between East and West Germany. To the extent that these variables only partially reflect the deep underlying personality difference, it is likely that they underestimate the true magnitude. A third cultural difference, confidence, did not appear to be an important factor, although it does increase the likelihood of self-employment.

## VIII. Robustness & Causality

The results of unreported linear probability models are similar to probit results. The effects of being born in the east and the effects of psychological variables are slightly stronger. When psychological variables are included in this specification the gap shrinks by more than one third. Also, including the construction sector changes the results very little – psychological variables are still found to explain about 30% of the gap.

A fixed-effects OLS specification that would address omitted variable problems could not be run for the whole sample as the variables ‘east’ is time independent. Similarly ‘nocontrol’ is time independent because it is only available for the years 1994-96. However, running the FE specification for the eastern sample shows that ‘state’ is borderline significant at the 10 percent level and the coefficient is - 0.0032, thus supporting the main results.

In order to address the direction of causality the ‘state’ variable was then constructed differently. It is now coded one if the individual favors state intervention more than the sample average in 1997, instead of 1997 and 2002. This does not change results significantly – the two variables can still explain almost 30 percent of the gap. This strengthens the claim for a causal impact of beliefs as it shows that beliefs and preferences for state action held *prior* to the transition into self employment affects the probability of such a transition.

## IX. Conclusion

In this paper I have attempted to explain the gap in rates of self employment in East and West Germany after the reunification of the country. It was argued that individuals under socialism develop certain beliefs and preferences in response to their particular life circumstances in planned economies. In opposition to Kirzner’s theory of costless opportunity discovery, it was argued that entrepreneurship is a process, and can be affected by these beliefs and preferences. It was shown that ‘traditional’ determinants of self-employment cannot fully account for the gap in self-employment between east and west. Variations in the formal institutional environment, credit constraints, human capital, adverse selection and



infrastructure were tested. It was suggested that the unique socialist history in East Germany exerted a persistent but declining influence on the beliefs and preferences of its inhabitants and temporarily reduced rates of self-employment. I have shown that two proxy variables (locus of control/ social conditions and preferences for state control) do in fact explain at least a third of the entrepreneurial gap.

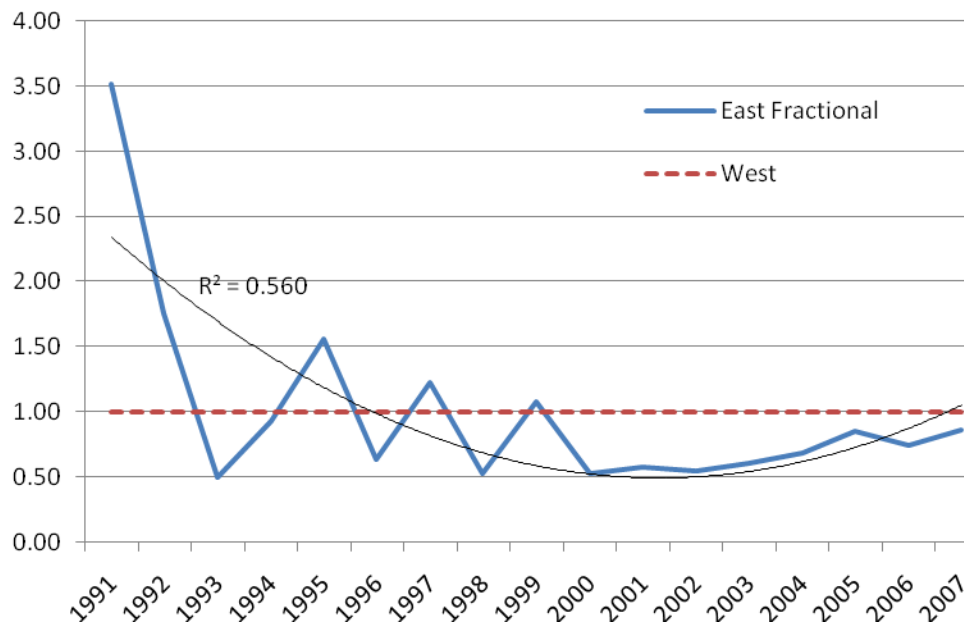
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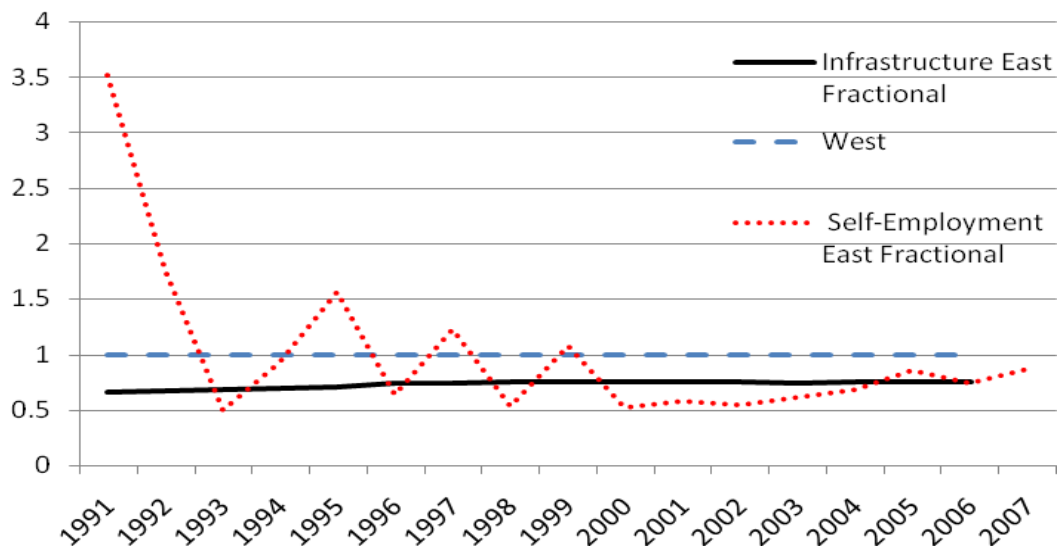
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**Figure 1 - East German Startups as Percentage of Western Ones**



**Figure 2 - Traffic Infrastructure in East and West Germany**

**Table 1 - Literature Overview**

<b>Explanatory Variable</b>	<b>Positive Effect</b>	<b>Negative Effect</b>	<b>Synthesis and Supportive Evidence</b>
<b>1. Traditional Factors</b>			
Education	Borjas (1986), Rees & Shah (1986), Evans & Leighton (1989), and Robinson & Sexton (1994)	Evans (1989), de Wit & van Winden (1989) and de Wit (1993)	U-shaped relationship Blanchflower's (2000) Uhlaner & Thurik (2004) KfW (2008), Grilo & Thurik (2004), Delmar & Davidsson (2000)
Experience	Borjas (1986)	Bernhardt (1994)	
Unemployment	Evans & Leighton (1989), KfW (2008)	Wennekers (2006), Blanchflower (2000)	Positive effect on micro level, negative effect if macro data is used
Credit Constraints	Bernhardt (1994), Kidd (1993)		
Male	Blanchflower (2000), Grilo & Thurik (2004), KfW (2008)		
Married	Borjas (1986), Bernhardt (1994)		Weak effect
Age	Brock & Evans (1986), Rees & Shah (1986), Borjas & Bronars (1989), Kidd (1993), Grilo & Thurik (2006), KfW (2008)		Inversely U-shaped, Most entrepreneurial between age 25-45
<b>2. Psychological Factors</b>			
Over-optimism	Arabsheibani et al.(2000)		
Agency Belief (individual effort/self efficacy)	KfW (2008); Beugelsdijk & Noorderhaven(2005); Utsch (2004)		
Believe in Private Ownership	Beugelsdijk & Noorderhaven (2005) Utsch (2004)		
Agency Beliefs (LOC)	Beugelsdijk & Noorderhaven (2005), Utsch (2004); Schiller & Crewson (1997), Evans & Leighton (1989), Kaufmann et al (1995)		

**Table 2 - Descriptive Statistics - Variable Means**

Variables	Explanation	Overall	Born		
		Mean	East	East	West
<b>become</b>	equals one when person becomes self-employed in that year	0.0062	0.0056	0.0056	0.0063
<b>born_east</b>	equals one if person was born in east	0.289	1.000	0.960	0.000
<b>east</b>	... if person lives in east	0.272	0.899	1.000	0.007
<b>age</b>	age in years	46.560	45.720	46.273	47.390
<b>age25_30</b>	equals one if person's age lies between 25 and 30	0.088	0.100	0.087	0.081
<b>age30_35</b>		0.115	0.116	0.096	0.118
<b>age35_40</b>		0.127	0.123	0.105	0.133
<b>age40_45</b>		0.123	0.123	0.111	0.123
<b>age45_50</b>		0.109	0.110	0.103	0.109
<b>male</b>	equals one if person is male	0.461	0.449	0.454	0.466
<b>tertEdu</b>	... if person has obtained tertiary educational degree	0.175	0.229	0.221	0.155
<b>fired</b>	... if person was laid off	0.024	0.037	0.036	0.017
<b>married</b>	... if person is cohabiting with spouse or partner	0.605	0.582	0.530	0.617
<b>exp</b>	labor market experience in a market economy in years	13.060	7.921	6.980	15.771
<b>expsqu</b>	labor market experience squared	321.910	82.080	83.980	438.700
<b>house</b>	equals one if person owns house or property	0.088	0.057	0.058	0.108
<b>nocontrol</b>	equals one if person feels he/she has no control over life	0.451	0.492	0.491	0.445
<b>Soc_cond</b>	... if the person feels that social conditions have a strong influence over one's life	0.649	0.733	0.733	0.607
<b>state</b>	... if person prefers state solution over private arrangements	0.340	0.471	0.466	0.288
<b>confident</b>	... if person is confident about the future	0.221	0.219	0.208	0.227

Table 3 - Regression Results - Binary Dependent Variable: Self-employed

<b>Probit Marginal Effects</b>						
	<b>(1)</b>		<b>(2)</b>		<b>(3)</b>	<b>(4)</b>
<b>Years</b>	<b>96-04</b>	<b>98-04</b>	<b>96-04</b>	<b>98-04</b>	<b>01-04</b>	<b>96-04</b>
<b>Born_east</b>	-.0009**	-.0013***	-.0016***	-.0019***	-0.0016***	-.0017***
						<i>(living in the east)</i>
<b>Male</b>			.0027***	.0026***	.0028***	.0027***
<b>Tert_Edu</b>			.0050***	.0051***	.0050***	.0050***
<b>Experience</b>			.000006	-.00003	.000006	.000003
<b>Experience^2</b>			-0.000006**	-.0000004**	-.000003*	-.000003*
<b>Fired</b>			.0114***	.0105***	.0116***	.0114***
<b>Age25_30</b>			.0044***	.0038***	.0031***	.0043***
<b>Age30_35</b>			.0060***	.0056***	.0057***	.0060***
<b>Age35_40</b>			.0050***	.0048***	.0031***	.0050***
<b>Age40_45</b>			.0044***	.0043***	.0039***	.0044***
<b>Age45_50</b>			.0037***	.0033***	.0037***	.0037***
<b>Married</b>			-.0015***	-.0016***	-.0016***	-.0015***
<b>Property</b>					.0027***	
<i>Observations</i>	<i>139,000</i>	<i>119,000</i>	<i>139,000</i>	<i>119,000</i>	<i>76,300</i>	<i>139,000</i>
<i>R^2</i>	<i>0.004</i>	<i>0.008</i>	<i>0.0574</i>	<i>0.0596</i>	<i>0.0597</i>	<i>0.0577</i>



Table 4 – Probit Regression Results – Beliefs and Preferences

	(1)	(2)	(3)		(4)
<b>Years</b>	<b>96-04</b>	<b>96-04</b>	<b>96-04</b>		<b>99-04</b>
<b>Born_east</b>	-.0014***	-.0011***	-.0011***	<b>Born_east</b>	-0.0009**
<b>Male</b>	.0026***	.0025***	.0025***	<b>Male</b>	0.0022***
<b>Tertiary Edu</b>	.0045***	.0043***	.0042***	<b>Tertiary Edu</b>	0.0029***
<b>Experience</b>	-0.000022	0.00003	0.00003	<b>Experience</b>	-0.00006
<b>Experience^2</b>	-.000003**	-.00003**	-.00003**	<b>Experience^2</b>	-0.00000
<b>Fired</b>	.0113***	.00113***	.0113***	<b>Fired</b>	.0102***
<b>Age25_30</b>	.0045***	.0045***	.0043***	<b>Age25_30</b>	0.0028***
<b>Age30_35</b>	.0061***	.0061***	.0059***	<b>Age30_35</b>	0.0049***
<b>Age35_40</b>	.0050***	.0049***	.0049***	<b>Age35_40</b>	0.0048***
<b>Age40_45</b>	.0044***	.0043***	.0043***	<b>Age40_45</b>	0.0041***
<b>Age45_50</b>	.0036***	.0035***	.0035***	<b>Age45_50</b>	0.0035***
<b>Married</b>	-0.0015***	-.0014***	-.0014***	<b>Married</b>	-0.0016***
<b>NoControl</b>	-.0016***	-.0011***	-.0014***	<b>Soc_cond</b>	-0.0016***
<b>State</b>		-.0019***	-.0019***	<b>State</b>	-0.0024***
<b>Confident</b>			.0010**	<b>Confident</b>	0.0007*
<i>Observations</i>	139,000	139,000	139,000		85,442
<i>R^2</i>	0.0593	0.0618	0.0622		0.0636

Table 5 - Black Market Entrepreneurs

	(1)	(2)	(3)
<i>dependent variable</i>	<i>self-employed</i>	<i>self-employed</i>	<i>self-employed</i>
<i>years</i>	<i>1991-2007</i>	<i>1991-1995</i>	<i>2003-2007</i>
black market	0.002**	0.003**	0.004**
age25_30	0.008***	0.004**	0.004**
age30_35	0.006***	0.003**	0.003**
age35_40	0.007***	0.004***	0.005***
age40_45	0.004***	0.001	0.001
age45_50	0.004***	0.004***	0.005***
male	0.002***	0.003***	0.003***
edu	0.005***	0.007***	0.008***
sec_school	-0.000	0.003	0.003
vocation	0.000	-0.001	-0.003*
fired	0.013***	0.006***	0.008***
-			
married	0.002***	-0.002*	-0.003*
exp	0.000	-0.001	-0.002
exp^2	-0.000	0.000***	0.001***
observations	77,605	18,395	18,926

## Appendix

	become	Born_east	age25_30	age30_35	age35_40	age40_45	age45_50	male	education	fired	married	exp	expsqu	nocont~l	state	confident
become	1															
Born_east	-0.0053*	1														
age25_30	0.0172*	0.0033	1													
age30_35	0.0319*	-0.0298*	0.0738*	1												
age35_40	0.0260*	-0.0215*	-0.1189*	0.0597*	1											
age40_45	0.0169*	0.0014	-0.1165*	-0.1350*	0.0523*	1										
age45_50	0.0066*	0.0037	-0.1087*	-0.1259*	-0.1334*	0.0592*	1									
male	0.0200*	-0.0154*	-0.0067*	0.0021	0.0008	-0.0024	0.0052	1								
edu	0.0327*	0.0913*	-0.0338*	0.0243*	0.0448*	0.0652*	0.0753*	0.0883*	1							
fired	0.0323*	0.0565*	0.0325*	0.0249*	0.0189*	0.0161*	0.0170*	0.0373*	-0.0180*	1						
married	-0.0099*	-0.0309*	-0.1669*	-0.0131*	0.0865*	0.1242*	0.1258*	0.0461*	0.1051*	-0.0203*	1					
exp	-0.0180*	-0.2664*	-0.2259*	-0.1639*	-0.0909*	-0.0100*	0.0653*	0.3041*	0.0197*	-0.0326*	0.2417*	1				
expsqu	-0.0212*	-0.3030*	-0.1819*	-0.1775*	-0.1434*	-0.0815*	-0.0048	0.2919*	-0.0212*	-0.0390*	0.1673*	0.9523*	1			
nocontrol	-0.0168*	0.0697*	0.0196*	0.0227*	0.0074*	-0.0054*	-0.0117*	-0.0629*	-0.1355*	0.001	0.0655*	0.0377*	0.0105*	1		
state	-0.0180*	0.1933*	0	0.0155*	0.0158*	0.0069*	-0.0169*	-0.0079*	-0.0542*	0.0174*	0.0385*	-0.0147*	-0.0390*	0.2933*	1	
confident	0.0072*	0.0095*	0.0796*	0.0956*	0.0649*	0.0230*	-0.0074*	0.0122*	0.0315*	-0.0084*	0.0452*	-0.0183*	-0.0359*	0.3260*	0.1299*	1

\*An Asterisk denotes statistical significance at the 5 percent level