

PRE- AND POST-CRISIS TRUST IN BANKS: LESSONS FROM TRANSITIONAL COUNTRIES

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We study the factors determining the level of trust in banks before and after the 2007-08 financial crisis and how this crisis reshaped banking trust in transitional countries. We find that younger, rural, educated, banked and generally trusting people tend to have higher confidence towards banks in both periods. Among country-level covariates, growth rate of GDP and Rule of Law remain significantly associated with banking trust in both periods. Finally, our findings indicate that the financial crisis has temporary impact on trust in banks since pulling back the rate of GDP growth tends to recover banking trust.

Keywords: Trust in Banks, Financial Crisis, Transitional Countries

JEL Classification: G01, G21, O43, P20

1. INTRODUCTION

Following Coleman (1988) and Putnam's (1993) seminal papers, the concept of trust has become increasingly popular in the economics literature and many arguments have been put forward regarding the reasons that trust may improve economic performance. Economists have begun to consider trust as a very important lubricant of social systems that have economic value, and believe it leads to high efficiency in society (Fukuyama, 1996). Increasing the number of mutually beneficial traders, addressing collective action problems, solving principal-agent problems, and improving information flows are particularly emphasized as important channels through which trust fosters development.

Among the many economic benefits that trust delivers, a higher level of cooperation is regarded as a main channel through which trust contributes to development (La Porta *et al.*, 1997). As argued in the literature, higher levels of trust are associated with greater cooperation, with the latter leading to better economic performance (La Porta *et al.*, 1996; Fukuyama, 1996). Fukuyama (1996) suggests that cooperation through trust tends to be a more effective substitute to cooperation through family ties. He stresses that, in contrast with the domination of smaller family firms which are found in societies where low levels of trust are present, large firms prevail in societies with high levels of trust.

While generalized trust is important for overall economic performance, trust in banks appears to be an even more crucial element, particularly for the well-functioning of financial systems. Guiso *et al.* (2009) argue that financial markets require particularly high levels of trust because people spend their money in exchange for financial promises. Peoples' decisions regarding whether or not to use banking services are heavily influenced by their trust, or lack thereof, in institutions that provide these services. Peoples' levels of trust in banks are further revealed with regard to the extent to which they are willing to cooperate with banking institutions in order to produce more efficient outcomes and to avoid non-cooperative traps. More trusting individuals are more likely to buy stock, and conditional to buying stock, they will invest a larger share of their wealth in stocks.

Higher levels of trust in the financial markets can promote recovery and increase the perceived credibility of post-crisis reform. As a more immediate threat, declining trust in financial markets can trigger financial panic and market crisis and therefore, must be regarded as a very important element in recovery plans. Diamond and Dybvig's (1983) canonical model shows that systematic banking crisis will more likely occur in places where investor confidence is low. In addition, as argued by Guiso *et al.* (2004), lack of trust amplifies the effect of costly participation in financial markets.

Financial crisis may decrease peoples' trust in financial institutions, leading some people to limit or stop cooperation with banks (i.e. withdraw deposits), and thereby exacerbate the impact of the crisis. Caprio (2005) stresses distrust in banks as one of the great and unmeasured costs of the crisis. Furthermore, financial crisis may lead to changes in preference for political and economic systems, and ultimately cause a decline in support for democracy and free markets (Grosjean *et al.*, 2011). Financial crisis may even lead to a drop in the general levels of trust and can be regarded as a cause of the "trust crisis." For example, Alesina and La Ferrara (2002) find that individuals who have recently suffered a trauma or a financial loss are generally less trusting. Giuliano and Spilimberge (2009) find that individuals who grew up during periods of macroeconomic volatility are more likely to support government redistribution and to believe that luck has more to do with success than does effort.

Despite the importance of trust in determining the costs of financial crisis (i.e. 2007-08 crisis), this issue remains largely unstudied. Several empirical studies conducted in advanced countries reveal contradictory results when it comes to its short-term versus long-term consequences. For example, Graham and Narasimhan (2005) argue that corporate managers who lived through the Great Depression in the USA chose a more conservative capital structure with less leverage even after economic conditions improved. A cross-country study conducted by Osili and Paulson (2009) stresses that having experienced a systematic banking crisis has important and long-term effects on individuals' behavior in the USA. They suggest that individuals who have experienced a systematic banking crisis in their countries of origin are less likely to use banking services in the USA when compared to otherwise similar individuals from the same country that have not lived through a crisis. Stevenson and Wolfers (2011) explored the

link between business cycles and trust in institutions in the USA and they found pro-cyclicality of the trust in banks to be the strongest. They suggest that about two-thirds of recent decline in trust in banks can be explained by cyclical economic downturn. However, given the data's limited history, they fail to associate this conclusion to the 2007-08 crisis. Knell and Stix (2015) employed survey evidence from Austrian households and found that trust in banks was affected by global financial crisis of 2007-2008. They further conclude that the subjective variables that are related to an individual's perceptions and expectations regarding the global financial crisis of 2007-2008 are the most important determinants of banking trust.

As we see, there is a limited scope within the empirical literature on the role of the crisis as it relates to confidence towards banks, and our study appears to be the first to analyze trust in banks across transitional countries, whose economies were among the hardest hit by the global financial crisis (Berglof and *et al.*, 2009; Habibov and Afandi, 2015). According to the European Bank for Reconstruction and Development (EBRD, 2010), the GDPs of transitional economies contracted by 5.2 percent and registered unemployment increased in 2009. Despite these major contractions, empirically, the evidence on the impact of the crisis on peoples' trust in banks is also inconclusive.

Combining responses from a survey of over 29,000 people in 29 transition economies both in 2006 and 2010, our study extends and complements the ongoing discussion on trust in banks in the three following ways. First, by studying its main determinants, it provides guidance regarding the origins of peoples' confidence in banks in the context of transitional countries. Having a diverse sample of 29 former socialist countries of Central and Eastern Europe, the Caucasus and Central Asia, allows us to robustly investigate the determinants of banking trust in transitional economies. Second, the study answers the question: 'are these determinants different before and after global financial crisis?' Finally, we study the role of the 2007-2008 global financial crisis on the decline of trust in banks across transitional countries. In addition, we also try to understand whether this drop constitutes a transitory phenomenon that will revert over time or if this decline represents a permanent shift in the level of trust.

Our findings indicate that younger, rural, university educated, banked and generally trusting people appear to have higher confidence levels towards banks both in pre-crisis as well as post-crisis periods. Among country-level variables, growth rate of GDP and Rule of Law remain positively and significantly associated with banking trust over both periods, while foreign bank entry begins to be detrimental to trust after the crisis. In addition to 'objective' variables, we find that 'subjective' factors such as a respondent's personal experience with the crisis, appear to strongly influence their trust in banks. We also find that financial crisis has a temporary and relatively small impact on peoples' trust in banks across households in transitional countries. In the financial markets of transitional countries, it may take people less time to recover to pre-crisis levels of trust in banks. Simply, recovering the overall rate of economic growth is likely to help recuperate the population's trust in banks. This again shows that, in contrast to advanced countries, a post-crisis drop in trust among the populations of transitional economies

does not represent a structural break involving a permanent decrease in trust.

The remainder of the paper is organized as follows. We introduce the data and methodology in the next section. Section 3 presents the empirical results. Finally, Section 4 concludes the paper.

2. DATA AND METHODOLOGY

2.1. Data Source

Our main source of data is the micro file of two rounds of the Life-in-Transition (henceforth, the LIT) survey which was implemented by the European Bank of Reconstruction and Development. The first round of data collection took place in 2006, while the second round was in late 2010 (EBRD, 2007, 2011). The timing of the LIT data collection has proven ideal for measuring the impact of the financial crisis on trust in banking institutions. The first round of the survey collected data on trust before the crisis began and the second one took place after the main wave of crisis had already hit transitional countries. Since a complete description of the LIT's methodology, including a report on observations and a discussion of the experiences with data collection can be found elsewhere (EBRD, 2007, 2011), we limit ourselves to the following succinct discussion of the data set.

The main goal of conducting the LIT surveys was to collect directly comparable information about overtime changes in individuals' and households' experiences, behaviors, and attitudes across the set of the transitional economies. Each round is made up of a cross-sectional survey which collected information on a broad range of topics, such as the socio-demographic characteristics of respondents (e.g. age, gender, and educational attainments) and households (e.g. dwelling ownership and rural/urban place of residency). Importantly, the LIT also collected data about possession of a bank account, trust in banks, and social capital in the form of trust in people. The data was collected through face-to-face interviews with trained interviewers.

The majority of questions were consistent across the two rounds, however, the 2010 round also includes a new module covering several questions specifically designed to gauge the effect of the global crisis. The crisis impact module of the LIT-2010 survey also provides insights into the various channels through which households were hit and the coping mechanisms that they adopted.

The first round of LIT collected information in 2006 from 1,000 respondents in 28 transitional countries of Eastern and Central Europe, the Caucasus and the Central Asia (excluding Turkmenistan)¹ and Turkey. The second round of the LIT, conducted in

¹ Albania, Armenia, Azerbaijan, Belarus, Bosnia & Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Macedonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Mongolia, Poland, Romania, Russia, Serbia & Montenegro, Slovak Republic, Slovenia, Tajikistan, Turkey, Ukraine, and Uzbekistan.

2010, collected information from approximately 1,000 to 1,599 respondents in the same set of transitional countries (see Table A1 in the appendix).

In addition to two rounds of LIT surveys, we use country-level statistics on macro, financial and institutional variables that might affect the degree of trust in banks. Our macro and banking indicators come from the EBRD country statistics, while measures of the quality of institutions are taken from World Bank governance indicators (World Bank, 2010). A detailed discussion of outcome and explanatory variables can be found below.

2.1.1. Outcome Variable

Our outcome variable is peoples' Trust in Banks and it is gauged in the LIT by asking respondents the question, "To what extent do you trust in banks and in the financial system?" The answers are coded as Complete distrust=1, Some distrust=2, Neither trust nor distrust=3, Some trust=4, Complete trust=5.

Some authors have argued against using such a "subjective" measure of trust (Glaeser *et al.*, 2000; Akerlof and Shiller, 2009), and have proposed employing more "objective" measures, for instance, possession of bank account(s) or having higher usage of bank services (Osili and Paulson, 2009; Beck and Brown, 2011). However, using objective measures of trust can be even more problematic. The main problem with such objective measures is that they do not necessarily reflect true confidence since choices people make can be either voluntary or involuntary. For example, an individual can have a checking account, such as a salary account provided by their employer, but may not trust in banks (involuntary use of banking services). Alternatively, a person may not have an account (involuntary disuse of banking services), but may have a high confidence in banks.

In light of the above-mentioned pros and cons, we employed a subjective measure of trust in banks.

2.1.2. Explanatory Variables

The availability of individual and household-level data from the LIT allows us to control for factors that are likely to influence the trust people have in banks. Individual-level and household-specific variables like Age, Female, University, Car Owner and Rural are selected since all these variables were found to be important determinants of banking trust in previous studies (Osili and Paulson, 2009; Knell and Stix, 2015; Beck and Brown, 2011). Our Age variable shows the actual age of the respondent in years. University is coded into a binary variable based on the highest level of academic qualification attained: bachelor level or higher=1, otherwise=0. The variable Car Owner shows whether a household has its own car or not, and is coded as yes=1, no=0. Rural is coded rural=1 if a household's residence is in a rural area,

otherwise=0.²

An individual's experience and close collaboration with financial institutions can be seen as evidence of their confidence in those institutions (Malmendier and Nagel, 2009; Putnam, 2000; Knell and Stix, 2015). Therefore, we added a variable that reflects whether or not an individual has a checking account in a commercial bank. As such, our Bank Account variable shows whether a household member has a bank account, and is coded as yes=1, no=0.

Trust in banks is a contagious phenomenon which depends on attributes that are personal in nature, as well as self-reinforcing processes such as peoples' general level of trust of Knell and Stix, 2015). It is expected that being a generally trustful person would increase the likelihood of that person trusting more in banks as well. In this regard, we choose to explore the effect of social trust on confidence towards banks by using the Trust in People variable which is coded as Complete distrust=1, Some distrust=2, Neither trust nor distrust=3, Some trust=4, Complete trust=5.

In addition to household-level characteristics, we also examine the country-level variation in trust in banking. There is a growing body of evidence that suggests that wealthier and better-governed economies also have higher trust levels in their societies (Putnam, 1993; Fukuyama, 1996; Knack and Keefer, 1997; Raiser *et al.*, 2008). We use real GDP growth to measure income and wealth growth, the Rule of Law Index of the World Bank's governance indicators to measure good governance, and the EBRD's foreign bank penetration to measure market share of foreign-owned banks in total banking assets. These variables are collected separately for the two survey periods (LIT-2006 and LIT-2010). GDP Growth shows an average growth rate of real GDP before LIT-2006 (2004-2005) and before LIT-2010 (2008-2009). Rule of Law reflects overall institutional development in transitional countries and measures an average rule of law index of the Worldwide Governance Indicators of the World Bank for 2004-2005 and 2008-2009 respectively. The index takes values from -2.5 to 2.5, with higher scores reflecting better quality institutions. Bank Foreign Ownership indicates foreign ownership in the banking system, which is also averaged for 2004-2005 and 2008-2009 respectively.

Finally, we use a set of subjective variables that are expected to be important determinants of trust (Rainer and Siedler, 2009; Knell and Stix, 2015). According to Ellison and Fudenberg (1993) and Roth and Erev (1995), information gained from personal experience has a greater effect on behavior relative to other sources of information. Therefore we use several relevant variables that reflect a respondent's and their household's experience with the crisis. These variables include Crisis Effect,

² In contrast to previous studies, we did not include measures of an individual's or a household's income or a measure of expenditures in our empirical analysis because of data shortages. First, no information about income was collected in either the 2006 and 2010 LITS. In addition, although expenditure information is collected in both surveys, this information is not comparable for two reasons: 1) expenditure items differ between surveys, and 2) recoding periods for items differ between surveys.

Closed Business, Lost Job, Lost Wage, Lost Foreign Income, and Lost Work Hours. All these variables are available in the LIT-2010 micro file. Crisis Effect indicates how much the crisis affected the household, and is coded as a great deal=1, a fair amount=2, just a little=3 and not at all=4. Closed Business reflects whether a family business closed because of the crisis and is coded as yes=1, no=0. Lost Job shows whether any member of the household lost a job, and is coded as yes=1, no=0. Lost Wage reflects whether a respondent's wage was reduced or delayed and is coded as yes=1, no=0. Lost Foreign Income shows whether flow of remittances declined and/or family member(s) returned from a foreign country, and is coded as yes=1, no=0. Finally, Lost Work Hours depicts whether or not the crisis decreased the working hours of the respondent and is coded as yes=1, no=0.

Overall, descriptive statistics for all explanatory variables are shown in Table A2 in the appendix.

2.2. Methodology

The methodology of our study is inspired by Knell and Stix's (2015) paper, and it consists of several consecutive steps. First, we use descriptive methods to describe and compare our outcome variable, trust in banks and the financial system, across the years. Specifically, a *t*-test is used to compare the level of trust before the crisis in 2006 and after the crisis in 2010. As shown graphically in Figure 1, although our outcome variable is ordered categorical by nature, it appears to be normally distributed for both years. Furthermore, the formal test of normality conducted for the 2006 round demonstrates that, from a strict statistical point of view, the variable trust in banks is normally distributed (Chi-squared=5711; $p=0.000$). Similarly, trust in banks is also distributed normally in the 2010 round (Chi-squared=6152; $p=0.000$).

Second, since the outcome variable is normally distributed, we analyze the determinants of trust in banks by estimating several OLS models for the 2006 and 2010 rounds separately. In the first and second models, we include individual and household-level variables only in order to avoid overloading the specification. We include country fixed effects in both regressions to eliminate the effect of slowly changing country-level variables that could confound the results. By taking into account country-specific fixed effects, we can focus completely on variation within countries.

In the third and fourth models, we add controls for country-specific covariates, namely, GDP growth, Rule of Law and Bank Foreign Ownership.

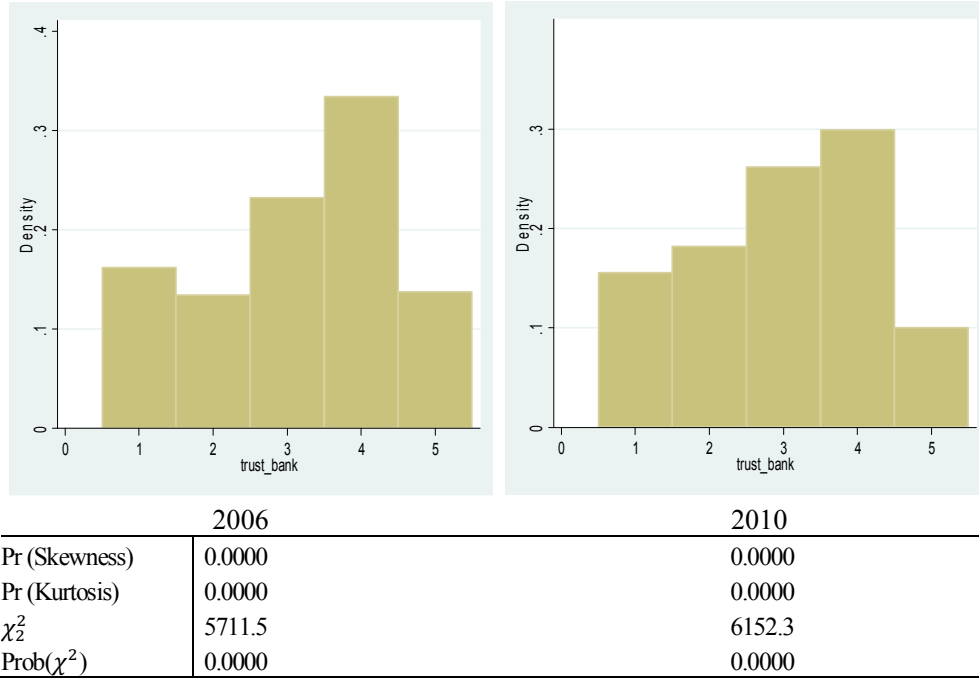


Figure 1. Test for Normality of Trust in Banks

Third, we attempt to explain the role of the financial crisis with regard to the drop in trust. We combine the 2006 and 2010 rounds in a unified data set and estimate OLS regression with individual and household-level variables, country-specific covariates, along with crisis-related subjective controls and a time dummy for 2010.

Fourth, we use the standard Blinder-Oaxaca decomposition technique to decompose the change in banking trust after the crisis. The decomposition allows us to estimate what share of the total variation in the difference of bank trust overtime can and cannot be explained by explanatory variables.

2.2.1. Regression

Econometrically, in the second step, we estimate the OLS model for household-level variables, assuming that an individual's underlying response can be described by the following equation:

$$Y_{i,k} = \alpha + H(X'\beta) + K'\eta + \varepsilon, \quad (1)$$

where $Y_{i,k}$ denotes trust in banks by respondent i in country k , $H(X'\beta)$ is the vector of individual and households-level independent variables (such as age, gender, education), $K'\eta$ is a country-specific fixed effect capturing all unobservable effects

influencing trust in banks of individual i in country k , and ε is a disturbance parameter which is assumed to be normally distributed.

In order to estimate the effect of country-level variables on trust in banks, we use estimation (1) and add $C(Z'\delta)$ as the vector of country-specific explanatory variables (such as GDP growth, rule of law), and exclude country-specific fixed effects in order to avoid the process of washing out the cross-sectional variation of the country-level predictors (Bryan and Jenkins, 2013).

In the third step, we run two sets of regressions as follows:

$$Y_{i,k} = \alpha + H(X'\beta) + C(Z'\delta) + S(V'''\Omega) + \varepsilon, \quad (2)$$

and

$$Y_{i,k} = \alpha + H(X'\beta) + C(Z'\delta) + TimeDummy + \varepsilon, \quad (3)$$

where $S(V'''\Omega)$ represents the vector of subjective or perceptual variables (such as closed business, lost job) that show the degree and the types of personal experience with the crisis. The Time Dummy shows the period of the sample (pre-crisis and post-crisis period) and allows us to investigate the role of the crisis in the drop in banking trust. Since the responses of individuals within a country are likely to be correlated, we cluster the errors at the country level in all OLS specifications described above.

2.2.1. Decomposition

While the regression results of equation (3) might indicate in general, what is the role of the crisis in the drop of banking trust, we also want to identify and quantify the extend of each individual and country level variables' effect on the trust differences between two periods. For this purpose, in the final step, using the standard Blinder-Oaxaca decomposition algorithm, we investigate the effects of endowments and coefficient effects on the lowering of trust in banking (Jann, 2008). The Blinder-Oaxaca decomposition equation can be written as follows:

$$\bar{Y}_b - \bar{Y}_a = [\bar{E}_b - \bar{E}_a]'\gamma_b + \bar{E}'_a(\gamma_b - \gamma_a) + [\bar{E}_b - \bar{E}_a]'\gamma_b, \quad (4)$$

where \bar{Y}_b and \bar{Y}_a are, respectively, the expected values of banking trust before and after the crisis. \bar{E}_b and \bar{E}_a are, respectively, vectors of average endowments (socio-economic characteristics) before and after the crisis, and likewise, γ_b and γ_a are, respectively, vectors of parameters before and after crisis. In the equation, $[\bar{E}_b - \bar{E}_a]'\gamma_b$ is the part that is explained by changes in the endowments or socio-economic characteristics, while the second two terms represent the unexplained parts which come both from the changes in the coefficients (including differences in the intercept) and an interaction effect. This is "threefold" decomposition and the

explanation stems from Daymont and Andrisani's (1984) following extension of the decomposition:

$$\begin{aligned} [\bar{E}_b - \bar{E}_a]' \gamma_b &= [E\gamma_b(\bar{Y}_b | \bar{E}_b) - E\gamma_b(\bar{Y}_a | \bar{E}_a)], \\ \bar{E}'_a (\gamma_b - \gamma_a) &= [E\gamma_b(\bar{Y}_a | \bar{E}_a) - E\gamma_a(\bar{Y}_a | \bar{E}_a)], \\ [\bar{E}_b - \bar{E}_a]' (\gamma_b - \gamma_a) &= [E\gamma_b(\bar{Y}_b | \bar{E}_b) - E\gamma_a(\bar{Y}_b | \bar{E}_b)] + [E\gamma_b(\bar{Y}_a | \bar{E}_a) - \\ &\quad E\gamma_a(\bar{Y}_a | \bar{E}_a)]. \end{aligned}$$

The first line of the above decomposition equation (4) provides us with the overall characteristic effects. However, in our study we are also interested in detailed decomposition which can provide us with the detailed contributions of each single predictor. For example, we are particularly interested in evaluating the gap in the trust level due to differences in crisis-related indicators such as real GDP growth. Therefore, we employ a detailed decomposition for the explanatory component of the equation (4), which is very easy to implement because the total component involves a simple sum over the individual contributions (Jann, 2008).

3. EMPIRICAL RESULTS

3.1. Descriptive Analysis

We begin with a descriptive analysis in order to understand to what extent peoples' levels of trust have been changed over the crisis period. A close look at the results of Panel A from Table 1 reveals that trust in banks dropped after the crisis. For example, people who had at least some trust in banks accounted for 47 percent of respondents in 2006, while in 2010 only 40 percent of respondents reported that they had some or complete trust in banks. In contrast, people with some or complete distrust increased from 29 percent in 2006 to about 34 percent in 2010. Although the magnitudes of these changes are not that large, they are found to be statistically significant. We use formal t-test to see whether the trust in banks has changed after the crisis. Significant results of the test demonstrate that the distribution of trust in banks in 2010 is statistically different from that in 2006 ($t=13.60$; $p=0.000$).

Examining Panel B of Table 1, we can highlight some interesting properties of the level of trust across transitional countries and their change throughout the crisis. Panel B shows that trust in banks and its change over time differs widely across countries. For example, respondents from Central Asian transitional countries generally report higher trust in banks compared to other economies. On average, more than half of the populations of Kyrgyzstan, Tajikistan and Uzbekistan show some or complete confidence in banks. In addition, in the whole sample the highest-trust country is found

to be Estonia, where respectively, almost 72 percent and 63 percent of respondents believed that banks could be trusted in 2006 and in 2010 respectively. In contrast, countries such as Russia, Ukraine, Moldova, Yugoslavia and Bulgaria appear to be on the bottom of the list when it comes to trusting banks over the course of both periods.

Table 1. Descriptive Statistics

Panel A. Descriptive Statistics – Whole Sample											
	Year	Complete distrust				Neither trust nor distrust				Complete trust	
		Complete distrust		Some distrust		Neither trust nor distrust		Some trust		Complete trust	
		N	%	N	%	N	%	N	%	N	%
Total	2006	4,309	16.18	3,574	13.42	6,173	23.18	8,909	33.46	3,664	13.76
	2010	4,589	15.55	5,374	18.21	7,739	26.22	8,839	29.95	2,971	10.07
Panel B. Descriptive Statistics - Country Average											
Albania	2006	134	14.1	75	7.9	207	21.8	353	37.2	180	19.0
	2010	67	6.9	145	15.0	277	28.6	354	36.6	125	12.9
Armenia	2006	251	26.8	101	10.8	172	18.3	293	31.2	121	12.9
	2010	152	20.4	92	12.3	140	18.8	231	31.0	131	17.6
Azerbaijan	2006	99	12.1	113	13.9	186	22.8	218	26.7	199	24.4
	2010	128	13.4	124	13.0	170	17.8	420	44.0	112	11.7
Belarus	2006	94	10.5	109	12.2	218	24.3	297	33.1	178	19.9
	2010	57	6.7	146	17.2	219	25.8	271	32.0	155	18.3
Bosnia	2006	247	25.6	152	15.7	201	20.8	253	26.2	113	11.7
	2010	182	17.1	229	21.5	391	36.7	217	20.4	46	4.3
Bulgaria	2006	241	27.0	140	15.7	221	24.7	245	27.4	46	5.2
	2010	165	19.2	212	24.6	249	28.9	206	23.9	29	3.4
Croatia	2006	148	15.5	166	17.3	306	32.0	275	28.7	62	6.5
	2010	215	22.2	170	17.6	351	36.3	216	22.3	16	1.7
Czech Republic	2006	54	5.6	148	15.4	265	27.5	429	44.6	66	6.9
	2010	61	6.1	165	16.5	326	32.7	403	40.4	42	4.2
Estonia	2006	34	3.6	86	9.2	139	14.9	461	49.3	216	23.1
	2010	32	3.4	105	11.1	170	17.9	471	49.7	170	17.9
Macedonia	2006	363	38.8	104	11.1	223	23.8	179	19.1	67	7.2
	2010	174	16.8	149	14.4	329	31.8	249	24.1	132	12.8
Georgia	2006	97	11.3	117	13.7	192	22.5	338	39.5	111	13.0
	2010	32	4.0	107	13.3	202	25.0	430	53.3	36	4.5
Hungary	2006	119	12.7	164	17.4	286	30.4	296	31.5	75	8.0
	2010	336	33.4	252	25.1	267	26.6	113	11.2	37	3.7
Kazakhstan	2006	93	10.3	151	16.8	234	26.0	289	32.1	134	14.9
	2010	98	11.0	190	21.3	270	30.2	251	28.1	85	9.5
Kyrgyzstan	2006	134	14.7	88	9.6	110	12.0	400	43.8	181	19.8
	2010	133	14.6	150	16.4	138	15.1	260	28.5	232	25.4
Latvia	2006	52	5.5	118	12.5	239	25.4	444	47.1	89	9.4
	2010	160	17.6	205	22.6	223	24.6	281	31.0	38	4.2

Table A1. Descriptive Statistics (Cont.)

	Year	Complete distrust		Some distrust		Neither trust nor distrust		Some trust		Complete trust	
		N	%	N	%	N	%	N	%	N	%
Lithuania	2006	79	8.3	133	13.9	227	23.8	415	43.5	100	10.5
	2010	96	10.3	188	20.1	312	33.4	302	32.3	37	4.0
Moldova	2006	210	24.8	151	17.8	220	26.0	227	26.8	38	4.5
	2010	187	22.7	201	24.5	147	17.9	248	30.2	39	4.7
Mongolia	2006	89	10.1	71	8.1	161	18.4	323	36.8	233	26.6
	2010	47	5.2	96	10.7	189	21.1	423	47.2	141	15.7
Montenegro	2006	118	12.8	124	13.4	248	26.8	298	32.2	137	14.8
	2010	81	8.4	123	12.8	309	32.1	381	39.6	68	7.1
Poland	2006	110	11.9	147	15.9	260	28.2	337	36.6	68	7.4
	2010	98	6.3	319	20.6	488	31.4	579	37.3	68	4.4
Romania	2006	155	16.3	119	12.5	282	29.6	297	31.2	99	10.4
	2010	444	44.3	237	23.6	171	17.0	134	13.4	17	1.7
Russia	2006	234	25.9	195	21.5	210	23.2	208	23.0	58	6.4
	2010	319	22.6	265	18.8	349	24.7	349	24.7	129	9.1
Serbia	2006	319	33.7	139	14.7	204	21.5	228	24.1	57	6.0
	2010	370	24.9	294	19.8	473	31.9	299	20.1	49	3.3
Slovakia	2006	116	12.3	142	15.0	213	22.5	380	40.2	94	9.9
	2010	48	4.9	150	15.2	354	35.9	370	37.5	64	6.5
Slovenia	2006	42	4.4	93	9.7	282	29.3	423	44.0	121	12.6
	2010	112	11.5	220	22.7	309	31.8	277	28.5	53	5.5
Tajikistan	2006	42	4.8	62	7.1	139	15.9	264	30.2	368	42.1
	2010	33	3.8	115	13.2	188	21.5	268	30.7	269	30.8
Turkey	2006	273	31.5	114	13.1	169	19.5	126	14.5	186	21.4
	2010	202	21.1	161	16.8	240	25.1	252	26.4	101	10.6
Ukraine	2006	264	28.4	169	18.2	170	18.3	283	30.4	44	4.7
	2010	439	29.5	396	26.6	320	21.5	265	17.8	66	4.4
Uzbekistan	2006	98	10.6	83	9.0	189	20.5	330	35.8	223	24.2
	2010	121	9.6	168	13.3	168	13.3	319	25.3	484	38.4

Panel B of Table 1 also allows us to investigate which countries observed the highest, as well as lowest, drops in trust after the crisis. A close look at the results reveals that there is a contrast between the Eastern European states and the rest of the transitional countries in terms of post-crisis decline in banking trust. Thus, the impact of the crisis seems to have been much higher in Eastern European transitional countries when compared to others. For example, the level of peoples' 'some' or 'complete' trust in banks went down by 26, 24 and 23 percentage points in Romania, Hungary and Slovenia respectively. The impact of the financial crisis has tended to be much higher in these countries, mainly because of their financial integration within the world market, whereas the countries of the Commonwealth of Independent States (CIS) were much less exposed to the international business cycle (EBRD, 2010). This is also confirmed by the fact that average respondents from some CIS countries such as Russia, Azerbaijan and

Armenia reported even higher confidence towards banks in 2010 when compared to 2006.

While these simple descriptive analyses indicate a clear difference between pre-crisis and post-crisis trust levels among the transitional countries, a question arises regarding what then drives trust in banks? To answer this question, we turn next to multivariate regression analysis.

3.2. Regressions Results

3.2.1. Pre-crisis and post-crisis determinants of trust in banks

In Table 2, we employ OLS regression analysis to examine the determinants of trust before and after the periods of financial crisis separately. Looking first at the individual and household-level estimates of trust before the commencement of the crisis in Model 1, we find that Older and Female respondents have lower trust in banks. As expected, people with higher educational levels appear to have higher confidence in banks. Having a bank account, living in rural area, owning a private car and demonstrating higher social trust in people all tend to have a sizeable positive influence on respondents' trust in banks. For example, if at least one member of a household has a checking account, trust in banks increases by about 0.24 units, while one unit increase in trust in people leads to 0.21 units increase in banking trust.

Looking at the individual and household-level estimates of trust after the commencement of the crisis in Model 2, we can observe that individual and household-level covariates, except Rural, enter significantly thus becoming statistically insignificant. The reported estimates suggest that Younger, Banked, Car Owners and Educated people held higher levels of trust in banks after the crisis. Having a general trust in other people remains strongly correlated with respondents' confidence towards banks. Nevertheless, as opposed to before the crisis when being female was correlated with low trust in banks, after the crisis, being female was correlated with increased trust in banks. One could speculate about possible reasons leading to this result, but no explanation strikes us as particularly plausible.

As mentioned in the methodology section of this paper, we controlled for country fixed effects in Models 1 and 2 of Table 2 in order to account for average differences across countries. However, there may also be within-country variation which could lead to biased results for the individual and household-level explanatory variables. That is, the estimates from a country fixed effects approach which relate specifically to the set of countries included in the sample cannot be generalized out of the sample (Bryan and Jenkins, 2013).³

³ As a part of a check for robustness, we re-estimate Models 1 and 2 with the country random effects to see whether within-country variation can mediate the household-level variables' effects for trust in banks. The

Table 2. Determinants of Banking trust in 2006 and 2010 (OLS results)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Socio-economic Characteristics										
Constant	3.0638***	0.0658	2.1153***	0.0580	2.3572***	0.2711	2.5883***	0.1469	2.3572***	0.2711
Age	-0.0054***	0.0011	-0.0020***	0.0007	-0.0073***	0.0014	-0.0043***	0.0009	-0.0073***	0.0014
Female	-0.0320*	0.0180	0.0629***	0.0160	-0.0324	0.0217	0.0810***	0.0220	-0.0324	0.0217
University degree	0.0305*	0.0196	0.0401**	0.0174	0.0283	0.0259	0.0650***	0.0184	0.0283	0.0259
Bank account	0.2657***	0.0370	0.1868***	0.0286	0.2546***	0.0854	0.1845**	0.0923	0.2546***	0.0854
Rural	0.1147***	0.0353	0.0115	0.0385	0.1903***	0.0537	0.0726	0.0480	0.1903***	0.0537
Car owner	0.0624***	0.0236	0.0416**	0.0193	0.0166	0.0316	-0.0045	0.0411	0.0166	0.0316
Trust people	0.1966***	0.0148	0.1916***	0.0137	0.2106***	0.0199	0.1872***	0.0175	0.2106***	0.0199
Country-level Variables										
GDP growth					0.0504***	0.0033	0.0351***	0.0018	0.0504***	0.0033
Rule of Law					0.0299**	0.0149	0.0312**	0.0158	0.0299**	0.0146
Bank foreign ownership					0.0011***	0.0003	-0.0019***	0.0002	0.0010***	0.0002
Interactions with Dummy2010										
Dage									0.0030**	0.0014
Dfemale									0.1134***	0.0346
Duniversity degree									0.0366	0.0388
Dbank account									-0.0700	0.0952
Drural									-0.1177**	0.0577
Dcar owner									-0.0211	0.0465
Dtrust people									-0.0233	0.0296
Dgdp growth									-0.0152***	0.0038
Drule of law									0.0013	0.0217
Dbank foreign ownership									-0.0030***	0.0003
Dummy Year									0.2311	0.2724
R ²	0.1404		0.1505		0.0743		0.0595		0.0699	
Observations	25789		28107		24852		27116		51968	

Note: All regressions are estimated with OLS. Models 1 and 2 include household-level variables and country fixed effects, and are estimated for samples 2006 and 2010 respectively. Models 3 and 4 include both household-level as well as country-specific variables for samples 2006 and 2010 respectively. Model 5 is estimated for pooled sample and includes interactions terms. All standard errors are corrected for clustering of the residuals at the country-level. *** denotes significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

random effects are found to be statistically significant but fairly small (about 9%). Furthermore, none of the household-level variables change direction or statistical significance.

In order to estimate the effect of country-specific variables on trust in banks, we first start with the 2006 sample and add three country-level variables in Model 3. Here we find that all these controls are statistically significant. The average growth of real GDP over the past two years appears to be strongly and positively correlated with peoples' trust in banks, and is statistically significant at the 1 percent level. According to the model, Rule of Law also tends to be a strong trust-building factor in transitional countries. We further found that presence of Foreign Banks has a small but statistically significant positive effect on trust in banks. The majority of individual and household-level covariates remain statistically and economically significant, except the coefficient for Education, Female and Car Ownership, which we fail to accept at the 10 percent significance level.

For the LIT-2010 sample, when we include country-specific variables in Model 4, the individual and household level covariates that we found to be significant in predicting peoples' trust in banks continues to enter significantly. After controlling for individual and household-level covariates, GDP Growth and Rule of Law also remain statistically significant with a positive effect on trust. However, Foreign Ownership of banks starts to play a detrimental role in peoples' confidence. This can be explained as a result of a rising level of skepticism which can be seen to stem from external financing that began with fueling a credit boom and subsequently resulted in the financial crisis (Berglof *et al.*, 2009).

We conclude our analysis by examining Table 2 in which we compare the magnitudes of coefficients for trust in the pre-crisis and post-crisis periods. These appear to be widely variant. As shown in Model 5, to check the robustness of these differences, we use the interaction approach. By multiplying them with the time dummy, our aim is to detect systematic changes in variables before and after the crisis. Some of the interacted coefficients such as Education, Bank Account, Car Ownership, Social Trust and Rule of Law come out statistically non-significant. According to the results of Model 5 that are found in Table 2, Older people and Female individuals have increased their level of trust in banks vis-à-vis the average person during the crisis period. In contrast, people living in Rural areas have decreased their confidence in banks. Furthermore, country-level variables such as Economic Growth and Foreign Bank Ownership show lower trust levels after the crisis.

3.2.2 *Effect of crisis on trust in banks*

In order to understand the costs of the financial crisis that are associated with the drop in trust, we begin by investigating how the personal consequences of the crisis affect peoples' trust in the banking system. Here we use the subjective views of individuals who have lived through the crisis and experienced the crisis in different ways. The results of the estimations are shown in Model 6 of Table 3.

According to the results of Model 6, the effect of personal experience with crisis on trust is both statistically significant and quantitatively large. For example, trust in banks

is found to be 0.20 unit points lower for people who considered the crisis to be a major threat to their lives. Respondents reporting that they had been affected by crisis through Wage Loss, drop in Remittances, and a decline in Working Hours tend to have lower trust in banks by 0.14, 0.06 and 0.05 units respectively. Nevertheless, people who were affected by the crisis through Job Loss appear to be indifferent to trust in banks. Interestingly, however, people who Closed Business because of the crisis are found to report increased trust in banks. The reason for this is that very few people (3 percent) reported that their family business was closed due to the crisis, thus reducing the observations significantly.

Table 3. Effect of 2007-08 Crisis on Banking Trust (OLS Results)

	Model 6		Model 7		Model 8		
	Coef.	Std. Err.	Beta	Coef.	Std. Err.	Coef.	Std. Err.
Socio-economic Characteristics							
Constant	3.2433***	0.1781		2.8088***	0.1510	2.5041***	0.1549
Age	-0.0054***	0.0009	-0.0738	-0.0060***	0.0011	-0.0057***	0.0010
Female	0.0910***	0.0240	0.0361	0.0161	0.0143	0.0327**	0.0145
University	0.0271	0.0223	0.0089	0.0434***	0.0138	0.0493***	0.0137
Bank account	0.1740**	0.0807	0.0160	0.2088***	0.0799	0.2107***	0.0757
Rural	0.0405	0.0502	0.0705	0.1302***	0.0433	0.1228***	0.0420
Car owner	-0.0209	0.0399	-0.0085	-0.0012	0.0344	-0.0033	0.0333
Trust people	0.1789***	0.0187	0.1540	0.2033***	0.0139	0.2015***	0.0126
Country-level Variables							
GDP growth	0.0228***	0.0023	0.0916			0.0381***	0.0015
Rule of Law	0.0326*	0.0195	0.0184	-0.0454***	0.0102	0.0342***	0.0106
Bank foreign ownership	-0.0008***	0.0003	-0.0211	-0.0014***	0.0002	-0.0005***	0.0002
Subjective Variables							
Crisis effect	-0.2049***	0.0245	-0.1278				
Closed business	0.0899*	0.0496	0.0152				
Lost job	0.0024	0.0205	0.0009				
Lost wage	-0.1398**	0.0551	-0.0567				
Lost foreign income	-0.0563	0.1028	-0.0193				
Lost working hours	-0.0496	0.0448	-0.0162				
Dummy2010				-0.2138***	0.0581	0.0255	0.0860
R ²		0.0679			0.0560		0.0688
Observations		18386			51968		51968

Note: All regressions are estimated with OLS. Model 6 is estimated for the 2010 sample and includes household and country-level objective variables, as well as subjective variables of respondents' experiences during the crisis. Model 7 and 8 are estimated for a pooled sample. All standard errors are corrected for clustering of the residuals at the country-level. *** denotes significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

One may be interested in examining which of the independent variables have a greater effect on trust in banks. To address this question, we also estimate the beta coefficients (standardized coefficients) of Model 6 and report the results in Table 3. Because the beta coefficients are all measured in standard deviations instead of the units of the variables, they can be compared to one another. Among crisis-specific variables, general perceptions regarding the crisis and Wage Loss appear to be the most important predictors of respondents' trust in banks, while Trust in people and having a Bank Account tend to have a greater effect on banking trust when it comes to the objective characteristics of households. As expected, GDP growth was found to be the strongest predictor of trust in banks among the country-level variables that we used.

In the last two models of Table 3, we attempt to estimate the effects of the 2007-08 crisis on people's trust in banks. In order to get an accurate measure of the crisis' effect on trust, it is also important to take a closer look at the time-specific crisis dummy that we add to our benchmark model with all household and country-level objective variables and remove the GDP growth variable as the crisis-related indicator. Our crisis-dummy measures the unexplained change in trust with regard to banking after the crisis period. According to the results of Model 7, the crisis (time) dummy is negative and statistically significant, with the unexplained average decline in trust after the crisis being 0.21 units.

In the final specification of Table 3 (Model 8) we add GDP growth to our benchmark model and estimate it together with the crisis-dummy (time). This allows us to believe that the unexplained drop in trust can be largely attributed to a deterioration of the general economic situation since the crisis dummy becomes positive and statistically non-significant only after controlling for GDP growth rate. In the next section, we conduct a Blinder-Oaxaca decomposition to ensure that our finding is robust.

3.3. Decomposition Results

We employ a detailed Blinder-Oaxaca decomposition to help find the contribution of each variable to the predicted trust level. Table 4 reports a summary of decomposition of the predicted difference of level of trust in banks (0.146) before and after the crisis period. As is apparent from the table, changes in the characteristics can explain a large part (116%) of the changes in the level of trust in banks, while unexplained components explain only a very small part (16%) of the changes which also appear to be statistically insignificant. This means that in the post crisis period, the level of trust in banks would be very similar or equal to that in the pre-crisis period if there were no differences in characteristics (endowments) between the two periods.

A closer look at the results of Table 4 reveals that the explained effect is almost exclusively driven by a deterioration in the growth rate of GDP. The breakdown of the characteristic effects shows that the drop in trust might recover as soon as a country starts to perform at a higher or pre-crisis GDP growth rate. More specifically, if the GDP growth after the crisis was same as in the pre-crisis period, then the predicted gap in the level of trust would disappear.

Table 4. Blinder-Oaxaca Decomposition of Difference in Banking Trust of 0.146 Points between 2006 and 2010

	Coef.	Std. Err.	Share (%)
Aggregate effect (explained)	0.1701***	0.0106	115.8
Aggregate effect (unexplained)	-0.0254*	0.0148	-15.8
Detailed Effects of Explained Component			
Age	-0.0050***	0.0008	-3.5
Female	-0.0152***	0.0028	-10.5
University	-0.0007***	0.0003	-0.5
Bank account	-0.0099***	0.0012	-6.8
Rural	0.0009***	0.0003	0.7
Car owner	0.0002	0.0008	0.1
Trust people	-0.0567***	0.0028	-39.2
GDP growth	0.2336***	0.0126	161.6
Rule of Law	-0.0023**	0.0011	-1.61
Bank foreign ownership	0.0121***	0.0017	8.4

Note: Share is the ratio of the contribution of each factor or group of factors to the predicted overall differences in banking trust before and after the crisis. *** denotes significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

4. CONCLUSION

Our findings indicate that Younger, Rural, University Educated, Banked and generally Trusting people appear to display a higher level of confidence towards banks, both in the pre-crisis as well as in the post-crisis period. Among country-level covariates, growth rate of GDP and Rule of Law remain positively and significantly associated with trust in banking for both periods, while the presence of Foreign Owned Banks begins to be detrimental to trust after the crisis. In addition to 'objective' variables, we find that personal experience with crisis also plays an essential role in the context of explaining the degree of trust in banks.

We also find that financial crisis has only a temporary and small impact on peoples' trust in banks across the households in transitional countries. In the post crisis period, the level of trust in banks would be very similar or equal to that found in the pre-crisis period if there were no difference in characteristics (endowments) between the two periods. We also show that the decline in banking trust is largely a consequence of the macro economic downturn. Growth of national income has a strong impact on trust and in fact, it explains the major part of the crisis effect on trust, which poses a dilemma for commercial banks, as they cannot directly control macroeconomic growth. Nevertheless, high-dependence on general economic performance makes it possible for trust to quickly return to its pre-crisis level. If this was not the case, the situation could be very difficult and might lead to deeper levels of stagnation for the entire banking system.

Finally, one main limitation of our study that of data shortages, should be mentioned. In addition to the socio-economic characteristics of respondents and some

socio-economic conditions at the country-level, trust in banks may also depend on the performance of financial institutions (Knell and Stix, 2015). As such, trust may increase or decrease with the higher or lower performances of banks. Due to data shortage, we are not able to investigate whether a drop financial institutions' performance and investments can have paralyzing effects on peoples' trust in those institutions.

APPENDIX

Table A1. Country Sample Size of LIT-2006 and LIT-2010 Surveys

Country	2006		2010	
	Number	Percent	Number	Percent
Albania	1000	3.45	1055	3.27
Armenia	1000	3.45	1000	3.10
Azerbaijan	1000	3.45	1002	3.11
Belarus	1000	3.45	1000	3.10
Bosnia	1000	3.45	1087	3.37
Bulgaria	1000	3.45	1014	3.14
Croatia	1000	3.45	1006	3.12
Czech Republic	1000	3.45	1007	3.12
Estonia	1000	3.45	1002	3.11
Macedonia	1000	3.45	1072	3.32
Georgia	1000	3.45	1000	3.10
Hungary	1000	3.45	1054	3.27
Kazakhstan	1000	3.45	1000	3.10
Kyrgyzstan	1000	3.45	1016	3.15
Latvia	1000	3.45	1007	3.12
Lithuania	1000	3.45	1013	3.14
Moldova	1000	3.45	1043	3.23
Mongolia	1000	3.45	1000	3.10
Montenegro	1000	3.45	1013	3.14
Poland	1000	3.45	1616	5.01
Romania	1000	3.45	1078	3.34
Russia	1000	3.45	1584	4.91
Serbia	1000	3.45	1519	4.71
Slovakia	1000	3.45	1011	3.13
Slovenia	1000	3.45	1000	3.10
Tajikistan	1000	3.45	1007	3.12
Turkey	1000	3.45	1004	3.11
Ukraine	1000	3.45	1559	4.83
Uzbekistan	1000	3.45	1500	4.65
Total	29000	100	32269	100

Table A2. Descriptive Statistics for Independent Variables

Variable	Year	Obs	Mean	Std. Dev.	Min	Max
Socio-economic Characteristics						
Age	2006	29000	46.5155	17.7218	17.000	97.000
	2010	32269	45.4760	17.4179	17.000	99.000
Female	2006	29000	0.4150	0.4927	0.000	1.000
	2010	32269	0.6118	0.4873	0.000	1.000
University	2006	29000	0.1888	0.3913	0.000	1.000
	2010	32269	0.1979	0.3984	0.000	1.000
Bank account	2006	28980	0.3633	0.4810	0.000	1.000
	2010	32269	0.4122	0.4925	0.000	1.000
Rural	2006	29000	0.4268	0.4946	0.000	1.000
	2010	32269	0.4123	0.4923	0.000	1.000
Car owner	2006	28995	0.4029	0.4905	0.000	1.000
	2010	32269	0.4557	0.4980	0.000	1.000
Trust people	2006	27970	2.6366	1.2331	1.000	5.000
	2010	30613	2.9288	1.0617	1.000	5.000
Country-level Variables						
GDP growth	2004-2005	29000	6.9481	2.6773	3.7000	15.2000
	2008-2009	32269	0.3568	4.7659	-11.1000	10.1000
Rule of Law	2004-2005	29000	-0.2313	0.6924	-1.4448	0.9263
	2008-2009	32269	-0.1697	0.7140	-1.3153	1.1105
Bank foreign ownership	2005	28000	52.6862	33.5820	4.4000	99.4000
	2009	31262	59.2081	32.0485	4.4000	98.3000
Subjective Variables						
Crisis effect	2006	NA	NA	NA	NA	NA
	2010	30232	2.4032	1.0887	1.0000	4.0000
Closed business	2006	NA	NA	NA	NA	NA
	2010	32269	0.0300	0.1707	0.0000	1.0000
Lost job	2006	NA	NA	NA	NA	NA
	2010	21691	0.2925	0.4549	0.0000	1.0000
Lost wage	2006	NA	NA	NA	NA	NA
	2010	21691	0.5235	0.4995	0.0000	1.0000
Lost foreign income	2006	NA	NA	NA	NA	NA
	2010	21691	0.2230	0.4163	0.0000	1.0000
Lost work hours	2006	NA	NA	NA	NA	NA
	2010	21691	0.1974	0.3980	0.0000	1.0000

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