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TIME DISCOUNTING AND ATTITUDES TOWARDS CRIME
EVIDENCE FROM ITALIAN REGIONS (2002-2007)

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PRELIMINARY

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TIME DISCOUNTING AND ATTITUDES TOWARDS CRIME
EVIDENCE FROM ITALIAN REGIONS (2002-2007)

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Abstract. This paper aims at studying the relationship between time discounting and crime rates. We build upon the contribution by Davis (JPE, 1988) which suggests that differing propensities to commit crime can be explained by the attitude of the agents toward the future. The empirical analysis is based on a panel of Italian regions for the period 2001-2006. As proxy for time preferences, we focus on consumer credit rate, defined as the ratio between the amount of consumer credit and the total amount of loans to households. The main result confirms the basic hypothesis by Davis (1988), namely the existence of a positive association between violent crime and discount rates.

JEL Codes: D81, D99, H31, K42, Z13

Keywords: Time Discounting, Property Crimes, Violent Crimes, Regional crime rates, Risky behaviour, Security, Panel data.

1. Introduction

A fable which became very popular just before the French Revolution (Chabod, 1990), is that of the Ant and the Grasshopper, due to Aesop. As it is well-known, that fable remarks the misfortune accruing to the grasshopper from imprudence, having it spent the warm months singing away instead of storing up food for the incoming winter.

Before the French revolution took place, the story was used to give a bright description of the bourgeois virtues of hard working and saving, those virtues that the rising class - which would have soon taken the power - tried to attribute exclusively to itself. The bourgeois depicted himself as *l'honnête homme*, who grounds his success on both personal effort and the awareness that much patience is needed before the fruits accruing from hard-working and trustworthiness can be reaped.

Moving from similar premises, former economists made it clear that respecting established ethical codes in doing business is the best way to pursue personal interest, even if this implies winning the temptation of accepting an egg today in exchange for a chicken tomorrow. Adam Smith (1763 [1978]) was particularly happy upon this point in a famous passage of the *Lectures on Juresprudence*, in which he emphasized the advantages that a person who is scrupulous in performing every engagement, is able to get.

There are reasons to believe that the recent dramatic increase in corporate scandals, consequence of the decline of the basic ethical rules which have traditionally regulated business conduct, may be ultimately due to a reduced concern for the future. A plausible explanation for this, may be that the institutional changes which have occurred within the capitalistic systems over the last decades, have given the agents incentives to discount the future more heavily (e.g., Beraldo and Turati, 2010).

From an economist's perspective, the vanishing of concern for the future is not only evident in the long-term fall in the rates of saving, which is a well-established feature of modern societies, but also in the widespread tendency of the amount of short-term debt to increase beyond what can be considered a socially responsible level.

From a more general perspective, sociologists and anthropologists have long been emphasizing that the vanishing of the future is one of the most distinctive features of modern societies (e.g., Augé, 2009). This can be seen as having a number of different consequences on different levels. One of this, which will constitute the focus of the present work, might be that a "life-is-now" perspective may undermine the ethical codes on which societies are grounded, stimulating anti-social behaviour.

A direct link between anti-social behaviour and time preferences was first conjectured in a theoretical contribution by Davis (1988). The author indeed suggested that the amount of crimes committed by different agents finds an explanation in their attitudes toward the future. In this work we directly test this prediction.

Our empirical analysis is based on a panel of Italian regions observed over the period 2002-2007. To proxy for time preferences, we focus on the willingness of individuals to increase their amount of short-term debt to finance consumption, i.e. the consumer credit share, defined as the ratio between the amount of consumer credit and the total amount of loans to households. As said before, the widespread tendency of the amount of short-term debt to increase is a common feature of modern (industrialized) societies. This tendency reflects an increased propensity to give more value to present consumption, hence less value to future consumption (in our interpretation: to future *tout court*).

As for crime we focus on both property and violent crime rates. Due to data availability, the use of the consumer credit share to proxy for time preferences dramatically shortens the time span at our disposal. Therefore we have to rely heavily on cross-sectional variability to identify the effect of time discounting on crime rates. Extensions of the analysis may apply the framework provided in the present paper to either a sample of regions or of nations for which data may be available for a longer time span.

The main result of this work basically confirm Davis (1988)'s conjecture, namely the existence of a positive association between crime and time preferences. Additional results show: (i) a mild positive association between lagged unemployment rate and property crime, which is in line with the prevailing literature; (ii) a robust negative association between lagged unemployment and violent crime, as in Britt (1997) and Levitt (2001); (iii) a robust negative correlation between the share of people with primary education only and both types of crimes; (iv) a robust negative association between investment in manufacturing and violent crimes, somewhat suggesting that where future opportunities appear to be higher, people are less likely to commit crimes; (v) a robust positive correlation between current public spending for law and order and violent crimes, which must be interpreted in the sense that where crime is higher, public expenditure tends to be increased.

The paper is organized as follows. In Section 2 we briefly describe the theoretical model, due to Davis (1988), to be tested in our empirical analysis. In Section 3 we describe our empirical strategy, whereas results are discussed in Section 4. Section 5 briefly concludes.

2. The theoretical framework: time discounting and attitude to crime

Following Davis (1988), let us consider an agent contemplating illegal activity that, if undetected, will get an income rate of $U(\sigma)$ - where σ is the rate at which offenses are committed - and suppose the agent sees the future as split in two periods. In the first period she enjoys the fruits of illegal activity, in the second she is detected and punished. The agent does not know exactly when detection will occur, however, as soon as she is detected, a fine F must be paid, and, from that moment on, the agent only earns an income Y accruing from some legal activity. Over an infinite time horizon, the expected present value of future income, accruing from both legal and illegal activity can be expressed as:

$$V(\sigma) = \int_0^{\infty} \{U(\sigma)[1 - G(t)] + YG(t) - Fg(t)\}e^{-rt} dt \quad (1)$$

where $g(\cdot)$ is the distribution of the time of detection, $G(\cdot)$ is the cumulative of $g(\cdot)$ and r is the discount rate.

Let us consider now the probability of being detected within some small interval in the neighborhood of t , $P(\cdot)$, after having breached the law up to t . Assuming that the chances of being detected depend only on the offence rate at t and on the level of enforcement E , this can be written as:

$$P(\sigma, E) = \frac{g(t)}{1 - G(t)} \quad (2).$$

The problem of the agent is that of maximizing (1) subject to (2). This optimal control problem is greatly simplified by the fact that $P(\sigma, E)$ is independent of time. With an infinite time horizon, this implies σ to be constant, hence (2) can be written as a linear differential equation which can be substituted into (1). Integrating yields a reformulation of the objective of the agent, which is that of choosing σ such as to maximize:

$$V(\sigma, E) = \frac{U(\sigma) - Y - P(\sigma, E)F}{r + P(\sigma, E)} + \frac{Y}{r} \quad (3).$$

The numerator of the first term on the right-hand side of (3) represents the expected gains from crime (e.g., Becker, 1968). The denominator is the rate at which these gains are discounted. It is worth noticing that the effective discount rate is composed by the agent's usual time preference plus the probability of being

detected; therefore, the rate at which offences are committed, σ , determines both the expected income from crime and the rate at which such income is discounted.

The first order condition for a maximum $\delta V(\sigma, E) / \delta \sigma = 0$, imposes that the usual condition of equating marginal costs and benefits must be satisfied in order for the choice of σ be optimal. Some comparative statics then reveals that $\delta \sigma / \delta r > 0$, that is, agents with higher discount rates will be more likely to commit crimes, or, in other words, the amount of crimes committed by different agents can be explained by their attitudes toward the future. This is the theoretical prediction we aims at testing in the remainder of the paper.

3. The empirical analysis

We explicitly test the theoretical model presented in the previous section by using the following panel data model, applied to the Italian regions over the period 2002-2007:

$$Crime_{it} = \beta_1 Time_pref_{it} + \beta_i X + \varepsilon_i \quad (4)$$

where $Crime = \{Property, Violent\}$, $i = 1, \dots, 20$ indexes the Italian regions, $t = 2002, \dots, 2007$ is the time span, and X denotes a set of covariates described in Table 1 (see Appendix). In line with the theoretical analysis sketched above, our main focus is that of identifying the effect of time preferences on the attitude to commit crimes (parameter β_1 in eq. 4 above), given that, as the model predicts, such attitude is also affected both by the legal economic opportunities and the *level of enforcement* brought about by public authorities. One major problem is of course that of finding a proxy for time preferences. In this paper, we suggest to proxy the time preferences at the regional level by considering the share of consumer credit out of total loans supplied to households (including, for instance, mortgages). According to definition provided by the Bank of Italy, consumer credit includes only short term debts, commonly used to finance purchase of consumer goods, including for instance holidays or small appliances.

As for the other controls included in X , we basically follow the literature on crime and suggestions by Davis (1988). In particular, as far as the set of alternative economic opportunities is concerned, we include in the set of covariates: the *unemployment rate*, the *GDP per capita* and the level of education, proxied by the percentage of population with *primary education*. The established literature highlights a negative correlation between education and crime (e.g., Dills, Miron and Summers, 2008; Lochner and Moretti, 2004; Soares, 2004; Gould, Weinberg and Mustard, 2002; Miron, 2001; Grogger, 1998), as the former is expected to

increase the returns of legitimate work and business, hence the opportunity cost of committing crimes. Moreover, education is expected to have a deep impact on individuals' choices, as it frames individuals' beliefs and preferences.

As for the level of enforcement, we consider the current public expenditure in security on regional basis (the variable *Security*). The use of such a variable is directly suggested by the model presented in Section 2, where the probability of being detected - which also in Davis (1988)'s view depends on the budget available to the authorities - affects the effective discount rate of each agent (see equation 3 above).

In line with the relevant literature on the subject, we also use, as controls: a *poverty index*, i.e., the percentage of households living below the poverty line; the lagged values of both unemployment rate and GDP per capita; the gross level of investment in manufacturing on a regional basis; a dummy "South" to account for the relevant differences in both common and organized crime existing between the North and the South of Italy. We follow the empirical strategy expounded in Allen (1996) and Levitt (2001) whose work include both current and lagged unemployment rates as explanatory variables for crime. Following their intuition we also rely on both current and past income (see also Caruso, 2010; Scorcu and Cellini, 1998; Marselli, 1997).

As for the set of covariates, some caveats are worth being emphasized. Perhaps, as far as crime is concerned, the most common relationship for which evidence has been searched for, is the one with unemployment. Some economists predict a positive association between crime and unemployment, as the latter is considered a reliable context variable which is able to capture the opportunity cost of committing crimes (e.g., Freeman, 1999; Ehrlich, 1996, 1973). As Campiglio (1990) has argued, the unemployment rate might also be seen as catching the expected difference in returns between legal and illegal activities, which is likely to be smaller, the higher the rate of unemployment. This hypothesis has found robust empirical evidence for property crime (e.g., Fougère, Kramarz and Pouget, 2009; Neumayer, 2005; Levitt, 2001; Britt, 1997; Reilly and Witt, 1996; Allen, 1996; Chiricos, 1987; Phillipd and Votey, 1981; Sjoquist, 1973). On the other hand, with reference to violent crime, there is a strand of literature which, by focusing on the opportunity perspective, interprets the level of unemployment as an indicator of social activity, and expects an inverse relationship between crime and unemployment. The argument, which is quite at odds with common sense, goes as follows: as unemployed people are engaged in a reduced number of social activities, their opportunities for delinquency are reduced. Therefore, the opportunity perspective maintains that a negative association between crime and unemployment is what one should expect. Although such interpretation has been proposed for both property and violent crime (Cantor and Land, 1985), some

evidence is available only as far as violent crime is concerned (e.g. Saridakis 2004; Levitt, 2001; Entorf and Spengler, 2000, Britt, 1997).

The GDP per capita has been included among the covariates in order to capture the general economic scenario. However, it is necessary to be aware that the GDP measures only the current economic activity but says little about the future state of affairs, which is nonetheless taken into account by individuals in making their relevant decisions. For this reason, a variable which proxies future economic conditions, i.e., the current level of gross investments in manufacturing, has been introduced. In a productive (non-parasite) economy, investments in manufacturing today are indeed supposed to be a proxy of future economic opportunities tomorrow. For this reason, a negative relationship between this variable and crime is expected. The use of this covariate is novel in the literature. Caruso (2009) showed that such a negative relationship holds for the case of organised crime in Italy, but it has not been tested as far as property and violent individual crimes are concerned.

In order to capture the efforts to guarantee citizens' security and prevent crimes, we also included the current public expenditure in security on regional basis. However, one of the recurring point raised in literature is that any measure of deterrence is co-determined with crime, so as producing a problem of simultaneity. This is why there is no clear evidence of a reduction in crime even in presence of high level of deterrence. Quite paradoxically, different measures or proxies of deterrence are not statistically significant or, quite frequently, even positively related to crime (Benson, Kim and Rasmussen, 1994*a,b*; Cameron, 1988; Devine, Sheley and Smith, 1988; Cloninger and Sartorius, 1979; Corman, Joyce and Lovitch, 1987).

4. Results

The panel is balanced and both fixed and random effects models have been estimated. All random effects regressions include a dummy 'South' which takes the value of unity if a region is among the southern regions. Results are presented in tables 2 and 3. In table 2 the dependent variable is the rate of property crime. In table 3, the dependent variable is the rate of violent crime (see Appendix).

As far as property crime is concerned, a positive association is found with the consumer credit rate, whose robustness varies across specifications. In fact, statistical significance ranges from 1% to 8%. However, the magnitude of estimated coefficients do not differ much across specifications. In particular, the regressions indicate that the property crime rate increases by approximately .30 percent in the presence of an increase in the share of consumer credit of one percent. In general the random effects model seems to perform better. Among the

covariates, the positive correlation between property crime and unemployment is confirmed only in few specifications (3, 11 and 12), whereas the relationship between the economic scenario and property crime follows the theoretical prediction, namely the existence of a negative correlation.

The relationship between lagged GDP and property crime is negative (even if in only one regression) as well as the association between investments in manufacturing and property crime. However, this latter correlation is confirmed only for the random effects model in which coefficients are statistically significant at the usual confidence levels. The association between property crime and investments in manufacturing is not significant in the fixed effects model whereas it is weakly significant in the random effects model, with the exception of column 14, where the correlation appears to be very robust. The association between property crime and education is negative as expected. We find a robust negative association between property crime and poverty. That is, the higher is the poverty index, the lower is the associated rate of property crime. Such association turns out to be stable across specification, with the coefficients not changing much across specifications. This is in line with the prevailing literature, which suggest that property crime are lower when lower is the 'property to steal'. There is a negative association between investments in manufacturing and property crime.

In table 3 the results for violent crime are presented. First, the association between violent crime and the share of consumer credit is positive as expected. In most specifications coefficients are significantly different from zero. That is, such association appears to be robust across specifications in both random and fixed effects models. Even in this case the coefficients do not differ dramatically across specifications. The regressions indicate that violent crime rate increases by approximately .90 percent in case of an increase of one percent in the share of consumer credit. This confirms the theoretical predictions as expounded in the first part of this work. Most covariates exhibit the expected signs. The association between violent crime and unemployment is negative. That is, since violent crime is increasing in social activities, less social activity because of higher rate of unemployment induces a lower level of violent crime. Such result is robust across specifications for both random and fixed effects models (with the exception of column 23 and 24). Only for the random effects specifications, there is a robust negative association between lagged GDP per capita and violent crime. A robust negative association between investment in manufacturing and violent crimes is found, somewhat suggesting that where future opportunities appear to be higher, people are less likely to commit crimes. A robust negative correlation with the poverty index is confirmed also in this case.

5. Conclusion

In this paper we propose a first empirical test of the relationship between time discounting and crime rates as suggested by Davis (1988), using as a sample the whole set of Italian regions observed over the period 2002-2007. In line with the theoretical prediction by Davis (1988), we find a positive association between both violent and property crimes and a proxy of time preference, namely the share of consumer credit out of the total amount of loans, which reflects a propensity to give more value to present over future consumption.

Other results are basically in line with the prevailing literature on the determinants of crime. Particularly, we find a robust negative association between crime and both lagged unemployment and primary education, and a robust negative association between investment in manufacturing and violent crimes. These results clearly suggest that where future opportunities appear to be higher, people are less inclined to anti-social behaviour.

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APPENDIX

Table 1 . DESCRIPTIVE STATISTICS					
	Definition	Mean	St. Dev.	Min	Max
Property Crime rate	Ratio of property crimes over the total number of crimes. Property crimes: thefts, robberies and burglaries. Source: ISTAT	2.99	.425	1.816	3.699
Violent Crime rate	Rate of violent crime per ten thousands of inhabitants. Violent crimes: rapes, homicides, kidnappings, injuries and lesions. Source: ISTAT	2.654	.363	1.629	3.691
Consumer Credit Share	Ratio between the amount of consumer credit and the total amount of loans to households. Source: ISTAT	1.057	.312	1.966	.528
Unemployment	Unemployment rate. Source: ISTAT	1.961	.596	.916	3.091
Poverty index	Percentage of households living behind the poverty line. Source: ISTAT	2.286	.689	.916	3.428
Primary education	Percentage of the population with primary education. Source: ISTAT	1.176	.187	1.583	.825
GDP per capita	Gross Domestic Product per capita Source: ISTAT	10.540	1.089	8.100	12.471
Investments in Manufacturing	Gross Investments in Manufacturing on regional basis Source: ISTAT	7.291	1.213	3.833	9.673
Security	Public expenditure in security on regional basis. Source: ISTAT	6.693	1.029	4.173	8.266
South	Dummy = 1 if a region is located in the South of Italy.	.4	.492	0	1

Notes: 20 Italian regions (NUTS – II level), each observed from 2002 to 2007. Continuous variables are logged.

Table 2 . PROPERTY CRIME AND TIME DISCOUNTING

	FE	FE	FE	FE	FE	FE	RE	RE	RE	RE	RE	RE	RE	RE
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Consumer Credit Share	.34**	.31**	.14	.28*	.29**	.29**	.33***	.21*	.25**	.23**	.21*	.25**	.37***	.31***
	(.16)	(.164)	(.148)	(.157)	(.158)	(.155)	(.148)	(.121)	(.121)	(.122)	(.120)	(.119)	(.132)	(.128)
	[.03]	[0.07]	[.44]	[.08]	[.07]	[.07]	[.02]	[.08]	[.04]	[.06]	[.08]	[.03]	[.00]	[.01]
Unemployment (t-1)		-.036	.086*	.034	.045	.042					.09**	.09*	-.024	.006
		(.053)	(.51)	(.054)	(.055)	(.054)					(.047)	(.051)	(.048)	(.047)
		[.51]	[.10]	[.52]	[.42]	[.44]					[.06]	[.08]	[.62]	[.90]
poverty index		-.12**	-.09**				-.11**	-.11***	-.11**	-.098	-.11***	-.10**	-.13***	-.14***
		(.056)	(.049)				(.053)	(.049)	(.05)	(.048)	(.048)	(.049)	(.052)	(.052)
		[.03]	[.06]				[.04]	[.02]	[.04]	[.04]	[.02]	[.04]	[.01]	[.01]
Primary education			-.29***					-.22***	-.24***	-.25***	-.26***	-.29***		
			(.057)					(.053)	(.053)	(.05)	(.057)	(.059)		
			[.00]					[.00]	[.00]	[.00]	[.00]	[.00]		
GDP (t-1)									-.239			-.066	-.73**	
									(.333)			(.340)	(.379)	
									[.47]			[.84]	[.06]	
Investments in Manufacturing			-.08		-.08	-.09		-.10*				-.10*		-.19***
			(.081)		(.092)	(.09)		(.058)				(.058)		(.059)
			[.34]		[.39]	[.32]		[.08]				[.09]		[.00]
Security				1.99***	1.81***	1.70***		.33***	.47	.23***	.33***	.29	.99***	.43***
				(.511)	(.552)	(.545)		(.071)	(.340)	(.042)	(.071)	(.347)	(.387)	(.072)
				[.00]	[.00]	[.00]		[.00]	[.16]	[.00]	[.00]	[.40]	[.01]	[.00]
South								-.71***	-.50***	-.58***	-.47***	-.59***	-.59***	-.83***
								(.169)	(.118)	(.183)	(.120)	(.127)	(.176)	(.218)
								[.00]	[.00]	[.00]	[.00]	[.00]	[.00]	[.00]
Constant	3.36***	3.67***	3.40***	-10.09***	-8.30**	-7.23**	3.63***	1.93***	2.79**	1.81***	1.77***	1.96	5.12***	2.32***
	(.170)	(.216)	(.655)	(3.467)	(4.03)	(4.00)	(.209)	(.330)	(1.38)	(.338)	(.339)	(1.42)	(1.56)	(.341)
	[0.00]	[0.00]	[.00]	[.00]	[.04]	[.07]	[.00]	[.00]	[.04]	[.00]	[.00]	[.17]	[.00]	[.00]
Obs	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Groups	20	20	20	20	20	20	20	20	20	20	20	20	20	20
R square within	.0444		.3311	.1769	.1834	.2186	.0444	.2999	.2988	.3013	.3243	.3182	.1568	.1726
R square between	.1809		.1273	.3600	.3496	.3803	.4328	.8359	.8120	.8037	.8349	.8159	.7964	.8399
R square overall	.1604		.0652	.3453	.3357	.3656	.4149	.8110	.7882	.7804	.8112	.7929	.7668	.8091

Notes: *** significant at 1%, ** significant at 5%, *significant at 10%. For sake of readability statistically significant coefficients are in bold. Standard Errors in parenthesis. P-values in e brackets

	Table 3 . VIOLENT CRIME AND TIME DISCOUNTING														
	FE	FE	FE	FE	FE	FE	FE	RE	RE	RE	RE	RE	RE	RE	RE
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Consumer Credit Share	1.21***	.75**	.17	.85***	.84***	.83***	.65***	.88***	.90***	.90***	.24	.20	.65***	.29**	.59***
	(.389)	(.376)	(.216)	(.356)	(.356)	(.326)	(.281)	(.253)	(.219)	(.222)	(.157)	(.166)	(.225)	(.14)	(.232)
	[.00]	[.05]	[.45]	[.02]	[.02]	[.01]	[.02]	[.00]	[.00]	[.00]	[.12]	[.24]	[.00]	[.04]	[.01]
Unemployment (t-1)		-.51***	-.09	-.37***	-.37***	-.25***	-.21**	-.41***	-.42***	-.42***	-.05	-.05	-.57***	-.12**	-.47***
		(.122)	(.067)	(.122)	(.122)	(.097)	(.098)	(.107)	(.100)	(.102)	(.062)	(.064)	(.098)	(.065)	(.095)
		[.00]	[.17]	[.00]	[.00]	[.01]	[.04]	[.00]	[.00]	[.00]	[.42]	[.42]	[.00]	[.06]	[.00]
Poverty index		-.12	.014		-.13			-.05		-.01	.017	.01			
		(.128)	(.065)		(.121)			(.122)		(.116)	(.063)	(.065)			
		[.37]	[.83]		[.31]			[.66]		[.93]	[.79]	[.85]			
Primary education			-1.25***								-1.20***	-1.23***		-1.10***	
			(.077)								(.072)	(.073)		(.075)	
			[.00]								[.00]	[.00]		[.00]	
GDP (t-1)			-1.29			-1.94			.23***	.23***	.17***		-2.54***	-1.13***	
			(.949)			(1.50)			(.05)	(.051)	(.049)		(.575)	(.371)	
			[.18]			[.20]			[.00]	[.00]	[.00]		[.00]	[.00]	
Investments in Manufacturing				-.68***	-.68***		-.20	.10*				.06			-.42***
				(.192)	(.192)		(.163)	(.055)				(.047)			(.102)
				[.00]	[.00]		[.22]	[.07]				[.17]			[.00]
Security						8.80***	7.68***						2.84***	1.33***	.68***
						(1.04)	(.983)						(.586)	(.380)	(.117)
						[.00]	[.00]						[.00]	[.00]	[.00]
South								.18	.17	.18	.20	.18	-.79***	-.31*	.05
								(.242)	(.173)	(.214)	(.164)	(.178)	(.273)	(.178)	(.183)
								[.46]	[.33]	[.40]	[.21]	[.31]	[.00]	[.08]	[.81]
constant	3.94***	4.72***	15.04	9.24***	9.54***	-34.38***	-46.19***	3.71***	1.96***	1.99***	-.29	.95**	12.57***	4.96***	2.69
	(.412)	(.495)	(10.09)	(1.40)	(1.43)	(14.09)	(7.19)	(.559)	(.581)	(.660)	(.598)	(.465)	(2.28)	(1.52)	(.464)
	[0.00]	[.00]	[.14]	[.00]	[.00]	[.02]	[.00]	[.00]	[.00]	[.00]	[.62]	[.04]	[.00]	[.00]	[.00]
Obs	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Groups	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
R square within	.089	.2345	.8104	.3165	.3238	.5826	.5819	.1970	.2291	.2302	.8030	.7992	.3782	.8120	.3513
R square between	.033	.0178	.3415	.1680	.1842	.4430	.4295	.1491	.4598	.4563	.4503	.2569	.5366	.5957	.5637
R square overall	.0299	.0031	.1351	.0704	.0767	.2809	.2714	.1639	.3665	.3646	.5891	.4628	.4580	.6809	.4706

Notes: *** significant at 1%, ** significant at 5%, *significant at 10%. For sake of readability statistically significant coefficients are in bold. Standard Errors in parenthesis. P-values in brackets

