

# Markets Wanted – Expectation Overshooting in Transition Economies

Frank Neher\*  
Freie Universität Berlin  
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## Abstract:

We analyse and compare individual beliefs about the effects of competition and their evolution over time in transition economies and experienced market economies. At the onset of transition, competition beliefs in transition countries are far more positive than in market economies. Over time, this difference has vanishes. Convergence can be attributed to changing believes in transition countries. We argue that overly optimistic competition beliefs in transition countries contributed to the possibility of implementing far reaching pro-market reforms and show that competition beliefs underlay support for economic reform. The empirical analysis is supplemented with a simple learning model rationalizing the findings on competition belief overshooting.

*Keywords:* convergence, beliefs, public support, reform, bias, signalling

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\* Institute for Public Finance and Social Policy, Freie Universität Berlin, Boltzmannstr. 20, 14195 Berlin.  
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## Introduction

Following the dissolution of the Soviet Union, a number of countries engaged in a process of systemic change, replacing formerly centrally planned economies with market economies. Market reforms were in general supported by democratic decision-making. Involving citizens in the political process resulted in additional political constraints in the formulation of reform policies: beliefs of the electorate about how well markets work, found their expression in the ballots.

In the present paper individual beliefs on the effect of market competition and their evolution over time in transition economies and experienced market economies are analysed and compared. We argue that overly positive beliefs about the performance of markets prevailed at the time when transition began, allowing the implementation of far reaching reform policies. Hence, they played an important role at a crucial juncture in the history of those countries, contributing to extend the role of markets and reduce the role of the government in the coordination of economic activity.

There is a growing body of economic literature which seeks to understand the interaction between reform policies, policy outcomes and the reform path. Using a political economy approach, a number of theoretical contributions establish that adverse reform outcomes might lead to policy reversals or abolition of ongoing reforms.<sup>1</sup> In fact, public support for market reforms was widespread in most post-communist countries when strong reform policies were introduced. While policy measures and resulting outcomes varied greatly (Svenjar 2002, Milanovic 1999), all transition countries experienced a reduction in output, rising inequality, inflation, and unemployment (World Bank 2002, EBRD 1999). Economists and most politicians have been aware that adaptation processes are likely to lead to a temporary economic downturn, resulting in a J-shaped evolution of output and employment over the course of transition. Still, a lot of relevant actors were taken by surprise when public support rapidly diminished, reforms stalled, and in some countries parties opposing market reforms were soon voted into power (Wyplosz 1993, Fidrmuc 2000).

Empirical contributions analysing survey and election data complement theoretical approaches to understand the determinants of public support for market reforms. Using data from the Russian elections in 1995, Warner (2001) exploits regional variation in reform effort and finds that more intense reforms result in higher public support. Using election and survey data from 1991 to 1997 Jackson et al. (2003) show that a growth of new enterprises resulted in a pro-reform constituency which changed the political arena. For Bulgaria, Valev (2004)

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<sup>1</sup> See for example Rodrik (1995), Dewatripont and Roland (1992, 1995) and Wyplosz (1993). Roland (2000, 2002) provides an extensive survey of the literature.

presents the rather surprising finding that personal unemployment results in stronger support for reform. He uses survey data and argues that the majority of the population is aware of the necessary short term cost of reforms, expecting future benefits. Doyle and Fidrmuc (2003) use opinion surveys from the Czech Republic from 1991 to 1998 to document political preference change of the constituency over time. While reforms had broad support at the onset of transition and political preferences mostly varied over age and education, economic outcomes got more decisive in later years. Private economy jobs and high incomes increased, the experience of widespread unemployment in the social environment decreased reform support. Another survey based analysis for Russia is presented by Eble and Koeva (2002). They find that education has a positive, age a negative effect on the support for reform. In addition, ideology, private sector participation and regional characteristics play a role in shaping reform preferences. Focusing on political constraints in the reform process, Doyle and Walsh (2007) find that voting in 1990, in the Czech Republic, was forward-looking and voters' expectations largely correct.

Next to these single country studies, some authors have studied groups of transition countries. Fidrmuc (2000) analyses election outcomes for the Czech Republic, Hungary, Poland, and Slovakia, exploiting regional variation in population composition. He finds that private entrepreneurs, white collar workers and university educated voters are pro-reform, while the unemployed, retirees, blue collar and agricultural workers oppose reform. Hayo (2004) uses two data sets to separately perform a macro- and microeconomic analysis. On the macro level unemployment, inflation, privatization and enterprise restructuring are found to reduce public support for market reforms while democratization, foreign aid per capita and the creation of working financial markets increase support. On the micro level, labour market status, education, age, gender, the economic status of a person and ideology affect support for the creation of a market economy. Specifically, higher education and younger age are found to increase reform support; individual unemployment decreases the acceptance of reforms. Kim and Pirttilä (2006) use the Central and Eastern Eurobarometer Survey, also used by Hayo (2004), to examine the linkages between political constraints and economic reform. They show that support for reforms depend on past macroeconomic conditions and the perception of individual consequences of future reforms.

The present study uses a difference-in-difference estimation approach, to add to the understanding of public support for reform. However, instead of directly analysing survey questions on reform or election results, competition beliefs are analysed. It is argued that beliefs about the desirability or non-desirability of competition are fundamental to individual attitudes towards a market economy and accordingly shape attitudes toward systemic reform.

We find that at the onset of transition, beliefs in competition were far more optimistic in transition countries than in established market economies, contributing to the acceptance of wide ranging economic reforms. Overly optimistic competition beliefs, which are later revised, seem to contrast Doyle's and Walsh's (2007) finding that individuals behave forward looking and hold correct anticipations. This perspective of biased beliefs will be challenged in the second part of the paper, where a simple signalling model is employed to show that potentially biased media might induce perfectly rational agents to overestimate the merits of markets.

The present paper also connects to the literature on the socialist legacy, i.e. how do institutional differences under a socialist system affect individuals' preferences and beliefs (Murthi and Tiongson 2008 and references therein, Corneo and Grüner 2002, Alesina and Fuchs-Schündeln 2007). The paper is also closely related to the investigation of capitalism aversion as contributed by Landier, Thesmar and Thoenig (2008).

In the following section potential determinants of competition beliefs are evaluated. In Section 3 the data and sample used in the empirical analysis will be introduced. Descriptive and estimated results on the overshooting and convergence hypothesis are presented in Section 4. The linkage between competition beliefs and support for economic reforms will be considered in Section 5. In Section 6 possible explanations for the overshooting phenomenon will be considered. A simple signalling model will help to rationalize the empirical findings. Section 7 finally concludes.

## **Determinants of Faith in the Market**

To investigate the dynamics of competition beliefs, we control for individual- and macro-level characteristics, which will be presented in detail in the next section. Respective variables are primarily included to control for potential conflating effects. However, for some of those variables, theoretical considerations justify their inclusion. Why and how would they affect competition beliefs?

Age determines an individual's position in the lifecycle. Success in competition demands physical and mental strength. At some point, aging reduces strength and thus the probability of successful competition. Accordingly, we can expect that a positive belief in competition declines with age. In addition, older individuals might possess human capital that is outdated and devalued in a competitive market environment (e.g. Chase 1998, Campos and Dabusinskas 2002, Guriev and Zhuravskaya 2009).

Different outcomes in the labour market for women and men are partly the result of a lower competitiveness of women (Gneezy et al. 2003, Datta Gupta et al. 2005a). We hypothesize that less competitive behaviour of women comes with a less positive attitude toward competition. However, Gneezy et al. (2008) show that there is a strong cultural component in gender differences with regard to competitiveness, so that the influence of gender on competition in principle might be ambiguous across countries.

With different sets of dummy variables we will control for marriage status, job status, job type and town size. Regarding marriage status, there is no conjecture as to the effect of being divorced or widowed. Married men earn a wage premium, which in the literature is explained either by marriage induced productivity increases or the presence of characteristics which are simultaneously desired in the labour and marriage market (Chun and Lee 2001, Datta Gupta et al. 2005a and 2005b, Nakosteen and Zimmer 1997). In any case, marriage raises the probability of successful competition so that married individuals should have more positive beliefs toward competition.

An individual's living environment presumably also influences beliefs. Dummy variables for town size are used to proxy for living environment. Population density rises with town size. Higher population density implies stronger competition due to more competitors. Thus bigger cities have stronger competition and their inhabitants should, in equilibrium, have more positive attitudes toward competition.

The variables on job status, job type and income might have a reciprocal relation with competition beliefs. Accordingly, specifications including those variables could result in biased estimates due to endogeneity. These variables will be included to assure robustness. The central argument that a possible endogeneity bias is not important in our context derives from the fact that the central result remains qualitatively robust across specifications.

To control for economy-wide factors, macro variables are taken into account. The market is the arena where competition is enacted. Macro variables indicate the performance of the economy and thus of the market and might influence individual judgments about the desirability of markets and competition. An additional argument for the inclusion of macroeconomic variables comes from the literature on economic voting. There it is argued that individual voting decisions are influenced stronger by national economic conditions, than by individual economic circumstances (Valev 2004). Finally, we follow Hayo (2004) who presents compelling arguments for the inclusion of inflation, unemployment and GDP growth in the explanation of support for market reforms. We hypothesize that high inflation, high unemployment, low per-capita income, shrinking GDP (negative GDP growth) and high income inequality reduce support for competition.

## Data and Sample

The analysis is based on data from the World Values Survey and the European Values Survey (WVS, 2006), a multinational survey conducted in four waves since 1980 in a host of countries.<sup>2</sup> The central item we focus on is a question on individual beliefs about the effects of competition:

“Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 10 means you agree completely with the statement on the left; 1 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between.

Sentences:

Competition is good. It stimulates people to work hard and develop new ideas vs. Competition is harmful. It brings the worst in people.”

The emphasis on hard work and the development of new ideas clearly indicates that the question refers to the incentives that people expect from a system of *market* competition. The dependent variable *competition* is coded so that it takes higher values for more positive beliefs about competition (from '1 Competition is harmful' to '10 Competition is good'). Likert-scaled variables on self-reported beliefs and attitudes often exhibit a lot of noise. To minimize the influence of noise, a binary dependent variable, *competition\_bin10*, with a cut-off at 1 is coded. Robustness checks with dependent variables with cut-off points 9, 8, and 7 (*competition\_bin9* - *competition\_bin7*) and the original ordinal variable are performed. The distribution of this variable is shown in Table 1. Competition beliefs have not been surveyed in the first wave of the WVS. Accordingly, only waves 2, 3 and 4 are used. The surveys of the second wave have been conducted in the years 1989-1993. In fact, most transition countries are surveyed in 1990, at the onset of transition.<sup>3</sup>

**Table 1:** Distribution of the original dependent variables

<i>competition</i>		<i>Freq.</i>	<i>Percent</i>	<i>Cum.</i>
competition harmful	1	4,430	3.69	3.69
	2	2,201	1.83	5.53
	3	4,545	3.79	9.31
	4	4,759	3.97	13.28
	5	6,585	5.49	18.77
	6	18,235	15.2	33.96
	7	14,185	11.82	45.78
	8	19,211	16.01	61.79
	9	15,704	13.09	74.88
competition good	10	30,147	25.12	100
<b>Total</b>		120,002	100	

<sup>2</sup> Detailed documentation of the data can be obtained from <http://www.worldvaluessurvey.org/>

<sup>3</sup> The actual survey year in each wave and country is shown in Table A1 in Appendix A.

The sample for analysis is made up of OECD- and transition countries. Respective countries, their status and mean levels of competition beliefs (*competition\_bin10*) by wave are shown in Table 2. On inspection of Table 2 it becomes obvious that there are a considerable number of countries without observations on competition beliefs at the onset of the transition process, i.e. in wave 2. These countries are dropped from the analysis, since it is precisely the beginning of transition we focus on.<sup>4</sup> We are left with a sample of 120,002 individual observations in 35 countries.<sup>5</sup> Romania has the highest value with 44% of respondents indicating that competition is a good thing. In the Netherlands, the countries with lowest competition beliefs, only 6% of the population hold such positive beliefs.

Table 2: Country means of *competition\_bin10* by wave and country

<i>Country</i>	<i>Status</i>	<i>1989-1993</i>	<i>1994-1999</i>	<i>1999-2004</i>	<i>Total</i>
Albania	transition	.	0.175	0.313	0.244
Armenia	transition	.	0.210	.	0.210
Australia	OECD	.	0.271	.	0.271
Austria	OECD	0.251	.	0.231	0.241
Azerbaija	transition	.	0.343	.	0.343
Belarus	transition	0.313	0.269	0.249	0.276
Belgium	OECD	0.185	.	0.127	0.161
Bosnia	transition	.	0.341	0.362	0.351
Bulgaria	transition	0.392	0.233	0.324	0.316
Canada	OECD	0.339	.	0.229	0.281
Chile	OECD	0.333	0.190	0.194	0.249
Croatia	transition	.	0.355	0.441	0.394
Czech Republic	transition/OECD	0.537	0.211	0.267	0.392
Denmark	OECD	0.167	.	0.138	0.152
Estonia	transition/OECD	0.398	0.260	0.147	0.269
Finland	OECD	0.163	0.137	0.105	0.130
France	OECD	0.168	.	0.162	0.164
Georgia	transition	.	0.381	.	0.381
Germany-West	OECD	0.226	0.138	0.170	0.190
Germany-East	transition/OECD	0.343	0.147	0.172	0.233
Greece	OECD	.	.	0.152	0.152
Hungary	transition/OECD	0.296	0.319	0.294	0.301
Iceland	OECD	0.297	.	0.340	0.322
Ireland	OECD	0.210	.	0.202	0.206
Italy	OECD	0.185	.	0.187	0.186
Japan	OECD	0.097	0.092	0.115	0.103
South-Korea	OECD	0.364	0.163	0.151	0.227
Kyrgyz Rep	transition	.	.	0.383	0.383
Latvia	transition	0.552	0.240	0.264	0.335
Lithuania	transition	0.372	0.264	0.274	0.303
Luxembourg	OECD	.	.	0.156	0.156
Macedonia	transition	.	0.360	0.492	0.429
Mexico	OECD	0.296	0.248	0.437	0.313

<sup>4</sup> Altogether 34,883 observations are dropped. Countries are: Albania, Armenia, Australia, Azerbaijan, Bosnia, Croatia, Georgia, Greece, Kyrgyz Republic, Luxembourg, Macedonia, Moldova, New Zealand, Serbia, Switzerland and Ukraine.

<sup>5</sup> Albeit East- and West-Germany are unified since 1990, for the purpose of this study East-Germany is treated as a transition country.

Moldova	transition	.	0.348	0.222	0.285
Netherlands	OECD	0.069	.	0.053	0.061
New Zealand	OECD	.	0.254	.	0.254
Norway	OECD	0.231	0.176	.	0.204
Poland	transition/OECD	0.326	0.167	0.250	0.263
Portugal	OECD	0.212	.	0.204	0.208
Romania	transition	0.416	0.433	0.458	0.435
Russia	transition	0.353	0.273	0.242	0.285
Serbia	transition	.	0.360	0.308	0.329
Slovakia	transition/OECD	0.390	0.223	0.203	0.283
Slovenia	transition/OECD	0.340	0.256	0.295	0.296
Spain	OECD	0.153	0.166	0.152	0.155
Sweden	OECD	0.239	0.173	0.175	0.190
Switzerland	OECD	.	0.288	.	0.288
Turkey	OECD	0.303	0.466	0.357	0.394
Ukraine	transition	.	0.281	0.244	0.270
UK	OECD	0.197	.	0.116	0.165
USA	OECD	0.285	0.317	0.284	0.296
<b>Total</b>		0.286	0.267	0.237	0.262

To explain the difference between transition countries and established market economies with respect to competition beliefs, we control for individual socioeconomic factors as described in Table 3 and macroeconomic conditions at the country level (Table 4).

**Table 3:** Descriptive statistics of independent variables and controls

<i>Variable</i>	<i>Description</i>	<i>Obs</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>	<i>Reference Category</i>
transition	Transition Dummy	120002	0.388	0.487	0	1	
wave_2	surveyed in 1989-1993	120002	0.400	0.490	0	1	X
wave_3	surveyed in 1994-1999	120002	0.240	0.427	0	1	
wave_4	surveyed in 1999-2004	120002	0.359	0.480	0	1	
wave2_trans	interaction term	120002	0.140	0.347	0	1	X
wave3_trans	interaction term	120002	0.123	0.329	0	1	
wave4_trans	interaction term	120002	0.124	0.330	0	1	
age	age	119765	43.228	16.531	15	101	
age_sqr	age squared	119765	2141.954	1563.925	225	10201	
female	female	120002	0.521	0.500	0	1	
inc_quint1	Lowest income quintile	103763	0.196	0.397	0	1	
inc_quint2	2nd income quintile	103763	0.290	0.454	0	1	
inc_quint3	3rd income quintile	103763	0.252	0.434	0	1	X
inc_quint4	4th income quintile	103763	0.162	0.369	0	1	
inc_quint5	Highest income quintile	103763	0.100	0.299	0	1	
stat_single	single	119674	0.213	0.409	0	1	X
stat_married	married	119674	0.647	0.478	0	1	
stat_divorced	divorced or separated	119674	0.068	0.251	0	1	
stat_widowed	widowed	119674	0.073	0.260	0	1	
jobstat_full	full-time employed	116837	0.452	0.498	0	1	X
jobstat_part	part-time employment	116837	0.068	0.252	0	1	



jobstat_self	self employed	116837	0.065	0.247	0	1	
jobstat_retired	retired	116837	0.177	0.382	0	1	
jobstat_wife	housewife	116837	0.107	0.309	0	1	
jobstat_student	student	116837	0.055	0.228	0	1	
jobstat_unemp	unemployed	116837	0.058	0.234	0	1	
jobstat_other	other job status	116837	0.018	0.132	0	1	
job_manual	blue collar job	102302	0.404	0.491	0	1	X
job_manager	leading position	102302	0.082	0.275	0	1	
job_office	white collar job	102302	0.368	0.482	0	1	
job_farmer	farming	102302	0.053	0.223	0	1	
job_military	military	102302	0.009	0.096	0	1	
job_never	never had a job	102302	0.083	0.276	0	1	
job_other	other	102302	0.001	0.024	0	1	
townsize_1	2000 and less inhabitants	100612	0.164	0.370	0	1	X
townsize_2	2000-5000 inhabitants	100612	0.095	0.293	0	1	
townsize_3	5000-10000 inhabitants	100612	0.078	0.269	0	1	
townsize_4	10000-20000 inhabitants	100612	0.089	0.285	0	1	
townsize_5	20000-50000 inhabitants	100612	0.119	0.324	0	1	
townsize_6	50000-100000 inhabitants	100612	0.095	0.293	0	1	
townsize_7	100000-500000 inhabitants	100612	0.186	0.389	0	1	
townsize_8	500000 and more inhabitants	100612	0.174	0.379	0	1	

The macro variables of interest are unemployment, per-capita GDP, GPD-growth, inflation and the Gini coefficient of the income distribution. Macro data is obtained from the World Bank Development Indicator database (World Bank, 2009), the OECD (OECD, 2009) and the Standardized World Income Inequality Database (SWIID 2009). Descriptive statistics are shown in Table 4.

Table 4: Descriptive Statistics of macroeconomic variables

<i>Variable</i>	<i>Description</i>	<i># Obs.</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
inflation	inflation rate	107	27.514	97.583	-1.733	948.545
gdp_growth_wdi	real GDP growth rate	107	2.049	4.379	-14.574	10.653
ln_pcgdp_wdi	log per-capita GDP	111	9.687	0.541	8.374	10.578
unemp_oecd	unemployment rate	79	7.360	4.235	0.775	22.964
gini_gross_swiid	Gini of gross hh-incomes	109	40.675	6.951	25.757	55.324

## Overshooting and Convergence in Competition Beliefs

At first, the evolution of unconditional means of competition beliefs in different samples is depicted. Econometric results using only micro-data are presented in the second part of this section. In the third part, macroeconomic variables will be added to the estimations and results from an extensive set of robustness tests will be reported.

### Preliminary Results

More optimistic competition beliefs and subsequent convergence in transition countries can be observed for a variety of comparison groups. Average competition beliefs for East- and West-Germany with a quadratic fit are shown in Figure 1. The left panel shows the mean of the original ten scale variable *competition*, the right panel shows the mean of the binary variable *competition\_bin10*. At the time of reunification, beliefs on competition on average have been more positive in East-Germany than in West-Germany. Over time, average beliefs of East-Germans converged to the West-German level. The same pattern can be found in Figure 2 and Figure 3. In Figure 2 the average competition beliefs of transition countries which are OECD members are compared to those of all other OECD countries. In Figure 2a and Figure 2b *competition* and *competition\_bin10* with a linear and quadratic fit are depicted.

Figure 1: Average levels of *competition* (left) and *competition\_bin10* (right) and quadratic fit.

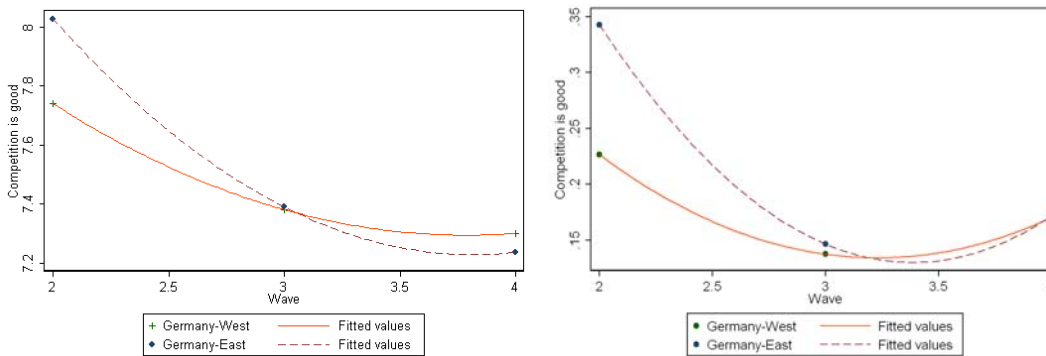


Figure 2a: Linear fit (left) and quadratic fit for country means of *competition*.

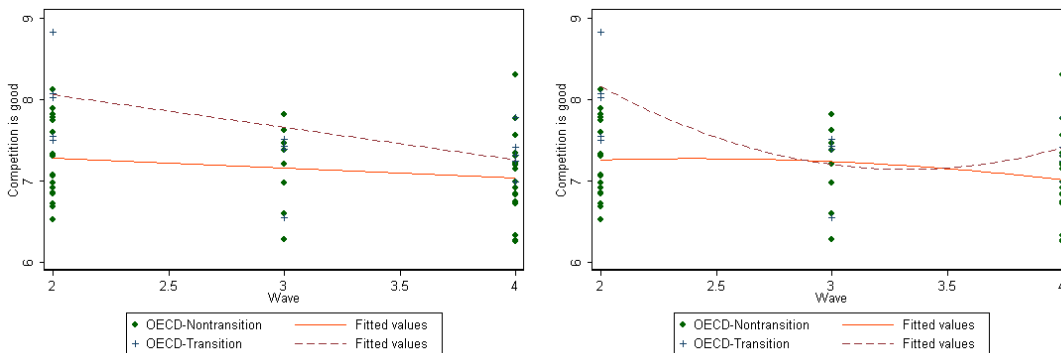
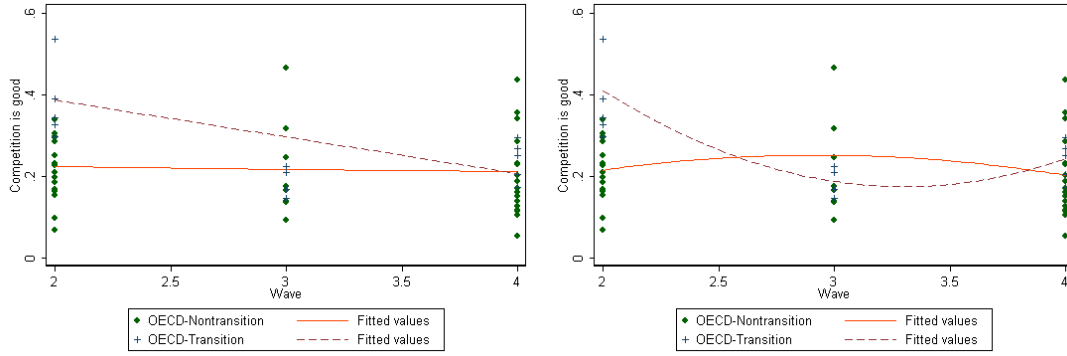
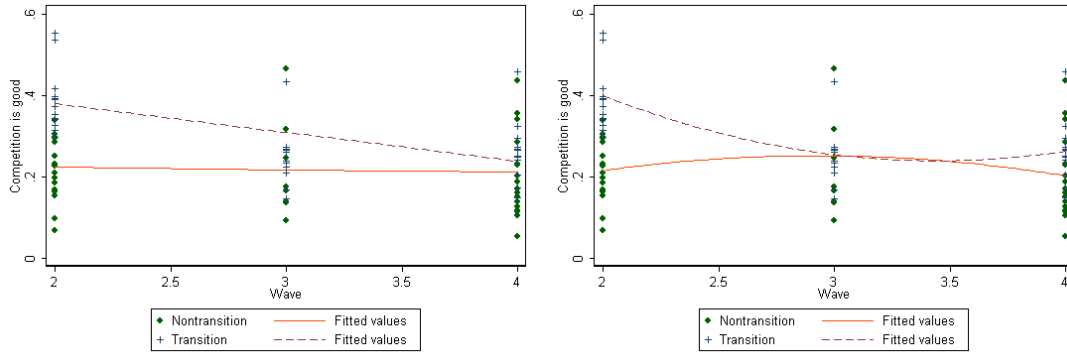


Figure 2b: Linear fit (left) and quadratic fit (right) for country means of *competition\_bin10*.



In Figure 3, the mean levels of *competition\_bin10* in all transition countries in the sample are compared to those in all non-transition countries.<sup>6</sup>

Figure 3: Linear fit (left) and quadratic fit for country means of *competition\_bin10*.



## Econometric Results

The overshooting and convergence we observe in the descriptive data might result from conflating factors like cultural differences, structural differences, economic performance, level of education and others. To control for these possibly conflating factors, multivariate regressions are employed. Using a difference-in-difference estimation approach, the basic specification of the logit model takes the form

$$(1) \quad B_{ict}^* = \alpha + \beta T_c + \gamma W_t + \delta_t(T_c * W_t) + \lambda' X_i + \varepsilon_{ict}$$

$$(2) \quad \Pr(B_{ict} = 1) = \Pr(B_{ict}^* > 0).$$

Competition belief  $B$  of individual  $i$ , living in country  $c$ , being surveyed at time  $t$ , is explained by individual characteristics  $X_i$ , a transition-country dummy  $T_c$ , wave dummies  $W_t$  and the interactions of wave and transition dummies. The transition dummy captures the effect of living in a transition economy. The interaction variables tell us whether and how the effect of

<sup>6</sup> In Appendix C the evolution of competition beliefs is shown for all countries individually.

living in a transition economy changes over time. Following the overshooting and convergence hypothesis we expect a positive but over time diminishing effect of  $T_c$  on the probability of optimistic competition beliefs (i.e.  $\beta > 0, \delta_t < 0$ ).

As already mentioned, the limited dependent variable is constructed from the *competition* variable with cut-off 10, i.e. only individuals who unambiguously state that competition is good, will be coded 1, all others zero. The estimation is first performed on the sample of OECD countries; in a second step the exercise is repeated using the full sample. On each sample three models are estimated. Model 1 only includes time dummies, transition dummies and interactions thereof.<sup>7</sup> Model 2 is extended with the whole set of individual controls. Finally, model 3 additionally includes country dummies to control for unobservable country specific characteristics.<sup>8</sup> The results are presented in Table 5. All six estimations convey the same message. Living in a transition country significantly increases the probability of believing that market competition is good. The coefficients for the interaction dummies are negative and significant for both waves; the positive effect of living in a transition country on the probability for positive competition beliefs diminishes over time. With respect to competition beliefs, transition countries and experienced market economies get more similar over time.<sup>9</sup>

As shown by Moulton (1990), the inclusion of country dummies and other group or country specific variables, is likely to bias estimated standard errors downward. Accordingly, the results are derived using a robust estimator taking account of within country clustering.

**Table 5: Main Results**

	<i>OECD</i>	<i>OECD</i>	<i>OECD</i>	<i>full sample</i>	<i>full sample</i>	<i>full sample</i>
competition_bin1						
wave_3	0.022 (0.11)	-0.014 (-0.09)	-0.329* (-2.17)	0.022 (0.11)	-0.030 (-0.20)	-0.327* (-2.17)
wave_4	-0.175+ (-1.79)	-0.119 (-1.11)	-0.185+ (-1.72)	-0.175+ (-1.80)	-0.114 (-1.07)	-0.182+ (-1.65)
transition	0.847*** (4.12)	0.941*** (3.93)	0.594*** (8.70)	0.828*** (5.35)	0.940*** (4.85)	0.541*** (7.81)
wave3_trans	-0.894** (-3.06)	-1.017*** (-3.45)	-0.532** (-2.65)	-0.682** (-2.63)	-0.606* (-2.47)	-0.229 (-1.01)
wave4_trans	-0.607** (-2.94)	-0.690** (-2.96)	-0.524* (-2.21)	-0.450** (-2.61)	-0.551** (-2.74)	-0.385+ (-1.88)
age		-0.005 (-1.11)	0.003 (0.58)		-0.007 (-1.57)	-0.002 (-0.35)
age_sqr		0.000 (1.45)	0.000 (0.40)		0.000 (1.30)	0.000 (0.62)
female		-0.215***	-0.215***		-0.234***	-0.231***

<sup>7</sup> Note that time dummies are in fact wave dummies. The use of year dummies does not change central results. Some year dummies are insignificant and convergence can not be observed for all year-transition interactions, probably due to small case numbers for some years.

<sup>8</sup> For estimation equations for model 2 and 3 see Item B1 in the Appendix B.

<sup>9</sup> Estimations on the sample of East- and West-Germany alone, also confirm overshooting and convergence in competition beliefs. These and all following results that are not reported in full detail can be obtained from the author upon request.

		(-7.13)	(-7.12)		(-8.95)	(-8.97)
inc_quint1		-0.098	-0.132*		0.003	-0.052
		(-1.63)	(-2.56)		(0.03)	(-0.95)
inc_quint2		-0.072 <sup>+</sup>	-0.097*		-0.032	-0.051
		(-1.90)	(-2.54)		(-0.82)	(-1.36)
inc_quint4		-0.012	0.001		0.022	0.033
		(-0.23)	(0.02)		(0.46)	(0.71)
inc_quint5		0.054	0.107 <sup>+</sup>		0.127*	0.167**
		(0.78)	(1.84)		(2.09)	(3.25)
stat_married		0.063	0.016		0.070 <sup>+</sup>	0.033
		(1.48)	(0.45)		(1.93)	(1.08)
stat_divorced		0.093	0.035		0.073	0.051
		(1.61)	(0.74)		(1.29)	(1.23)
stat_widowed		0.081	0.028		0.032	0.003
		(1.31)	(0.52)		(0.58)	(0.08)
jobstat_part		-0.160**	-0.160***		-0.159***	-0.160***
		(-3.28)	(-3.71)		(-3.97)	(-4.39)
jobstat_self		0.223***	0.133*		0.220***	0.124*
		(3.29)	(2.45)		(3.63)	(2.36)
jobstat_retired		0.011	0.035		-0.030	-0.019
		(0.23)	(1.05)		(-0.57)	(-0.43)
jobstat_wife		0.120 <sup>+</sup>	0.097*		0.130*	0.107*
		(1.81)	(2.10)		(1.97)	(2.17)
jobstat_student		-0.048	-0.082		-0.038	-0.070
		(-0.27)	(-0.54)		(-0.27)	(-0.55)
jobstat_unemp		-0.047	-0.013		-0.043	-0.019
		(-0.66)	(-0.21)		(-0.66)	(-0.33)
jobstat_other		-0.141	-0.079		-0.064	-0.042
		(-1.31)	(-0.68)		(-0.62)	(-0.39)
job_manager		0.389***	0.401***		0.416***	0.426***
		(5.96)	(6.36)		(6.93)	(7.35)
job_office		0.042	0.045		0.089 <sup>+</sup>	0.091*
		(0.75)	(0.99)		(1.68)	(2.10)
job_farmer		-0.082	-0.103		-0.093	-0.141*
		(-0.80)	(-1.61)		(-1.19)	(-2.43)
job_military		0.285**	0.283*		0.315***	0.321***
		(2.62)	(2.56)		(3.79)	(3.81)
job_never		-0.026	-0.022		0.012	0.000
		(-0.26)	(-0.29)		(0.14)	(0.00)
townsize_2		-0.002	-0.035		0.039	-0.018
		(-0.05)	(-0.51)		(0.80)	(-0.34)
townsize_3		0.038	0.074		0.118 <sup>+</sup>	0.132*
		(0.57)	(1.36)		(1.76)	(2.36)
townsize_4		-0.072	0.035		-0.034	0.044
		(-0.76)	(0.57)		(-0.40)	(0.73)
townsize_5		-0.143	-0.066		-0.054	-0.002
		(-1.52)	(-1.40)		(-0.65)	(-0.03)
townsize_6		0.128	0.135*		0.196**	0.177***
		(1.56)	(2.42)		(2.74)	(3.61)
townsize_7		-0.040	-0.056		0.055	0.028
		(-0.51)	(-1.25)		(0.72)	(0.52)
townsize_8		0.058	-0.063		0.125	0.037
		(0.66)	(-0.98)		(1.62)	(0.55)
_cons	-1.239***	-1.175***	-1.126***	-1.239***	-1.192***	-1.053***
	(-12.91)	(-9.45)	(-13.49)	(-12.95)	(-8.67)	(-11.02)
Country Dummies	No	No	Yes	No	No	Yes
N	98496	57114	57114	120002	71948	71948
pseudo R <sup>2</sup>	0.016	0.028	0.053	0.018	0.027	0.048

Notes: 1) Logit regression with *competition\_bin1* as dependent variable. 2) *t*-statistics in parentheses. 3) Standard errors are robust to within country clustering. 4) <sup>+</sup>  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

Let's shortly consider the empirical results with respect to other determinants of competition beliefs. Age has no effect on competition beliefs. Women are less likely to favour market competition. The self-employed have a higher probability and part time workers a lower probability than fully employed workers to judge competition a good thing. Managers and army members have more faith in the market system than blue collar workers. High incomes are significantly positively associated with competition beliefs. For marriage status and town size results are ambiguous and do not allow clear-cut conclusions regarding their influence on competition beliefs.

To get a notion of the quantitative importance of respective variables, OLS estimations are performed (see Appendix A, Table A2). The robustness of the central overshooting and convergence result is confirmed with a wide array of different estimation methods and specifications, as discussed below.

### Macroeconomic Influences and Robustness

Macroeconomic variables might convey important information on markets and competition which could explain both, the difference and convergence in competition beliefs. To incorporate the effect of macro variables, the standard specification is estimated with the inclusion of the inflation rate (*inflation*), the log of per-capita GDP (*ln\_pcgdp\_wdi*), GDP growth rate (*gdp\_growth*), unemployment (*unemp\_oecd*) and the Gini coefficient of market incomes (*gini\_gross\_swiid*), each in turn and all simultaneously. Again the robust variance estimator, taking account of within-country clustering, is used. Results for the OECD sample are shown in Table 6, for the full sample in Table 7.

As can be seen in Table 6, inflation has a negative effect on competition beliefs. The other macro variables do not show a statistically significant relation to competition beliefs. In all five models the overshooting and convergence of competition beliefs is confirmed.

**Table 6:** Results with macroeconomic variables on OECD sample

	<i>OECD</i>	<i>OECD</i>	<i>OECD</i>	<i>OECD</i>	<i>OECD</i>
competition_bin1					
wave_3	-0.335* (-2.21)	-0.333* (-2.18)	-0.305+ (-1.91)	-0.325+ (-1.69)	-0.292+ (-1.86)
wave_4	-0.203* (-1.97)	-0.193+ (-1.83)	-0.140 (-0.89)	-0.107 (-1.01)	-0.152 (-1.19)
transition	0.659*** (8.68)	0.635*** (10.38)	0.595*** (8.54)	0.704*** (7.80)	0.588*** (8.36)
wave3_trans	-0.645** (-3.20)	-0.611** (-2.98)	-0.530** (-2.65)	-0.716** (-2.64)	-0.519* (-2.32)
wave4_trans	-0.781** (-2.64)	-0.678** (-3.13)	-0.536* (-2.18)	-0.990** (-3.02)	-0.503* (-2.16)
inflation	-0.003* (-2.51)				
gdp_growth_wdi		0.005 (0.38)			

ln_pcgdp_wdi			-0.207 (-0.29)		
unemp_oecd				0.032 (1.11)	
gini_gross_swiid					-0.012 (-0.64)
Personal characteristics	Yes	Yes	Yes	Yes	Yes
Income quintiles	Yes	Yes	Yes	Yes	Yes
Marriage status	Yes	Yes	Yes	Yes	Yes
Job-status	Yes	Yes	Yes	Yes	Yes
Job dummies	Yes	Yes	Yes	Yes	Yes
Townsize	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes
_cons	-1.129*** (-13.19)	-1.157*** (-12.67)	0.974 (0.13)	-1.216*** (-9.30)	-0.653 (-0.88)
N	55485	55485	57114	49348	56373
pseudo R <sup>2</sup>	0.052	0.052	0.053	0.057	0.053

Notes: 1) Logit regression with *competition\_bin1* as dependent variable. 2) *t*-statistics in parentheses. 3) Standard errors are robust to within country clustering. 4) <sup>+</sup>  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

The estimations on the full sample (Table 7) show no statistical significant effect of any macro variable included. The overshooting and convergence effect persists. Note that the estimations shown in Table 7 do not include job information and information on townsize. Some 26,000 observations are lost with the inclusion of these variables. Also the overshooting and convergence results become somewhat weaker. Results also including these variables are shown in Table A3 in Appendix A.

**Table 7: Results with macroeconomic variables on full sample**

	<i>full sample</i>	<i>full sample</i>	<i>full sample</i>	<i>full sample</i>	<i>full sample</i>
competition_bin1					
wave_3	-0.137 (-0.90)	-0.121 (-0.78)	-0.120 (-0.80)	-0.072 (-0.43)	-0.106 (-0.65)
wave_4	-0.139 (-1.50)	-0.136 (-1.53)	-0.104 (-0.97)	-0.095 (-1.12)	-0.110 (-1.04)
transition	0.620*** (6.81)	0.573*** (5.79)	0.607*** (6.01)	0.771*** (7.02)	0.546*** (6.08)
wave3_trans	-0.588* (-2.32)	-0.531* (-2.18)	-0.579* (-2.22)	-1.076*** (-3.93)	-0.444+ (-1.87)
wave4_trans	-0.579** (-3.04)	-0.427+ (-1.87)	-0.524* (-2.38)	-0.797** (-2.67)	-0.407* (-2.22)
inflation	-0.001 (-1.56)				
gdp_growth_wdi		-0.017 (-1.18)			
ln_pcgdp_wdi			-0.156 (-0.36)		
unemp_oecd				-0.004 (-0.18)	
gini_gross_swiid					-0.017 (-0.99)
Personal characteristics	Yes	Yes	Yes	Yes	Yes

Income quintiles	Yes	Yes	Yes	Yes	Yes
Marriage status	Yes	Yes	Yes	Yes	Yes
Labour market status	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes
_cons	-0.899*** (-9.59)	-0.843*** (-7.41)	0.693 (0.16)	-1.024*** (-9.86)	-0.211 (-0.32)
N	96038	96038	99668	69516	99137
pseudo R <sup>2</sup>	0.049	0.049	0.049	0.057	0.050

Notes: 1) Logit regression with *competition\_bin1* as dependent variable. 2) *t*-statistics in parentheses. 3) Standard errors are robust to within country clustering. 4) <sup>+</sup>  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

If all macro variables are included simultaneously, the overshooting and convergence effect persists. This is shown for the full sample in Table 8. Unemployment and the Gini of

**Table 8:** Results with simultaneously including all macro variables

	<i>full sample</i>	<i>full sample</i>	<i>full sample</i>	<i>full sample</i>	<i>full sample</i>
competition_bin1					
wave_3	0.145 (1.13)	0.166 (1.31)	0.168 (1.32)	-0.038 (-0.25)	-0.142 (-1.11)
wave_4	0.287 (1.47)	0.376 <sup>+</sup> (1.86)	0.379 <sup>+</sup> (1.87)	-0.171 (-0.70)	-0.321 <sup>+</sup> (-1.78)
transition	0.774*** (5.78)	0.766*** (6.10)	0.762*** (6.05)	0.787*** (6.20)	0.812*** (6.79)
wave3_trans	-1.054*** (-3.55)	-1.034*** (-3.52)	-1.031*** (-3.51)	-1.304*** (-3.44)	-1.217*** (-4.20)
wave4_trans	-0.898* (-2.67)	-0.834* (-2.31)	-0.833* (-2.31)	-1.012* (-2.45)	-1.167** (-3.00)
inflation	0.004 (0.24)	0.007 (0.50)	0.007 (0.51)	-0.006 (-0.32)	-0.040*** (-3.93)
gdp_growth_wdi	0.003 (0.26)	0.008 (0.70)	0.009 (0.71)	-0.014 (-1.01)	-0.073*** (-4.91)
ln_pcgdp_wdi	-1.948* (-2.37)	-2.214** (-2.75)	-2.211** (-2.74)	0.545 (0.43)	0.525 (0.53)
unemp_oecd	-0.047* (-2.36)	-0.040 <sup>+</sup> (-1.86)	-0.040 <sup>+</sup> (-1.87)	-0.016 (-0.46)	-0.045 (-0.88)
gini_gross_swiid	-0.024 (-1.59)	-0.035* (-2.10)	-0.035* (-2.12)	-0.024 (-1.52)	-0.000 (-0.02)
Personal characteristics	Yes	Yes	Yes	Yes	Yes
Income quintiles	No	Yes	Yes	Yes	Yes
Marriage status	No	No	Yes	Yes	Yes
Labour market status	No	No	No	Yes	Yes
Job status	No	No	No	Yes	Yes
Townsize	No	No	No	No	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes
_cons	19.664* (2.34)	22.801** (2.74)	22.831** (2.74)	-5.517 (-0.43)	-5.930 (-0.59)
N	82074	69154	68983	57664	46978
pseudo R <sup>2</sup>	0.050	0.055	0.055	0.060	0.059

Notes: 1) Logit regression with *competition\_bin1* as dependent variable. 2) *t*-statistics in parentheses. 3) Standard errors are robust to within country clustering. 4) <sup>+</sup>  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .



market incomes show some negative association with competition beliefs; the other macro controls show ambiguous effects. Results are very similar for the OECD sample and will not be reported.

There is ample evidence that preferences for redistribution differ between people from post communist countries and those from long time market economies (Murthi and Tiongson 2008, Corneo and Grüner 2002, Alesina and Fuchs-Schündeln 2007). Thus, it is conceivable that the determinants of belief formation are different if socialised under a different system. In order to analyse whether determinants of competition beliefs differ between market economies and transition countries, an unconstrained logit model is estimated with all independent variables being interacted with the transition dummy. The constrained and unconstrained models are compared using the likelihood ratio test (LR Test) and the Bayesian Information Criterion (BIC). Both tests refute the unconstrained model if estimated on the OECD sample, but recommend it when the estimation is done on the full sample. Estimation results with robust standard errors for the OECD and the full sample are shown in Table 9.

**Table 9. Unrestricted Model - OECD & Full Sample**

	(1)	(2)	(1)	(2)
	<i>OECD</i>	<i>OECD</i>	<i>Full sample</i>	<i>Full sample</i>
competition_bin1				
OECD-Sample				
wave_3	-0.228 (-1.35)	-0.161 (-1.01)	-0.228 (-1.35)	-0.161 (-1.01)
wave_4	-0.214 <sup>+</sup> (-1.91)	-0.151 (-1.45)	-0.214 <sup>+</sup> (-1.91)	-0.151 (-1.45)
transition	0.614 <sup>**</sup> (3.14)	0.475 <sup>*</sup> (2.57)	0.757 <sup>***</sup> (5.25)	0.585 <sup>***</sup> (3.34)
wave3_trans	-0.695 <sup>**</sup> (-2.98)	-0.781 <sup>*</sup> (-2.49)	-0.473 <sup>*</sup> (-2.12)	-0.456 <sup>+</sup> (-1.85)
wave4_trans	-0.525 <sup>*</sup> (-2.47)	-0.603 <sup>**</sup> (-2.69)	-0.410 <sup>*</sup> (-2.38)	-0.408 <sup>*</sup> (-2.16)
Personal characteristics and interactions	Yes	Yes	Yes	Yes
Income quintiles and interactions	Yes	Yes	Yes	Yes
Marriage status and interactions	No	Yes	No	Yes
Labour market status and interactions	No	Yes	No	Yes
Job status and interactions	No	Yes	No	Yes
Country Dummies	Yes	Yes	Yes	Yes
<i>N</i>	83439	69849	103660	86305
pseudo <i>R</i> <sup>2</sup>	0.051	0.056	0.050	0.053

Notes: 1) Logit regression with *competition\_bin1* as dependent variable. 2) *t*-statistics in parentheses. 3) Standard errors are robust to within country clustering. 4) <sup>+</sup>  $p < 0.10$ , <sup>\*</sup>  $p < 0.05$ , <sup>\*\*</sup>  $p < 0.01$ , <sup>\*\*\*</sup>  $p < 0.001$ .

The overshooting and convergence hypothesis once more is confirmed. But there are some more interesting results. See the actual coefficients for these estimates, fully reported in

Table A4 in Appendix A. While the effect of gender is independent of cultural influences, the negative effect of age only arises in transition economies. This age effect is consistent with the effect of ideology which is more deeply engrained in older individuals (Alesina and Fuchs-Schündeln 2007, Eble and Koeva 2002) and the devaluation of system specific human capital of which older persons have accumulated more (Doyle and Fidrmuc 2003, Guriev and Zhuravskaya 2009). The negative effect of individual unemployment on competition beliefs only pertains in transition countries. In contrast, the effect of part time employment and self-employment is observed for all countries.

So far competition beliefs have been analysed, using *competition\_bin10* as dependent variable. This binary variable has been coded from *competition*, a ten point Likert scaled variable, with cut-off point ten. It might well be that results are driven by the choice of the cut-off point. To exclude this possibility, the basic results (Table 5) are also estimated with modified dependent variables with cut-off point nine, eight, and seven. The overshooting and convergence effect is confirmed for all three alternative dependent variables. Results are presented in Table A5 in Appendix A. The overshooting and convergence hypothesis is confirmed.

All specifications presented so far, have been re-estimated, using ordered logit and ordinary least square on the original *competition* variable. All estimations reproduce the overshooting and convergence result.<sup>10</sup> Basic estimation with OLS are shown in Table A2 in Appendix A.

## **Competition Beliefs and Support for the Implementation of Markets**

A central element of the transition process is the introduction of competitive markets. While competition is a universal phenomenon inherent in evolution, it is often and to a large extent associated with the way a market economy works.<sup>11</sup> It is this prevalence of competition in market economies, as compared to other form of social organisation, which allows for the presupposition that competition beliefs are indicative for individuals' attitudes and beliefs toward free competitive markets. These in turn affect the support for economic reforms during transition. This claim is now empirically substantiated.

Simple correlations between individual competition beliefs and questions regarding markets and market reforms provide first indicative evidence. Correlation coefficients of individual answers are calculated for each country and time point separately. If people think

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<sup>10</sup> Results can be obtained from the author upon request.

<sup>11</sup> Independent of a society's economic organisation, there is competition for sexual partners, social prestige and the like.

that success results from hard work rather than luck or connections, this expresses a belief in the functioning of markets and the fairness of market results (Corneo 2001, Corneo and Grüner 2002, Benabou and Tirole 2006). In all countries in the sample, there is a tendency that people with more positive competition beliefs also think that hard work brings success.<sup>12</sup> On average the correlation coefficient is .26 (.16 to .34) in transition countries and .33 (.12 to .54) in established market economies. In wave 2 (1989-1993) there is an item stating that the “country’s economic system needs fundamental changes”.<sup>13</sup> In transition countries, individuals who feel positive about competition, tend to see a need for fundamental changes with correlation coefficients ranging from .02 to .21. On the contrary, in long time market economies the correlation is largely negative ranging from -0.27 to .07. However, since correlations only offer weak evidence for our claim that competition beliefs are intimately connected to political support for economic reforms, the effect of competition beliefs on the attitudes toward the need for fundamental systemic change is analysed using multivariate estimation.

To analyse individual attitudes toward the need for changes of the economic system, the dependent variable *need\_change* is used. It takes on higher values with stronger agreement to the question “This country's economic system needs fundamental changes”. The question was only survey in wave 2. Mean values across countries are depicted in Table A6 in Appendix A. Performing ordered logit estimations, the effect of the binary competition variable, used as dependent variable for the analysis of the overshooting and convergence effect is estimated. The first specification only includes personal characteristics, country dummies and the binary variable indicating strong competition beliefs (*competition\_bin10*). Then a transition dummy and an interaction term are included; further control variables are added. Results are shown in Table 10. Strong competition beliefs have a positive and significant effect on the probability for holding strong reform attitudes. The interaction term indicates that this effect is stronger in transition countries. These results are reproduced with dummies for all levels of competition beliefs and interactions thereof. Results, which are shown in Table A7 in Appendix A, confirm that it is mainly in transition countries that competition beliefs have an important effect on attitudes toward economic reform. These results are robust to variations of the estimation method (Ordered Logit, Logit and OLS) and coding of the dependent variable (e.g. *need\_change\_bin5*).

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<sup>12</sup> For detailed wording see Item B2 in Appendix B.

<sup>13</sup> Detailed wording of the item and descriptive statistics can be found in the Appendix, Item B3 and Table A6, respectively.

**Table 10:** The effect of competition beliefs on support for economic reform

	(1)	(2)	(3)	(4)	(5)
need_change					
competition_bin10	0.451*** (10.01)	0.243*** (8.61)	0.206*** (6.59)	0.199*** (6.11)	0.181*** (5.14)
trans_comp10		0.449*** (9.65)	0.483*** (9.89)	0.494*** (9.92)	0.470*** (8.33)
transition		5.012*** (51.81)	4.998*** (50.83)	4.998*** (50.66)	4.993*** (49.84)
cut1_cons	-3.414*** (-7.68)	-3.811*** (-43.47)	-3.757*** (-38.55)	-3.797*** (-35.44)	-3.845*** (-31.62)
cut2_cons	-1.856*** (-7.12)	-2.127*** (-25.80)	-2.073*** (-22.50)	-2.106*** (-20.63)	-2.154*** (-18.51)
cut3_cons	-0.852*** (-6.36)	-1.030*** (-12.68)	-1.004*** (-11.04)	-1.063*** (-10.52)	-1.144*** (-9.94)
cut4_cons	1.019*** (12.75)	0.982*** (12.10)	1.008*** (11.10)	0.973*** (9.65)	0.928*** (8.07)
Personal characteristics	Yes	Yes	Yes	Yes	Yes
Income quintiles	No	No	No	Yes	Yes
Marriage status	No	No	No	Yes	Yes
Job-status	No	No	No	Yes	Yes
Job dummies	No	No	No	No	Yes
Townsize	No	No	No	No	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes
N	42475	42475	37148	35737	28461
pseudo R <sup>2</sup>	0.081	0.122	0.128	0.132	0.133

Notes: 1) Ordered logit regression with *need\_change* as dependent variable. 2) *t*-statistics in parentheses. 3) Standard errors are robust to within country clustering. 4) <sup>+</sup>  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

There is arguably an endogeneity problem if competition beliefs are used as an explanatory variable for reform attitudes. For lack of a suitable instrument, this problem can not be tackled and estimation results might be biased. However, the unconditional correlations together with the regressions show the qualitative relation between competition beliefs and reform attitudes. We conclude that at the onset of transition, optimistic beliefs on the effect of market competition were conducive to strong reform attitudes in transition countries. Those strong reform attitudes very likely contributed to the implementation of rapid and far-reaching pro-market policies.

## Why did Competition Beliefs Overshoot?

There are a number of possible accounts why competition beliefs overshoot. Very optimistic beliefs in the merits of competition in transition countries at the onset of transition could simply result from wrong expectations. People in transition countries knew about the relative material wealth in long time market economies and mistakenly believed that once market competition is introduced, their living standard will rise to similar levels. In fact, there is empirical evidence of the public holding biased beliefs on economic issues (Caplan 2002). There are also a number of theoretical approaches that elaborate upon standard economic theory to account for systematic biases. Caplan (2003) reviews these concepts and augments Downs's argument of rational ignorance to rational irrationality.<sup>14</sup> In contrast to mistakes and limited rationality, Doyle and Walsh (2007) claim that voting behaviour in the Czech Republic has been forward looking and the expectations of the electorate largely correct. We now present a simple model that shows how biased expert advice might result in overshooting and convergence of competition beliefs in a setting of full rationality with uncertainty. Our modelling strategy is inspired by Corneo (2006), who put forward the link between media capture and inequality. An empirical investigation of that link is offered by Petrova (2008).

### A Simple Model

There are two countries A and B. At time  $t = 0$ , only the representative agent of country A has experienced a market economy. Country B is about to begin the transition from a planned to a market economy and must decide whether certain goods and services are to be provided by the government or through markets. In the long run, markets are expected to yield a welfare gain given by

$$U = \bar{U} + \omega V,$$

where  $\bar{U}$  and  $V$  are constants,  $V > 0$ , and the state of the world  $\omega$  can take two values, 0 and 1. Markets perform better if the state is 1 rather than 0. The state of the world is unknown to agents; without loss of generality, each state occurs with equal probability.

Long-term utility is not experienced until time  $t = 2$ . At  $t = 0$ , agents in country A directly receive a signal about the benefit of markets (first-hand experience). Agents in country B merely receive a report about that signal from a media expert (IMF, big shot, local guru, local pundit, anchorman...). The media industry has access to privileged information about the state of the world through the expert and uses a technology to communicate

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<sup>14</sup> His argument boils down to the familiar argument that no rational agent will choose full rationality if its marginal benefit is smaller than marginal cost of information collection and processing.

messages to the representative agent. Specifically, the media expert's superior information about the underlying state  $\omega$  comes from a signal  $s_0 \in \{0,1\}$ . With probability  $p \in (1/2,1)$ , this signal is equal to the true state, while with probability  $1 - p$  the agents are misinformed about the state. The media expert reports a message  $r \in \{0,1\}$  about the state of the world to agent B.

The media expert may be one of three types and her type is her private information. With prior probability  $\mu$  the expert is pro-market and always reports 1 irrespective of the signal that she observes. With probability  $\eta$  the expert is anti-market and always reports 0. With probability  $1 - \mu - \eta$  the expert is unbiased and truthfully reports the signal. The expert's type and the signal are independently distributed. Agents' beliefs in country B are formed according to Bayes's rule, as implied by the expert's report and the agents' priors about both the state of the world and the expert's type.

Between time  $t = 0$  and  $t = 1$  transition occurs and agent B also experiences a market economy. At  $t = 1$ , both agents A and B observe a new signal  $s_1$ , drawn from the same distribution as  $s_0$ , and revise their beliefs about the virtues of markets. At  $t = 2$  the state of the world is realized and agents receive the associated long-term utility gain.

### **Equilibrium Beliefs at the onset of Transition**

The inference problem of agent A at  $t = 0$  is straightforward: if the agent observes 1, he assigns probability  $p$  to the good state ( $\omega = 1$ ), while if the signal is 0 the assigned probability is  $1 - p$ . The inference problem of agent B is more difficult. Because of the possible expert's bias, agent B will not completely believe the media. The agent realizes that the reports of biased media convey no information, while with honest media an optimistic report on the virtues of markets means that the good state has probability  $p$ .

Without first-hand experience of markets, agent B assigns probability  $q = \Pr(\omega = 1 | r = 1)$  to the good state if the media's report is optimistic ( $r = 1$ ); by Bayes' rule it is given by

$$q = \frac{\Pr(r = 1 | \omega = 1)\Pr(\omega = 1)}{\Pr(r = 1 | \omega = 1)\Pr(\omega = 1) + \Pr(r = 1 | \omega = 0)\Pr(\omega = 0)}.$$

If  $\omega = 1$ , the probability to hear good news from an anti-market expert is zero, while that probability is 1 if the expert is pro-market. If the expert is honest, the probability to hear good news is  $p$ , i.e. the informativeness of the signal that she has observed. Thus,  $\Pr(r = 1 | \omega = 1) = \mu + (1 - \mu - \eta)p$ . By the same token,  $\Pr(r = 1 | \omega = 0) = \mu + (1 - \mu - \eta)(1 - p)$ . Substituting into the above expression yields

$$q = \frac{(1-p)\mu + p(1-\eta)}{1 + \mu - \eta}.$$

This probability is smaller than  $p$  because the media are not entirely credible. Therefore, rationality puts an upper bound to the extent of beliefs manipulation by means of media reports. The probability  $q$  assigned to state 1 is however strictly larger than  $1/2$ , the prior probability of that state:  $q \in (1/2, p)$ . Conversely, if the media's report is pessimistic, the probability associated by agent B to the good state,  $q' = \Pr(\omega = 1 | r = 0)$ , is

$$q' = \frac{(1-p)(1-\mu) + p\eta}{1 - \mu + \eta}.$$

In this case, one has  $q' \in (1-p, 1/2)$ .

### Transition and Belief Change

At time  $t = 1$ , both agents, A and B, directly observe signal  $s_1$  and revise their beliefs about the underlying state of the world in a Bayesian fashion. To illustrate, consider first agent A when the independent draws are  $s_0 = s_1 = 0$ . Then, the probability assigned at  $t = 1$  to the good state is

$$\Pr(\omega = 1 | s_0 = 0, s_1 = 0) = \frac{(1-p)^2}{(1-p)^2 + p^2},$$

which is smaller than the probability assigned at time  $t = 0$ ,  $1-p$ .

Consider now agent B observing  $s_1 = 0$  after having received an optimistic message from the expert. In this case, she assigns probability  $Q = \Pr(\omega = 1 | r = 1, s_1 = 0)$  to the good state; by Bayes's rule it is given by

$$Q = \frac{(1-p)\mu + p(1-p)(1-\mu-\eta)}{\mu + 2p(1-p)(1-\mu-\eta)}.$$

If instead agent B received  $r = 0$  at  $t = 0$ , the probability that she assigns to the good state after observing a bad signal is

$$Q' = \frac{(1-p)\eta + (1-p)^2(1-\mu-\eta)}{\eta + [(1-p)^2 + p^2](1-\mu-\eta)}.$$

It is straightforward to show that  $Q < q$  and  $Q' < q'$ , i.e. B's beliefs about the long term benefits of markets become less positive, once she obtains signals from first hand experience.

## Model and Empirical Findings

In the data we observe that at the beginning of transition individuals from transition countries held more optimistic views about the market system than individuals from western countries. This is consistent with the model only if  $s_0 = 0$ , in which case agent A expects a long-term benefit  $(1-p)V$ , which is smaller than the benefit expected by agent B ( $q'V$  or  $qV$ , depending on the media report). Notice that in the special case where anti-market experts are virtually impossible and thus  $\eta$  goes to zero,  $q'$  goes to  $(1-p)$ .<sup>15</sup> In this case, observing more optimistic beliefs in transition countries implies that  $r=1$  occurred. Since the true signal was 0, we can deduce that the media expert was biased in favour of markets if  $\eta \approx 0$ . In the data we also observe that in transition countries attitudes towards markets became less favourable over time. This is consistent with the model only if  $s_1 = 0$ .

To sum up, the observed overshooting of beliefs about the virtues of markets can be rationalized in terms of media bias along two alternative lines:

1. Pro-market experts reported optimistic messages that were contradicted by experience;
2. Anti-market or honest experts reported realistic messages that were not completely believed by agents because they thought the experts to be biased against the market system.

Is the model also consistent with a convergence of beliefs across countries?

At time 0, the belief gap between agent B and agent A is predicted to be either  $q - (1-p)$  or  $q' - (1-p)$ , depending on the report sent by the media. In the first case, the belief gap becomes

$$Q - \frac{(1-p)^2}{(1-p)^2 + p^2}$$

at time 1, while in the second case it becomes

$$Q' - \frac{(1-p)^2}{(1-p)^2 + p^2}.$$

Belief convergence occurs, if the belief gap between agent B and agent A decreases, i.e.

$$(6) \quad q - (1-p) > Q - \frac{(1-p)^2}{(1-p)^2 + p^2}$$

or

$$(7) \quad q' - (1-p) > Q' - \frac{(1-p)^2}{(1-p)^2 + p^2}.$$

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<sup>15</sup> At the onset of transition it was often stated that the failure of communism proofed the dominance of the market system. In this historical context an anti-market expert indeed seems virtually impossible.



Inequality (6) and (7) always hold for given assumptions, so that the model predicts convergence, irrespective whether the expert is pro market and transmits a biased signal or whether an honest signal is discounted by the agents.

The path of transition towards a market economy entails the timing of reform policies and the depth of reform, i.e. the scope of privatization. The scope of privatization thereby refers to the decision as to what services (e.g. schooling, health, pensions, utilities) should be provided by markets or the state; a question not only contested in transition countries, but in experienced market economies, too (World Bank 2005). The timing of reform determines the sequencing of measures and accordingly determines the distribution of the cost of reform over time. The model raises the possibility that an expert with access to mass media transmitted a biased report about the desirability of markets, inducing exaggerated competition beliefs. As a result, both, the scope of privatization as well as the timing of reform might have extended beyond the level chosen by a correctly informed electorate.

## **Conclusion**

The introduction of market institutions in former centrally planned economies is expected to foster development and bring about convergence toward the living conditions of older market economies. Transition countries are expected to converge to and in fact do converge to older market economies with respect to a large number of measures of economic activity (World Bank 2002). The current paper shows that not only living conditions, but also beliefs converge. While belief convergence seems natural given the general convergence tendency, it is in fact surprising that initial levels of positive competition beliefs are much higher in transition countries than in experienced market economies.

At the onset of transition there was basically no experience with market competition in these countries. Expert advice was crucial for individual perceptions on the desirability of markets and influenced support for market oriented reforms. It is argued that overly positive beliefs in competition contributed to the possibility of introducing widespread economic reforms in transition countries. It is shown that in transition countries more positive competition beliefs increased demand for fundamental changes in the economic system. Once the basic market institutions were installed, individuals made actual experiences in a competitive market and accordingly updated their beliefs. Average beliefs in transition and established market economies converge. A learning model shows that such belief dynamics can result from rational belief formation, if an outside expert supplies biased information about the desirability of markets to people in transition countries.

Guriiev and Zhuravskaya (2009) identify a happiness gap in transition countries. They explain a large part of this gap with decreasing supply of public goods, economic instability and the deterioration of human capital. However, decreasing happiness levels might also arise from disappointed expectations with respect to the results of transition. Köszegi and Rabin (2006) introduce a model where expectations serve as a reference point for reference dependent utility. If outcomes are less positive than expected, utility levels are low. In this sense it is conceivable that a part of the decrease in happiness levels during transition could result from disappointment on the merits of the market and competition, which did not match high expectations, i.e. positive competition beliefs. This interpretation is hypothetical and it is up to future research to substantiate these claims.

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## Appendix A

**Table A1:** Number of observations and survey year

	Wave 2		Wave 3		Wave 4		Total Freq.
	Freq.	Years	Freq.	Years	Freq.	Years	
Country							
Austria	1,431	1990	0	.	1,471	1999	2,902
Belarus	973	1990	1,902	1996	906	2000	3,781
Belgium	2,569	1990	0	.	1,865	1999	4,434
Bulgaria	970	1990	982	1997	919	1999	2,871
Canada	1,713	1990	0	.	1,913	2000	3,626
Chile	1,473	1990	992	1996	1,177	2000	3,642
Czech Republic	2,979	1991	1,102	1998	1,870	1999	5,951
Denmark	987	1990	0	.	987	1999	1,974
Estonia	960	1990	993	1996	950	1999	2,903
Finland	566	1990	968	1996	1,016	2000	2,550
France	970	1990	0	.	1,585	1999	2,555
Germany	3,276	1990	1,991	1997	1,928	1999	7,195
Hungary	914	1991	630	1998	932	1999	2,476
Iceland	687	1990	0	.	959	1999	1,646
Ireland	987	1990	0	.	977	1999	1,964
Italy	1,887	1990	0	.	1,905	1999	3,792
Japan	846	1990	958	1995	1,251	2000	3,055
Korea, Rep.	1,235	1990	1,239	1996	1,199	2001	3,673
Latvia	832	1990	1,177	1996	961	1999	2,970
Lithuania	932	1990	953	1997	924	1999	2,809
Mexico	1,472	1990	2,236	1996	1,383	2000	5,091
Netherlands	987	1990	0	.	992	1999	1,979
Norway	1,209	1990	1,120	1996	0	.	2,329
Poland	1,816	1990	1,035	1997	1,043	1999	3,894
Portugal	1,115	1990	0	.	961	1999	2,076
Romania	1,061	1993	1,182	1998	981	1999	3,224
Russia	1,739	1990	1,849	1995	2,263	1999	5,851
Slovakia	1,513	1991	1,052	1998	1,254	1999	3,819
Slovenia	914	1992	970	1995	982	1999	2,866
Spain	3,801	1990	1,156	1995	2,277	2000	7,234
Sweden	1,010	1990	1,003	1996	2,004	1999	4,017
Turkey	992	1990	1,859	1996	1,127	2001	3,978
United Kingdom	1,454	1990	0	.	968	1999	2,422
United States	1,752	1990	1,502	1995	1,199	1999	4,453
<b>Total</b>	<b>48,022</b>	<b>1990</b>	<b>28,851</b>	<b>1996</b>	<b>43,129</b>	<b>1999</b>	<b>120,002</b>

**Table A2.** Ordered least square estimations to gauge the quantitative relevance of estimates

	(1)	(2)	(3)	(4)	(5)	(6)
competition						
age	0.001 (0.24)	-0.006 (-1.37)	-0.008 (-1.36)	-0.009 (-1.39)	-0.008 (-1.32)	-0.006 (-0.95)
age_sqr	-0.000 (-0.81)	0.000 (1.23)	0.000 (1.35)	0.000 (1.45)	0.000 (1.32)	0.000 (1.06)
female	-0.318*** (-11.77)	-0.304*** (-11.13)	-0.298*** (-10.89)	-0.295*** (-12.09)	-0.338*** (-12.20)	-0.328*** (-11.05)
wave_3	-0.223+ (-1.89)	-0.253+ (-1.84)	-0.251+ (-1.84)	-0.164 (-1.47)	-0.173 (-1.47)	-0.320** (-3.10)
wave_4	-0.274** (-3.41)	-0.282** (-3.09)	-0.280** (-3.08)	-0.216** (-2.88)	-0.210* (-2.55)	-0.265** (-3.31)
transition	0.329***	0.376***	0.373***	0.394***	0.422***	0.393***

	(4.50)	(5.29)	(5.29)	(6.08)	(6.66)	(6.34)
wave3_trans	-0.383*	-0.384*	-0.385*	-0.412*	-0.363 <sup>+</sup>	-0.224
	(-2.39)	(-2.18)	(-2.20)	(-2.54)	(-1.87)	(-1.39)
wave4_trans	-0.424**	-0.412**	-0.409**	-0.448**	-0.443**	-0.348*
	(-3.12)	(-2.86)	(-2.84)	(-3.26)	(-2.93)	(-2.26)
inc_quint1		-0.290***	-0.277***	-0.270***	-0.220***	-0.247***
		(-5.88)	(-5.25)	(-5.71)	(-4.60)	(-4.75)
inc_quint2		-0.120***	-0.117***	-0.129***	-0.106***	-0.105**
		(-3.88)	(-3.72)	(-4.84)	(-3.83)	(-3.34)
inc_quint4		0.160***	0.160***	0.137***	0.096**	0.084*
		(5.44)	(5.51)	(5.46)	(3.13)	(2.36)
inc_quint5		0.445***	0.443***	0.413***	0.349***	0.345***
		(12.41)	(12.59)	(12.67)	(9.04)	(7.64)
stat_married			0.021	0.031	0.024	0.012
			(0.50)	(0.79)	(0.60)	(0.27)
stat_divorced			-0.027	-0.009	-0.016	-0.032
			(-0.58)	(-0.21)	(-0.35)	(-0.66)
stat_widowed			-0.057	-0.043	-0.042	-0.034
			(-1.08)	(-0.85)	(-0.79)	(-0.58)
jobstat_part				-0.121**	-0.110**	-0.143**
				(-3.05)	(-2.80)	(-3.51)
jobstat_self				0.151*	0.086	0.085 <sup>+</sup>
				(2.72)	(1.39)	(1.72)
jobstat_retired				-0.056	-0.027	-0.053
				(-1.18)	(-0.59)	(-1.34)
jobstat_wife				-0.022	0.020	0.055
				(-0.35)	(0.42)	(1.35)
jobstat_student				0.103*	0.061	0.027
				(2.22)	(0.71)	(0.28)
jobstat_unemp				-0.305***	-0.284***	-0.322***
				(-5.94)	(-4.40)	(-5.13)
jobstat_other				-0.055	-0.003	-0.088
				(-0.73)	(-0.04)	(-0.86)
job_manager					0.481***	0.561***
					(10.48)	(12.30)
job_office					0.277***	0.267***
					(8.27)	(8.54)
job_farmer					-0.045	-0.053
					(-0.81)	(-1.11)
job_military					0.472***	0.449***
					(5.66)	(5.01)
job_never					0.135 <sup>+</sup>	0.196**
					(2.02)	(2.87)
townsize_2						-0.028
						(-0.56)
townsize_3						0.133 <sup>+</sup>
						(1.95)
townsize_4						0.028
						(0.49)
townsize_5						-0.006
						(-0.11)
townsize_6						0.103*
						(2.07)
townsize_7						0.053
						(1.09)
townsize_8						0.064
						(1.13)
_cons	8.133***	8.230***	8.245***	8.242***	8.098***	8.031***
	(71.76)	(65.78)	(61.73)	(58.20)	(56.90)	(57.70)
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	119765	103660	103444	100544	86305	71948

Notes: 1) OLS regression with *competition* as dependent variable. 2) *t*-statistics in parentheses. 3) Standard errors are robust to within country clustering. 4) <sup>+</sup>  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

**Table A3.** Logit estimations with macro controls on the full sample

	<i>full sample</i>	<i>full sample</i>	<i>full sample</i>	<i>full sample</i>	<i>full sample</i>
competition_bin1					
wave_3	-0.329* (-2.19)	-0.312* (-2.13)	-0.301* (-2.04)	-0.325+ (-1.69)	-0.319* (-2.05)
wave_4	-0.187+ (-1.70)	-0.153 (-1.41)	-0.136 (-1.20)	-0.107 (-1.01)	-0.176 (-1.45)
transition	0.548*** (7.61)	0.502*** (6.60)	0.554*** (6.88)	0.704*** (7.80)	0.537*** (6.69)
wave3_trans	-0.198 (-0.85)	-0.168 (-0.79)	-0.271 (-1.07)	-0.716** (-2.64)	-0.217 (-0.82)
wave4_trans	-0.442* (-2.05)	-0.269 (-1.17)	-0.422+ (-1.81)	-0.990** (-3.02)	-0.377+ (-1.68)
inflation	-0.001* (-2.29)				
gdp_growth_wdi		-0.023 (-1.52)			
ln_pcgdp_wdi			-0.213 (-0.68)		
unemp_oecd				0.032 (1.11)	
gini_gross_swiid					-0.003 (-0.17)
Personal characteristics	Yes	Yes	Yes	Yes	Yes
Income quintiles	Yes	Yes	Yes	Yes	Yes
Marriage status	Yes	Yes	Yes	Yes	Yes
Job-status	Yes	Yes	Yes	Yes	Yes
Job dummies	Yes	Yes	Yes	Yes	Yes
Townsize	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes
N	70319	70319	71948	49348	71207
pseudo R <sup>2</sup>	0.048	0.048	0.048	0.057	0.049

Notes: 1) Logit regression with *competition\_bin1* as dependent variable. 2) *t*-statistics in parentheses. 3) Standard errors are robust to within country clustering. 4) +  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .



**Table A4.** Unrestricted model – OECD and full sample, reporting all coefficients

	<i>OECD</i>	<i>OECD</i>	<i>full sample</i>	<i>full sample</i>
competition_bin1				
wave_3	-0.228 (-1.35)	-0.161 (-1.01)	-0.228 (-1.35)	-0.161 (-1.01)
wave_4	-0.214 <sup>+</sup> (-1.91)	-0.151 (-1.45)	-0.214 <sup>+</sup> (-1.91)	-0.151 (-1.45)
transition	0.614 <sup>**</sup> (3.14)	0.475 <sup>*</sup> (2.57)	0.757 <sup>***</sup> (5.25)	0.585 <sup>***</sup> (3.34)
wave3_trans	-0.695 <sup>**</sup> (-2.98)	-0.781 <sup>*</sup> (-2.49)	-0.473 <sup>*</sup> (-2.12)	-0.456 <sup>+</sup> (-1.85)
wave4_trans	-0.525 <sup>*</sup> (-2.47)	-0.603 <sup>**</sup> (-2.69)	-0.410 <sup>*</sup> (-2.38)	-0.408 <sup>*</sup> (-2.16)
age	0.000 (0.12)	-0.004 (-0.77)	0.000 (0.12)	-0.004 (-0.78)
trans_age	0.016 <sup>*</sup> (2.06)	0.017 <sup>+</sup> (1.67)	0.008 (1.20)	0.009 (0.93)
age_sqr	0.000 <sup>*</sup> (2.12)	0.000 <sup>*</sup> (2.36)	0.000 <sup>*</sup> (2.12)	0.000 <sup>*</sup> (2.37)
trans_agesqr	-0.000 <sup>***</sup> (-4.16)	-0.000 <sup>**</sup> (-2.87)	-0.000 <sup>***</sup> (-3.68)	-0.000 <sup>*</sup> (-2.49)
female	-0.258 <sup>***</sup> (-7.53)	-0.227 <sup>***</sup> (-6.42)	-0.258 <sup>***</sup> (-7.56)	-0.227 <sup>***</sup> (-6.44)
trans_female	0.072 (1.50)	0.066 (1.23)	0.049 (1.07)	0.005 (0.11)
inc_quint1	-0.074 (-0.78)	-0.099 (-1.26)	-0.074 (-0.78)	-0.099 (-1.27)
trans_inc1	0.017 (0.16)	0.060 (0.59)	0.072 (0.66)	0.129 (1.25)
inc_quint2	-0.041 (-0.64)	-0.061 (-1.19)	-0.041 (-0.64)	-0.061 (-1.19)
trans_inc2	-0.072 (-0.95)	-0.065 (-0.94)	0.002 (0.02)	0.015 (0.22)
inc_quint4	0.059 (1.22)	0.036 (0.84)	0.059 (1.23)	0.036 (0.85)
trans_inc4	-0.053 (-0.77)	-0.031 (-0.44)	0.020 (0.27)	0.026 (0.35)
inc_quint5	0.186 <sup>**</sup> (3.22)	0.146 <sup>**</sup> (2.89)	0.186 <sup>**</sup> (3.23)	0.146 <sup>**</sup> (2.90)
trans_inc5	-0.061 (-0.60)	-0.066 (-0.53)	0.107 (1.27)	0.093 (1.18)
stat_married		0.002 (0.04)		0.002 (0.04)
trans_stat_married		0.035 (0.72)		0.037 (0.66)
stat_divorced		0.030 (0.51)		0.030 (0.51)
trans_stat_divorced		0.019 (0.27)		0.025 (0.32)
stat_widowed		-0.001 (-0.01)		-0.001 (-0.01)
trans_stat_widowed		0.022 (0.22)		-0.002 (-0.03)
jobstat_part		-0.121 <sup>**</sup> (-2.61)		-0.121 <sup>**</sup> (-2.62)
trans_jobstat_part		0.011 (0.12)		0.042 (0.67)
jobstat_self		0.139 <sup>*</sup> (2.00)		0.139 <sup>*</sup> (2.00)
trans_jobstat_self		-0.006 (-0.07)		-0.032 (-0.32)
jobstat_retired		0.079 (1.62)		0.079 (1.62)

trans_jobstat_retired		0.035 (0.51)		-0.024 (-0.34)
jobstat_wife		0.062 (1.32)		0.062 (1.32)
trans_jobstat_wife		0.146 (1.47)		0.166 <sup>+</sup> (1.92)
jobstat_student		-0.118 (-0.80)		-0.118 (-0.80)
trans_jobstat_student		-0.167 (-0.47)		0.183 (0.85)
jobstat_unemp		-0.101 (-1.38)		-0.101 (-1.39)
trans_jobstat_unemp		0.327 <sup>**</sup> (3.20)		0.220 <sup>*</sup> (2.06)
jobstat_other		0.036 (0.25)		0.036 (0.26)
trans_jobstat_other		-0.126 (-0.59)		-0.065 (-0.33)
job_manager		0.326 <sup>***</sup> (6.62)		0.326 <sup>***</sup> (6.64)
trans_job_manager		0.154 (1.34)		0.088 (0.82)
job_office		-0.018 (-0.39)		-0.018 (-0.39)
trans_job_office		0.131 (1.49)		0.185 <sup>*</sup> (2.51)
job_farmer		0.017 (0.27)		0.017 (0.27)
trans_job_farmer		-0.357 <sup>***</sup> (-3.70)		-0.300 <sup>**</sup> (-3.22)
job_military		0.237 <sup>+</sup> (1.84)		0.237 <sup>+</sup> (1.85)
trans_job_military		0.161 (0.88)		0.154 (0.92)
job_never		-0.063 (-0.89)		-0.063 (-0.89)
trans_job_never		0.016 (0.12)		-0.017 (-0.17)
_cons	-1.140 <sup>***</sup> (-15.16)	-1.052 <sup>***</sup> (-10.59)	-1.140 <sup>***</sup> (-15.21)	-1.052 <sup>***</sup> (-10.62)
Country Dummies	Yes	Yes	Yes	Yes
N	83439	69849	103660	86305
pseudo R <sup>2</sup>	0.051	0.056	0.050	0.053

Notes: 1) Logit regression with *competition\_bin1* as dependent variable. 2) *t*-statistics in parentheses. 3) Standard errors are robust to within country clustering. 4) <sup>+</sup>  $p < 0.10$ , <sup>\*</sup>  $p < 0.05$ , <sup>\*\*</sup>  $p < 0.01$ , <sup>\*\*\*</sup>  $p < 0.001$ .

**Table A5:** Robustness check: different cut-offs, OECD and full sample

	<i>OECD</i>	<i>OECD</i>	<i>OECD</i>	<i>full sample</i>	<i>full sample</i>	<i>full sample</i>
	comp_bin2	comp_bin3	comp_bin4	comp_bin2	comp_bin3	comp_bin4
wave_3	-0.205 (-1.60)	-0.204 <sup>+</sup> (-1.84)	-0.180 <sup>*</sup> (-2.09)	-0.204 (-1.59)	-0.202 <sup>+</sup> (-1.83)	-0.180 <sup>*</sup> (-2.09)
wave_4	-0.158 <sup>*</sup> (-2.30)	-0.232 <sup>***</sup> (-3.82)	-0.209 <sup>***</sup> (-3.54)	-0.153 <sup>*</sup> (-2.25)	-0.229 <sup>***</sup> (-3.78)	-0.207 <sup>***</sup> (-3.51)
transition	0.573 <sup>***</sup> (7.04)	0.445 <sup>***</sup> (4.90)	0.272 <sup>**</sup> (3.06)	0.519 <sup>***</sup> (7.59)	0.435 <sup>***</sup> (6.75)	0.298 <sup>***</sup> (5.26)
wave3_trans	-0.611 <sup>**</sup> (-2.90)	-0.363 <sup>+</sup> (-1.68)	-0.185 (-0.83)	-0.450 <sup>*</sup> (-2.52)	-0.341 <sup>*</sup> (-2.27)	-0.252 <sup>*</sup> (-1.98)
wave4_trans	-0.482 <sup>**</sup> (-2.75)	-0.349 <sup>+</sup> (-1.92)	-0.340 <sup>*</sup> (-2.08)	-0.419 <sup>**</sup> (-3.17)	-0.316 <sup>*</sup> (-2.47)	-0.338 <sup>**</sup> (-3.01)
age	-0.004 (-0.81)	-0.003 (-0.64)	-0.008 (-1.35)	-0.008 (-1.58)	-0.006 (-1.25)	-0.009 <sup>+</sup> (-1.75)

age_sqr	0.000 (1.32)	0.000 (1.00)	0.000 (1.57)	0.000 <sup>+</sup> (1.65)	0.000 (1.30)	0.000 <sup>+</sup> (1.70)
female	-0.275 <sup>***</sup> (-10.57)	-0.286 <sup>***</sup> (-11.11)	-0.265 <sup>***</sup> (-10.32)	-0.281 <sup>***</sup> (-12.11)	-0.287 <sup>***</sup> (-12.34)	-0.270 <sup>***</sup> (-11.99)
inc_quint1	-0.153 <sup>**</sup> (-3.25)	-0.180 <sup>***</sup> (-4.43)	-0.252 <sup>***</sup> (-7.32)	-0.122 <sup>**</sup> (-2.92)	-0.166 <sup>***</sup> (-4.75)	-0.235 <sup>***</sup> (-7.90)
inc_quint2	-0.099 <sup>**</sup> (-3.09)	-0.117 <sup>***</sup> (-4.69)	-0.133 <sup>***</sup> (-5.55)	-0.080 <sup>**</sup> (-2.88)	-0.099 <sup>***</sup> (-4.65)	-0.120 <sup>***</sup> (-5.79)
inc_quint4	0.074 <sup>**</sup> (3.02)	0.122 <sup>***</sup> (5.12)	0.119 <sup>***</sup> (5.21)	0.089 <sup>***</sup> (3.62)	0.132 <sup>***</sup> (6.02)	0.133 <sup>***</sup> (6.21)
inc_quint5	0.267 <sup>***</sup> (9.39)	0.366 <sup>***</sup> (10.92)	0.407 <sup>***</sup> (11.67)	0.307 <sup>***</sup> (10.83)	0.384 <sup>***</sup> (14.15)	0.422 <sup>***</sup> (14.02)
stat_married	0.065 <sup>+</sup> (1.82)	0.059 (1.33)	0.041 (0.88)	0.062 <sup>*</sup> (2.10)	0.049 (1.30)	0.039 (0.97)
stat_divorced	0.040 (0.82)	0.024 (0.46)	-0.043 (-0.86)	0.053 (1.29)	0.046 (1.05)	-0.015 (-0.34)
stat_widowed	0.049 (1.05)	0.039 (0.77)	-0.005 (-0.10)	0.024 (0.57)	0.012 (0.26)	-0.027 (-0.57)
jobstat_part	-0.153 <sup>***</sup> (-3.37)	-0.143 <sup>***</sup> (-3.53)	-0.136 <sup>**</sup> (-2.92)	-0.137 <sup>***</sup> (-3.41)	-0.124 <sup>***</sup> (-3.62)	-0.104 <sup>*</sup> (-2.45)
jobstat_self	0.182 <sup>***</sup> (3.46)	0.116 <sup>**</sup> (2.69)	0.071 (1.60)	0.172 <sup>***</sup> (3.43)	0.120 <sup>**</sup> (3.03)	0.077 <sup>+</sup> (1.89)
jobstat_retired	0.005 (0.13)	-0.009 (-0.21)	-0.028 (-0.65)	-0.029 (-0.84)	-0.040 (-1.08)	-0.052 (-1.36)
jobstat_wife	0.013 (0.34)	0.012 (0.32)	-0.018 (-0.34)	0.026 (0.71)	0.029 (0.81)	0.000 (0.01)
jobstat_student	-0.024 (-0.41)	0.019 (0.45)	0.068 (1.32)	-0.008 (-0.17)	0.044 (1.18)	0.110 <sup>*</sup> (2.27)
jobstat_unemp	-0.165 <sup>***</sup> (-3.83)	-0.198 <sup>***</sup> (-5.78)	-0.248 <sup>***</sup> (-5.51)	-0.151 <sup>**</sup> (-3.22)	-0.176 <sup>***</sup> (-4.78)	-0.229 <sup>***</sup> (-5.67)
jobstat_other	0.048 (0.76)	-0.074 (-1.14)	-0.035 (-0.57)	0.002 (0.03)	-0.085 (-1.58)	-0.070 (-1.22)
_cons	-0.102 (-0.93)	0.801 <sup>***</sup> (6.87)	1.493 <sup>***</sup> (11.49)	0.018 (0.16)	0.899 <sup>***</sup> (8.00)	1.547 <sup>***</sup> (13.23)
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	80528	80528	80528	100544	100544	100544
pseudo R <sup>2</sup>	0.050	0.047	0.046	0.048	0.045	0.044

Notes: 1) Logit regression with *competition\_bin2*, *\_bin3* *\_bin4* as dependent variable.

2) *t*-statistics in parentheses. 3) Standard errors are robust to within country clustering.

4) <sup>+</sup>  $p < 0.10$ , <sup>\*</sup>  $p < 0.05$ , <sup>\*\*</sup>  $p < 0.01$ , <sup>\*\*\*</sup>  $p < 0.001$ .

**Table A6:** Descriptive Statistic of *need\_change\_bin1* by country (only surveyed in wave 2)

country	<i>need_change</i>	<i>need_change_bin1</i>	<i>Freq.</i>
	1989-1993	1989-1993	
Belgium	3.425	0.143	2,405
Bulgaria	4.655	0.732	952
Canada	4.216	0.392	1,682
Chile	4.300	0.545	1,465
Czech Republic	4.492	0.603	2,968
Denmark	4.347	0.528	992
Estonia	4.689	0.740	971
Finland	3.695	0.204	558
France	3.615	0.207	932
Germany	3.497	0.383	3,299
Hungary	4.591	0.687	935
Iceland	3.946	0.272	690
Ireland	4.175	0.383	988
Italy	4.111	0.360	1,897
Japan	3.247	0.078	797
Korea, Rep.	3.990	0.340	1,235
Latvia	4.811	0.831	864
Lithuania	4.412	0.522	944
Mexico	4.319	0.537	1,458
Netherlands	2.918	0.064	939
Norway	3.812	0.281	1,229
Poland	4.406	0.628	1,822
Portugal	4.009	0.346	1,043
Romania	4.340	0.500	1,051
Russia	4.725	0.769	1,901
Slovakia	4.363	0.510	1,513
Slovenia	4.391	0.513	896
Spain	4.203	0.416	3,559
Sweden	4.197	0.455	973
United Kingdom	4.058	0.336	1,413
United States	4.087	0.320	1,752
<b>Total</b>	4.124	0.443	44,123

**Table A7:** The Effect of competition belief (dummies) on support for economic reform

	(1)	(2)	(3)	(4)	(5)	(6)
<i>need_change</i>						
<i>comp_bin9</i>	-0.427*** (-10.77)	-0.395*** (-10.88)	-0.320*** (-6.15)	-0.272*** (-4.86)	-0.280*** (-4.62)	-0.262*** (-3.74)
<i>comp_bin8</i>	-0.604*** (-17.49)	-0.574*** (-11.16)	-0.460*** (-6.61)	-0.424*** (-5.67)	-0.422*** (-5.26)	-0.409*** (-4.53)
<i>comp_bin7</i>	-0.601*** (-11.84)	-0.544*** (-7.32)	-0.378*** (-3.92)	-0.320** (-3.28)	-0.310** (-2.98)	-0.293* (-2.56)
<i>comp_bin6</i>	-0.435*** (-6.24)	-0.395*** (-4.13)	-0.182 (-1.38)	-0.145 (-1.04)	-0.138 (-0.95)	-0.122 (-0.74)
<i>comp_bin5</i>	-0.467*** (-5.48)	-0.418*** (-3.58)	-0.183 (-1.16)	-0.183 (-1.10)	-0.181 (-1.04)	-0.182 (-0.89)
<i>comp_bin4</i>	-0.385*** (-4.01)	-0.325** (-2.59)	-0.055 (-0.37)	-0.007 (-0.05)	-0.004 (-0.03)	0.008 (0.05)
<i>comp_bin3</i>	-0.266* (-2.32)	-0.215 (-1.48)	0.010 (0.06)	0.035 (0.19)	0.039 (0.20)	0.033 (0.16)

comp_bin2	-0.130 (-1.23)	-0.086 (-0.66)	0.134 (0.91)	0.202 (1.37)	0.212 (1.39)	0.245 (1.38)
comp_bin1	0.381*** (3.73)	0.415*** (3.54)	0.660*** (5.61)	0.593*** (5.04)	0.615*** (5.17)	0.659*** (4.79)
transition		5.120*** (47.32)	5.442*** (52.87)	5.459*** (50.69)	5.468*** (47.42)	5.439*** (45.27)
comp_trans9			-0.143* (-2.09)	-0.175* (-2.48)	-0.172* (-2.24)	-0.177+ (-1.89)
comp_trans8			-0.255*** (-3.58)	-0.306*** (-3.79)	-0.309*** (-3.58)	-0.287** (-2.99)
comp_trans7			-0.460*** (-3.84)	-0.520*** (-4.21)	-0.539*** (-4.16)	-0.506*** (-3.54)
comp_trans6			-0.643*** (-3.92)	-0.678*** (-3.95)	-0.695*** (-3.90)	-0.693*** (-3.33)
comp_trans5			-0.818*** (-3.75)	-0.802*** (-3.49)	-0.810*** (-3.40)	-0.721** (-2.59)
comp_trans4			-1.013*** (-4.99)	-1.043*** (-4.89)	-1.071*** (-4.88)	-0.938*** (-3.94)
comp_trans3			-0.775*** (-3.43)	-0.774*** (-3.31)	-0.784** (-3.24)	-0.581* (-2.14)
comp_trans2			-0.810*** (-3.69)	-0.820*** (-3.94)	-0.796*** (-3.71)	-0.676** (-3.19)
comp_trans1			-0.833*** (-4.55)	-0.768*** (-4.16)	-0.800*** (-4.36)	-0.851*** (-4.02)
cut1 _cons	-3.893*** (-8.79)	-4.214*** (-17.73)	-4.095*** (-16.30)	-4.007*** (-15.01)	-4.029*** (-14.47)	-4.059*** (-12.79)
cut2 _cons	-2.333*** (-9.01)	-2.526*** (-18.62)	-2.404*** (-16.43)	-2.318*** (-13.20)	-2.333*** (-13.10)	-2.363*** (-11.36)
cut3 _cons	-1.325*** (-9.90)	-1.424*** (-15.61)	-1.301*** (-14.42)	-1.244*** (-10.70)	-1.284*** (-10.78)	-1.348*** (-8.55)
cut4 _cons	0.557*** (6.71)	0.600*** (7.00)	0.726*** (8.19)	0.782*** (6.68)	0.766*** (5.99)	0.739*** (4.37)
Personal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Income quintiles	No	No	No	Yes	Yes	Yes
Marriage status	No	No	No	No	Yes	Yes
Job-status	No	No	No	No	Yes	Yes
Job dummies	No	No	No	No	No	Yes
Townsize	No	No	No	No	No	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	42475	42475	42475	37148	35737	28461
pseudo R <sup>2</sup>	0.085	0.124	0.126	0.131	0.136	0.137

Notes: 1) Ordered logit regression with *need\_change* as dependent variable. 2) *t*-statistics in parentheses.

3) Standard errors are robust to within country clustering. 4) +  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

5) comp\_bin indicate competition dummies, comp\_trans the interaction of transition with respective competition dummy.

## Appendix B

### Item B1: Model specifications of extended models

$$(1) \quad B_{ict}^* = \alpha + \beta T_c + \gamma_t W_t + \delta_t (T_c * W_t) + \lambda' X_{ict} + \varepsilon_{ict}$$

$$(2) \quad \Pr(B_{ict} = 1) = \Pr(B_{ict}^* > 0)$$

The augmented model with macro-variables:

$$(3) \quad B_{ict}^* = \alpha + \beta T_c + \gamma_t W_t + \delta_t (T_c * W_t) + \omega' M_{ct} + \lambda' X_{ict} + \varepsilon_{ict}$$

$$(4) \quad \Pr(B_{ict} = 1) = \Pr(B_{ict}^* > 0)$$

The augmented model with country fixed effects:

$$(5) \quad B_{ict}^* = \alpha + \beta T_c + \gamma_t W_t + \delta_t (T_c * W_t) + \phi_c + \lambda' X_{ict} + \varepsilon_{ict}$$

$$(6) \quad \Pr(B_{ict} = 1) = \Pr(B_{ict}^* > 0)$$

### Item B2: Original wording of item on fairness of the market place

Question:

Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can chose any number in between. Agreement: Hard work brings success.

Responses:

1 'In the long run, hard work usually brings a better life'

...

10 'Hard work doesn't generally bring success - it's more a matter of luck and connections'

### Item B3: Original wording of item for attitude toward reform: *need\_change\_bin1*

Question:

I am going to read out some statements about the government and the economy. For each one, could you tell me how much you agree or disagree?

This country's economic system needs fundamental changes

Responses:

5 'Agree completely'

4 'Agree somewhat'

3 'Neither agree nor disagree'

2 'Disagree somewhat'

1 'Disagree completely'

## Appendix C

Figure C1a: average levels of competition beliefs over time in transition countries

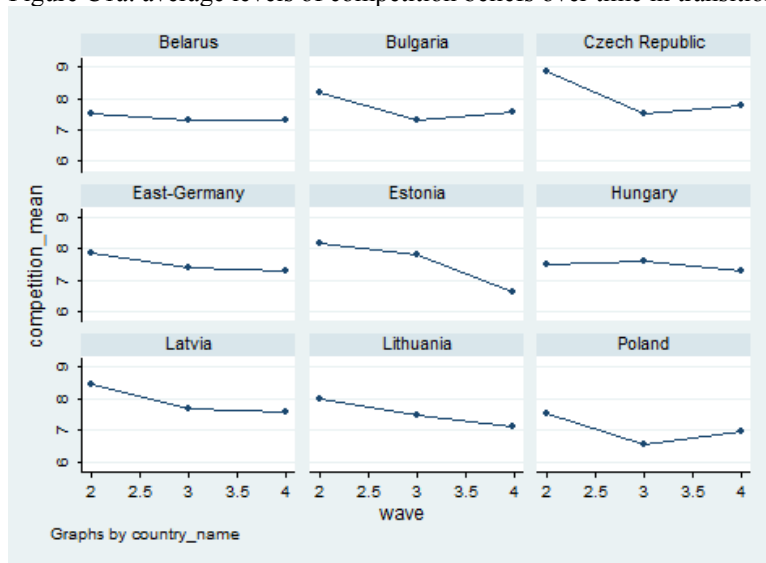


Figure C1b: average levels of competition beliefs over time in transition countries

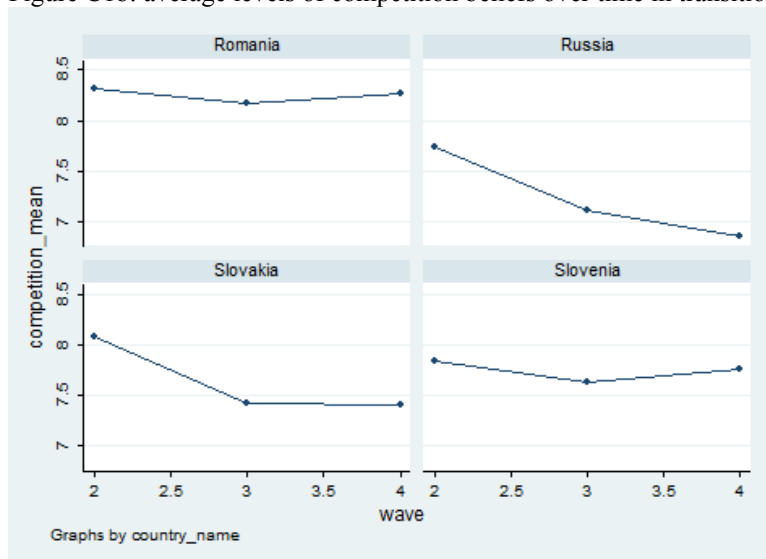


Figure C2a: average levels of competition beliefs over time in OECD countries

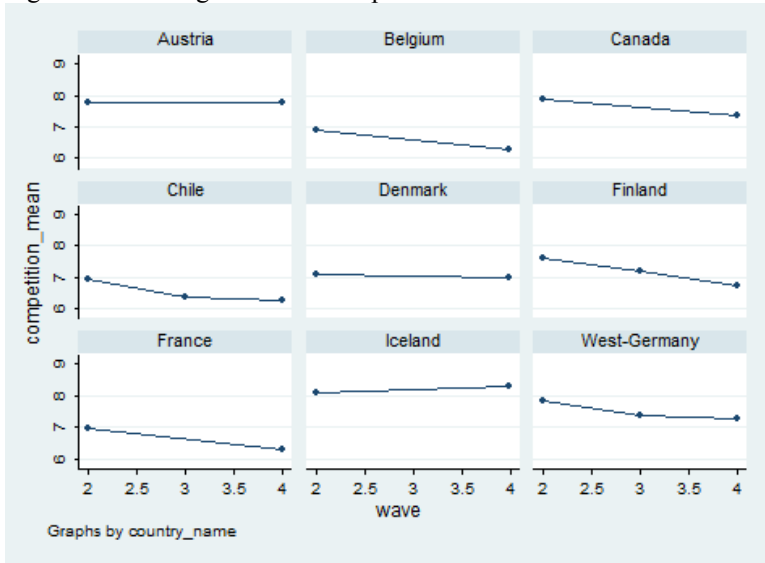


Figure C2b: average levels of competition beliefs in OECD countries

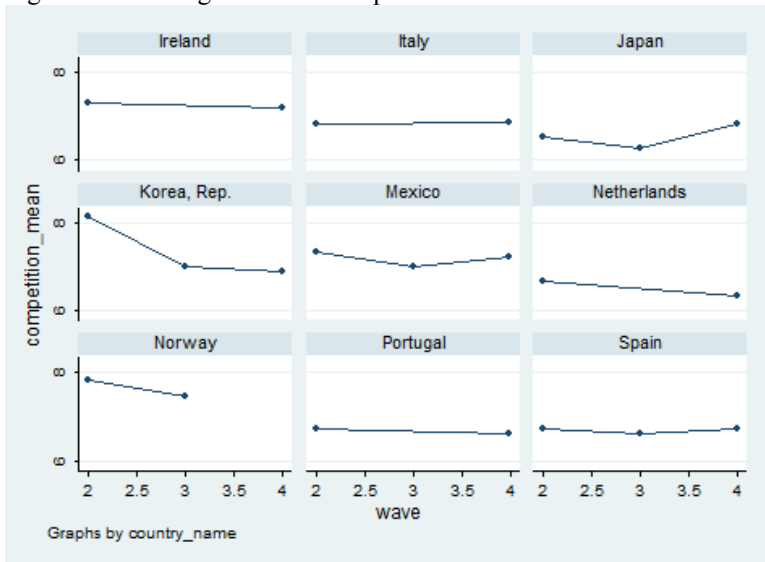


Figure C2c: average levels of competition beliefs in OECD countries

