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Trust and Organizational Design: Explaining Cross-National Differences in Work Autonomy

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Abstract

We open the black box of what goes on within firms in terms of how they organize and manage their operations. Work autonomy is a key aspect of firm organization and in this note we test the hypothesis that societal trust affects the level of autonomy that firms grant to their employees. Analysis of up to 189,213 individuals from 30 countries shows that trust is indeed highly conducive to work autonomy. This result is robust to controlling for a wide range of other features of countries' institutional environment, including measures of labor regulations and quality of formal institutions. Our findings highlight the importance of societal trust in shaping economic activity.

1. Introduction

In their effort to understand economic development, economists are increasingly digging beyond macro-level data on per-capita output, considering industry and plant-level variation in productivity (Syverson, 2011; Van Biesebroeck, 2008). Detailed analyses reveal wide and persistent dispersion in productivity levels among firms. To understand these differences, we have to open the black box of what goes on in firms that makes some firms so much more productive than others. Management practices and organizational design are an important part of the answer (Bloom and Van Reenen, 2007, 2010), but only to the extent that they offer a new black box concerning the factors that drive heterogeneity in the way firms organize and manage their operations (Van Hoorn, 2014; Van Reenen, 2011).

For some time, researchers have realized that trust matters for organizations. Fukuyama (1995), for instance, argues that within organizations trust can act as a substitute for family ties.¹ Along similar lines, La Porta et al. (1997) find that trust allows firms to increase in size while maintaining levels of intra-firm cooperation. In addition, recent empirical work by Bloom et al. (2012) finds that so-called bilateral trust, meaning trust between two countries, affects the extent to which multinational companies from a particular home country decentralize and give decision power to local managers in a particular host country. More generally, trust is linked to reduced uncertainty and lower transaction costs, which increases the extent of the market (e.g., Arrow, 1972; Gambetta, 1988). Many studies subsequently show the benefits of societal trust for

¹ Cai et al. (2013) present evidence supporting this idea, reporting that managers who are relatives of the head of a firm are given more freedom to make decisions than are managers who lack such family ties. See Lu and Tao (2009) for macro-level evidence on how family ties can be substituted for by alternative enforcement mechanisms.

economic growth and development (Algan and Cahuc, 2010; Dearmon and Grier, 2009; Knack and Keefer, 1997; see Algan and Cahuc, 2013 for a survey).

This note contributes to an integration of the latter literature on the macro-level performance consequences of trust with the growing body of work studying the organization and management of firms. Specifically, we link societal trust to employees' level of work autonomy, which can be defined as "the condition or quality of being self-governing or free from excessive external control" (Jermier and Michaels, 2001: 1006). Granting workers a certain level of autonomy is associated with important advantages for firms. Specifically, following past thinking on the division of labor (e.g., Becker and Murphy 1992; Davis, 2006), a key advantage of work autonomy is that it increases productivity by sustaining more specialization in the production process. At the same time, granting employees a high level of autonomy can be disadvantageous for a firm, as reflected in the standard principal-agent problem. If a firm grants its workers complete autonomy, there are no formal governance mechanisms preventing these workers from maximizing their personal gain at the expense of the firm's interests. At this point, trust starts to play an important role, however, offering a mitigation of the principal-agent problem. Monitoring and control are simply less urgent when two parties can trust each other, i.e., when the principal can rely on the agent to act in the best interest of the principal without any explicit incentive to do so. Trust thus works to increase the overall benefits of work autonomy for a firm. This idea, in turn, leads us to expect that organizations grant workers more autonomy when the level of trust is higher, not just when the level of dyadic trust that a principal has in an agent is higher, but also—and perhaps more importantly—when the level of trust more broadly is higher, i.e., when societal trust is higher. In this note, we subsequently consider the following hypothesis: *the higher societal trust is, the higher the level of work autonomy that employers*

grant to their employees.

2. Empirical approach

2.1. Data

The main source of the data used in this note is the well-known European Social Survey or ESS. We use the cumulative data file, covering all five waves of the ESS (2002, 2004, 2006, 2008, and 2010). To extend and check the robustness of our baseline results, we supplement the ESS data with country data on control variables from a variety of sources. We exclude individuals with missing observations, leaving a sample that comprises up to 189,213 individuals from 30 countries, depending on the control variables that we consider. Although the ESS is a European survey, the sample is highly culturally diverse and covers the majority of cultural clusters recognized in the literature. Notably, Hofstede (2001), who is the leading cross-cultural researcher, identifies 12 culture clusters, seven of which are covered by our sample. In addition, our sample includes several countries not assigned to any of Hofstede's culture clusters, e.g., Russia and the Ukraine. Details on the ESS are available from <http://www.europeansocialsurvey.org>, which also provides access to the complete data set

2.1.1. Measuring work autonomy

There are different approaches to measuring what goes on within firms in terms of how they organize and manage their operations, including the level of autonomy that they grant to their workers. More than five decades ago, the "Aston project," named after Aston Business School, sought to measure organizational differences between firms in different dimensions including, for instance, so-called formalization (e.g., Pugh et al., 1963). The group's general approach was

to quantify organizations' scores on the different dimensions objectively. Formalization was thus measured by counting the proportion of employees who have handbooks and the total number of handbooks present in a firm, among others (Pugh et al., 1968).

Work autonomy, on the other hand, is typically measured subjectively, by simply asking people how much freedom and independence they have in their job. Cai et al. (2013), for instance, combine survey items asking managers about their decision rights in specific areas (0, no decision rights to 4, full decision rights) to construct an overall index of managerial freedom to make decisions. More generally, management and organization scholars have long studied what workers actually experience in their job, as opposed to rules and procedures describing their job in some codified form. This area of research includes assessments of the level of autonomy that employees experience in their work (e.g., Pierce and Dunham, 1976; Sims et al., 1976), the essence of which indeed seems hard to capture through examination of formal documents only.

The specific survey item that we use to measure work autonomy asks respondents to say how much the management at their work "allows/allowed them to decide how their own daily work is organized" with answers ranging from 0, "I have/had no influence" to 10, "I have/had complete control." A potential disadvantage of this self-reported measure of work autonomy is that it may be too noisy or potentially biased and therefore does not capture any meaningful variation in people's actual level of work autonomy (cf. Bertrand and Mullainathan, 2001). However, a standard validity check dismisses such concerns. Individuals' work autonomy scores relate to a variety of other factors in the precise manner as expected, indicating that the work autonomy measure is indeed valid in the sense that it captures meaningful variation in the level of work autonomy granted to people. Notably, managers have higher levels of work autonomy than

subordinates do and the higher educated are granted more autonomy than people with lower levels of education are (see Table A in Appendix A for details and further evidence).

<< Insert Table 1 about here >>

Tables 1 and 2 present summary statistics on our measure of work autonomy for the sample as a whole (Table 1) and for each country in the analysis separately (Table 2). Country differences in work autonomy are large with mean work autonomy scores ranging from 4.27 in Croatia to 7.53 in Sweden.

2.1.2. Societal trust

Following our interest in the macro-economic consequences of organizational design and management practices on the one hand and trust on the other hand, our main independent variable is societal trust. As is standard in the literature (e.g., Algan and Cahuc, 2013), we measure societal trust as aggregated responses to the classic survey item asking respondents: "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?" In the ESS, individuals can respond to this question using an answer scale that ranges from 0, "You can't be too careful" to 10, "Most people can be trusted." Country scores are aggregated across all five waves of the ESS to fit the idea that trust is a stable cultural trait with deep, historical roots (Nunn and Wantchekon, 2011; Uslaner, 2008). We thus have one trust score per country (see Tables 1 and 2). Societal trust scores are also highly diverse, ranging from 2.60 in Turkey to 6.90 in Denmark.

<< Insert Table 2 about here >>

To consider the issue of causality we consider an alternative measure of trust, which is a pure trust measure that is not co-determined by reigning socio-economic and institutional circumstances. Specifically, we use the inherited component of trust for the year 2000, as developed in Algan and Cahuc (2010). As mentioned, when data are not available, we drop the country from the analysis (again see Tables 1 and 2). Inherited trust scores are available for 19 countries (138,758 individuals) and range from -0.121 (Russia) to +0.114 (Finland).

2.1.3. Control variables

To test the robustness of our results, we consider a variety of potential confounders as control variables. At the individual level, we use gender and age/age-squared as standard control variables. As trust has been linked to education, we further control for individuals' level of education to rule out that results are perhaps driven by differences in education rather than by societal trust per se. We further find that trade union membership might be a confounder, as trade unions bargain with employees over labor circumstances, while union membership may be affected by the cooperative norms that exist in a society. Hence, we also consider a measure indicating whether an individual is a union member or not. The ESS provides data for all these individual-level controls.

The potential importance of some of these individual-level factors notwithstanding, our main concern is that any relationship between societal trust and work autonomy is driven by unobserved country characteristics. We identify three (sets of) factors that seem problematic in this regard, as they appear likely to affect both the level of work autonomy that firms are willing

to grant to their employees and might also impact the level of trust that prevails in a society. The first set of these factors concerns the quality of countries' formal institutions in the areas of law, corruption, and democratic freedoms. We use the measures provided by the World Bank Worldwide Governance Indicators project (rule of law and control of corruption; World Bank, 2013b) and by the Polity IV project (democracy; Marshall et al., 2011). These measures are available for all countries in the sample and can be matched to the year of survey of each wave of the ESS. The second set of factors concerns country differences in formal institutional arrangements specifically concerned with the governing of labor relations. We use the labor dismissal and labor regulations indexes developed by Botero et al. (2004), which are available for 27 countries in our sample. The third confounder that we consider is not a set of factors but simply the level of per-capita GDP. Data come from the World Bank World Development Indicators (World Bank, 2013a) and are again available for all countries in the sample, matched by the year of survey. Tables 1 and 2 present summary statistics and country scores on the country-level control variables that we consider.

Finally, we consider year/wave dummies as a way to control for any year-specific effects or idiosyncrasies due to differences in questionnaire design across the five waves of the ESS.

2.2. Method

Our sample is special in that it involves respondents who are hierarchically nested in higher-order units, namely in countries. In the statistical analysis, we therefore separate variation that is between countries from variation that is within countries and model the variation at these two levels simultaneously, while taking into account the clustering of observations. Estimating such a multilevel model is advised for this type of data (Rabe-Hesketh and Skrondal, 2005), as it is

more appropriate than merely clustering our standard errors. Specifically, if we only correct for cluster biases in standard errors, we are merely dealing with a symptom of nested data and do not do justice to the actual peculiarity of having sources of variation that operate at different hierarchical levels.

The formal empirical model reads as follows:

$$A_{jk} = \gamma_{00} + \gamma_{01}T_k + \beta_{10}x_{jk} + \beta_{01}z_k + (u_{0k} + e_{jk}), \quad (1)$$

where A_{jk} denotes the level of work autonomy granted to individual j in country k , T_k is the level of trust in society k , x_{jk} is a set of individual-level control variables (e.g., gender), and z_k is a set of country-level control variables (e.g., democracy). γ_{00} is the mean (intercept) that is fixed over all countries. There are two error terms, one at the individual (e_{jk}) and one at the country level (u_{0k}). The model is a mixed model that combines random and fixed effects (McCulloch and Searle, 2001). Specifically, the country-level error term means that the intercept is allowed to vary across countries, where values for these country-specific intercepts can be obtained as posterior estimates. The method is Bayesian, applying shrinkage to draw outliers towards the sample distribution and allowing us to make inferences about the entire population of countries rather than just the sample. We estimate the model using maximum likelihood procedures.

3. Results

3.1. Baseline results

Table 3 presents the basic findings for our empirical analysis of the relationship between societal trust and work autonomy. Initial results strongly support our hypothesis with trust correlating positively and statistically highly significantly with work autonomy (Model 1). More importantly, societal trust and work autonomy remain highly statistically significantly correlated when we include our individual-level control variables (see above) and year/wave fixed effects (Model 2).² In fact, controlling for various individual-level features renders the coefficient for societal trust somewhat larger than before (see Model 1 versus Model 2). An estimated coefficient of 0.757 thereby means that moving workers from Turkey (lowest trust level; societal trust = 2.60) to Denmark (highest trust level; societal trust = 6.90) would increase their autonomy by 3.3 points on the 0-10 scale, *ceteris paribus*. Adding different sets of country-level control variables also does not change our results very much (Models 3-7). Finally, inclusion of all control variables simultaneously does not overturn our initial findings either, with societal trust still correlating statistically highly significantly with work autonomy (Model 8). Throughout, the coefficient for trust remains large, although adding country-level control variables tends to reduce effect sizes compared to models that include individual-level control variables only (see Model 2 versus Model 3 and Model 5 versus Model 8).

<< Insert Table 3 about here >>

3.2. The causal effect of trust on work autonomy

² Models that have the same number of observations are nested, allowing us to use likelihood-ratio tests to assess the statistical significance of changes to model specifications.

As stated, we affirm the causal effect of societal trust on work autonomy and deal with possible endogeneity issues by using the historical, inherited trust measure for the year 2000 developed by Algan and Cahuc (2010). Table 4 repeats the main analyses from Table 3, but using this alternative trust measure. Although our sample is smaller than before, we again find a strong and highly statistically significant positive relationship between trust and work autonomy (Model 9).

<< Insert Table 4 about here >>

Moreover, the effect of societal trust on work autonomy remains, also when we repeat our initial robustness tests and control for other potential determinants of work autonomy, both at the individual level (Model 10) and at the country level (Models 11-14). An estimated coefficient for societal trust of ± 10 thereby means that moving workers from Russia (lowest inherited trust level; inherited trust = -0.121) to Finland (highest inherited trust level; inherited trust = 0.114) would increase their autonomy by 2.4 points on the 0-10 scale, *ceteris paribus*. Overall, we thus find strong support for the hypothesis that higher societal trust leads to higher levels of work autonomy.

4. Conclusion

We have sought to open the black box of how firms organize and manage their operations, showing that societal trust fosters the level of autonomy that firms grant to their workers. Management practices and organizational design are increasingly recognized for their vital implications, both for firms themselves but also for societies as a whole (Bloom and Van

Reenen, 2010; Syverson, 2011). Similarly, a growing literature is concerned with the macro-economic consequences of trust (Algan and Cahuc, 2013). Our analysis contributes to these two developing literatures, showing micro-level ramifications of societal trust that may go on to impact economies as a whole. Future research may provide a more direct assessment, using micro evidence on trust as a factor shaping economic activity to pin down how exactly, i.e., through which channels, trust affects macro-level economic outcomes.

Appendix A

<< Insert Table A here >>

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Table 1. Descriptive Statistics for Dependent Variable and Key Independent Variables.

Variable	Sample mean	Sample SD
Work autonomy (0-10)	5.89	3.58
Societal trust	4.94	.955
Inherited trust (relative to Sweden, originally 0-1 scale) [n=138,758 / 19]	-.010	.070
Labor dismissal index [n=178,242 / 27]	.499	.244
Labor regulations index [n=178,242 / 27]	.598	.160
Rule of law	1.16	.783
Control of corruption	1.17	.959
Democracy (-10,+10)	9.46	1.25
GDP per capita (2000\$)	29,818	18,058

Notes: Unless otherwise indicated, statistics pertain to 189,213 individuals in 30 countries.

Table 2. Key Dependent and Independent Variables by Country.

Country	Work autonomy	Societal trust	Inherited trust in 2000 (relative to Sweden, originally 0-1 scale) (Algan and Cahuc, 2010)	Labor dismissal index (Botero et al., 2004)	Labor regulations index (Botero et al., 2004)	Rule of law (World Bank Worldwide Governance Indicators)	Control of corruption (World Bank Worldwide Governance Indicators)	Democracy (Polity IV)	GDP per capita in 2000\$ (World Bank World Development Indicators)
Austria	6.10	5.09	.052	.286	.501	1.88	2.07	10	33,774
Belgium	6.44	4.95	.087	.143	.513	1.31	1.37	9.13	38,420
Bulgaria	4.95	3.44		.143	.519	-.142	-.209	9.00	5599
Croatia	4.27	4.38		.571	.488	.127	-.038	9.00	13,632
Cyprus	5.97	4.22				1.16	1.14	10	26,708
Czech Republic	4.32	4.39	-.098	.429	.520	.846	.328	8.93	13,974
Denmark	7.37	6.90	.100	.286	.573	1.93	2.47	10	50,371
Estonia	5.48	5.40				1.08	.907	9.00	11,931
Finland	7.20	6.50	.114	.571	.737	1.95	2.42	10	40,678
France	6.71	4.44	-.085	.857	.744	1.44	1.39	9.00	36,533
Germany	6.20	4.71	-.049	.571	.702	1.66	1.80	10	36,766
Greece	5.51	3.87		.286	.519	.764	.180	10	22,755
Hungary	4.33	4.20	-.026	.286	.377	.859	.478	10	10,794
Ireland	5.52	5.45	-.063	.286	.343	1.68	1.57	10	40,872
Israel	5.99	5.06		.286	.289	.922	.857	10	24,036
Italy	5.79	4.41	-.120	.429	.650	.612	.419	10	25,136
Luxembourg	5.51	5.11				1.87	1.95	10	53,101
Netherlands	6.54	5.82	.001	.714	.726	1.76	2.12	10	41,229
Norway	7.30	6.67	.063	.714	.685	1.95	2.04	10	67,096
Poland	5.09	3.98	-.089	.571	.640	.510	.280	10	9226

Table 2, continued.

Country	Work autonomy	Societal trust	Inherited trust in 2000 (relative to Sweden, originally 0-1 scale) (Algan and Cahuc, 2010)	Labor dismissal index (Botero et al., 2004)	Labor regulations index (Botero et al., 2004)	Rule of law (World Bank Worldwide Governance Indicators)	Control of corruption (World Bank Worldwide Governance Indicators)	Democracy (Polity IV)	GDP per capita in 2000\$ (World Bank World Development Indicators)
Portugal	5.45	3.85	-.033	.714	.809	1.08	1.04	10	19,039
Russia	4.49	3.98	-.121	.857	.828	-.901	-.998	4.64	8549
Slovakia	4.45	4.08		.571	.657	.543	.333	9.79	13,644
Slovenia	5.52	4.08		.714	.736	.946	.926	10	19,499
Spain	5.95	4.98	.013	.714	.745	1.13	1.15	10	27,510
Sweden	7.53	6.21	0	.714	.740	1.89	2.24	10	43,533
Switzerland	5.68	6.61	.052	.143	.452	1.85	2.11	10	57,053
Turkey	5.30	2.60		.286	.403	.093	-.038	7.00	7316
Ukraine	4.33	4.12		.857	.661	-.802	-.836	6.49	2326
U.K.	6.56	5.25	-.046	.143	.282	1.70	1.76	10	38,815
Whole sample	5.76 (.973) [30]	4.79 (.992) [30]	-.013 (.075) [19]	.487 (.242) [27]	.587 (.159) [27]	1.06 (.796) [30]	1.04 (.962) [30]	9.40 (1.25) [30]	27,997 (16,962) [30]

Notes: See Table 1. Number of observations in square brackets. Note that averages for the sample pertain to country-level observations and are not weighted by the number of respondents in a country as in Table 1. For this reason, the means of Table 1 and Table 2 cannot be compared. Country scores on Rule of law, Control of corruption, Democracy, and GDP are matched with the years of the ESS survey (2002, 2004, 2006, 2008, and 2010).

Table 3. The Relationship Between Societal Trust and Work Autonomy.

Dependent=Work autonomy (0-10)	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Trust (0-10)	.734*** (.119)	.757*** (.123)	.548*** (.122)	.752*** (.128)	.769*** (.121)	.786*** (.128)	.758*** (.118)	.632*** (.129)
Rule of law	-	-	.160 (.114)	-	-	-	-	-.046 (.121)
Control of corruption	-	-	.114 (.076)	-	-	-	-	.113 (.077)
Democracy	-	-	.049* (.023)	-	-	-	-	.028 (.023)
GDP (/10,000)	-	-	-	.003 (.023)	-	-	-	.035 (.024)
Labor dismissal index	-	-	-	-	-	-	-1.83 (.904)	-1.57 (.836)
Labor regulations index	-	-	-	-	-	-	2.94* (1.38)	2.68* (1.26)
Individual-level controls and year/wave dummies included?	No	Yes	Yes	Yes	No	Yes	Yes	Yes
No. of individuals	189,213	189,213	189,213	189,213	178,242	178,242	178,242	178,242
No. of countries	30	30	30	30	27	27	27	27
-2Loglikelihood	1,004,907.7	990,836.9	990,825.7	990,836.9	944,867.3	931,782.5	931,778.1	931,771.6

Notes: See Tables 1 and 2. Standard errors in parentheses. Clustering at the country level is taken into account. All models include random intercepts. *, **, and *** denotes statistical significance at the 5%, 1%, and 0.1% level (two-tailed). The labor dismissal and labor regulations indexes do not have time-series variation, but country scores on the other country-level control variables are matched with the year of the survey (2002, 2004, 2006, 2008, and 2010). To save space, the table does not report coefficients for the standard individual-level control variables (e.g., gender), but these are available on request.

Table 4. The Causal Effect of Societal Trust on Work Autonomy.

Dependent=Work autonomy (0-10)	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14
Inherited trust	8.91** (2.31)	9.31*** (2.34)	11.1*** (2.77)	9.38*** (2.38)	10.4*** (2.62)	12.4*** (3.12)
Rule of law	-	-	-.078 (.137)	-	-	-.057 (.139)
Control of corruption	-	-	-.193* (.086)	-	-	-.190* (.087)
Democracy	-	-	.080** (.026)	-	-	.084** (.026)
GDP (/10,000)	-	-	-	-.005 (.025)	-	-.012 (.026)
Labor dismissal index	-	-	-	-	1.15 (1.73)	1.53 (1.94)
Labor regulations index	-	-	-	-	-.380 (2.50)	-.843 (2.81)
Individual-level controls and year/wave dummies included?	No	Yes	Yes	Yes	Yes	Yes
No. of individuals	138,758	138,758	138,758	138,758	138,758	138,758
No. of countries	19	19	19	19	19	19
-2Loglikelihood	727,231.6	716,159.4	716,142.0	716,159.4	716,157.8	716,140.3

Notes: See Table 3. Standard errors in parentheses. Clustering at the country level is taken into account. All models include random intercepts. *, **, and *** denotes statistical significance at the 5%, 1%, and 0.1% level (two-tailed). The labor dismissal and labor regulations indexes do not have time-series variation, but country scores on the other country-level control variables are matched with the year of the survey (2002, 2004, 2006, 2008, and 2010). To save space, the table does not report coefficients for the standard individual-level control variables (e.g., gender), but these are available on request.

Table A. Validity of the Work Autonomy Measure.

Variable	Mean work autonomy (0-10)
Manager	
Yes [n=54,252]	7.74 (2.58)
No [n=134,769]	5.14 (3.66)
Education (ES-ISCED)	
I, less than lower secondary [n=12,117]	4.66 (3.89)
II, lower secondary [n=21,160]	4.64 (3.81)
IIIb, upper secondary, vocational or no access V1 [n=29,535]	5.38 (3.67)
IIIa, upper secondary, general and/or access to V1 [n=27,573]	5.64 (3.55)
IV, advanced vocational, sub-degree [n=14,330]	6.44 (3.37)
V1, lower tertiary education, BA level [n=13,356]	7.28 (2.77)
V2, higher tertiary education, >= MA level [n=14,819]	7.36 (2.77)
Allowed to influence policy decisions about activities of organization (0-10)	
0 I have/had no influence [n=53,450]	3.10 (3.65)
1 [n=14,423]	4.16 (3.16)
2 [n=12,051]	5.23 (2.84)
3 [n=9897]	5.78 (2.57)
4 [n=7392]	6.08 (2.37)
5 [n=14,877]	6.70 (2.28)
6 [n=9228]	7.30 (1.87)
7 [n=11,302]	7.82 (1.71)
8 [n=11,835]	8.36 (1.52)
9 [n=6475]	8.87 (1.35)
10 I have/had complete control [n=19,867]	9.81 (0.99)

Notes: Number of observations in square brackets. Standard deviations in parentheses. Data are own calculations based on data from the ESS. ISCED stands for International Standard Classification of Education.