Who plays nice? A surprising meta-meta analysis of 1259 experimental studies

Jason A. Aimone, Sheryl Ball, Esha Dwibedi, Jeremy J. Jackson,
and James E. West *

January 2022

Abstract

Scientific, social, and political policies in all countries and locations act upon and within a foundation of basic human interaction. Exploring the relationship between cooperative decision making and societal level institutions is an important job of social science, but such work has historically faced difficulty. Survey measures of behaviors and preferences face the problem of a lack of salience. Observed behavior within each society, from field, laboratory, and observational data is fundamentally constrained by the institutions governing those behaviors, preventing clean behavioral comparisons across institutions due to a lack of comparable counterfactuals. As such, it remains an open question whether and how macro level institutions are fundamentally related to underlying social and decision making behaviors of people living under those institutions. Here we combine and connect independent measures of institutional economic freedom at the societal level from 50 countries to the salient decision making data from 1259 laboratory experiments found within six meta-analyses. In experiments conducted within countries characterized by high levels of economic freedom, we find a positive relationship between additional economic freedom and pro-social choices. In countries with low levels of economic freedom, we find a negative relationship. We find the opposite relationship (an inverted U-shaped) between additional economic freedom and Nash equilibrium strategies. A similar pattern is repeated in a secondary analysis of institutions and experimental data across U.S. Metropolitan Statistical Areas. Our results indicate that when designing policy interventions that influence economic freedom, the effect on pro-social behavior, itself an important driver of economic development, will likely depend on the baseline institutional environment inside the intervening country.

1 Introduction

The exploration of the differential effects of macro-level institutions upon the functioning of economies has been a topic of economics research since the early days of economics. Adam Smith (1776), for example, focused heavily upon the consideration of the different institutions within which economies flourished or floundered. More recently, this literature has addressed many questions but there still exists many puzzling gaps in understanding the connection between country level institutional environments and micro-level behavior. For instance, in the political economy literature, La Porta et al. (1999) finds that a federal government structure results in more corruption than unitary forms of government, while, Fisman and Gatti (1999) finds lower levels of corruption in decentralized political structures. In the development literature, Boubakri et al. (2005) studies bank privatization across 22 low- and middle-income countries and find that while some measures of performance improved after privatization, this pattern was not common across countries and further found evidence that environmental factors also impacted performance. Similar mixed results of privatization is also found by Gasmi et al. (2013) in the telecommunication sector across 108 countries, with corresponding differences in institutional structures.

Some of these puzzles may be due to the nature of the underlying data. While self-reported and other-reported behavior of individuals and groups within an institutional structure is relatively easy to measure with self-report survey and polling data, public governmental data, and other types of empirical data, such data typically faces the problem of lacking salience and being fundamentally constrained by the institutions governing those behaviors. In other words, clean counterfactuals are typically absent. Randomized controlled trials(RCTs) can provide some evidence of the institutional influence across and within a few countries. However, they lack a broad base to explore the wide range of different macro-level institutions which influence the spectrum of development of nations. It remains unknown within the literature whether and how macro level institutions are fundamentally related to underlying social and decision making behaviors of people living under those institutions.

We address this gap in the literature by bringing together over 1200 controlled experimental studies of behavior from six different meta analyses, representing 50 countries, and exploring how institutional changes within countries are related to changes in behavior within controlled experimental paradigms.

To better understand the gap in the literature, consider the situation of institutional structures within developing countries changing, leading to changes in, say property rights regimes. Here, not only are the institutions that determine the property rights regimes within these countries changing, the rules of economic interactions that were governed by these institutions are also now fundamentally different. Individual behavior falling under these economic interactions hence, will display changes which might be reflected in survey/ empirical data inspecting these behaviors.

Take the commonly used simple General Social Survey (GSS) question regarding "trust": "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" The economic exchange situations respondents consider when answering this identical question can not accurately be assumed to be the same between countries with strong or weak property rights regimes. When comparing individual responses between two countries regarding this question, one must recognize that there are multiple institutional differences at play between the two countries, not one. First, and most obviously, the macro-level institutions that govern how property can be used differs between the countries. These are rules that govern factors such as the relative positions of the economic agents upon entering the exchange situation and factors governing how the outcomes of exchange (e.g.the ex-post monetary positions of the trustor and trustee) of the trust interactions can be used outside of the interaction. Second, just as important but perhaps more subtly, the nature of the trust interactions themselves differ based upon the macro institutional structure. The modal type of interaction is not likely the same in a high property right regime and a low property right regime. In a low and high property right regime countries, when people think back to "trust" situations then people under

different regimes are thinking back to trusting in a situation governed by their property right regime in question. A high property right individual may think back to their experiences in exchanges in well-defined formal market environments with contracts and lawyers, perhaps for durable goods like cars and houses, while a low property right individual may think back to informal market exchanges with hand-shakes and informal agreements for consumable goods like heating fuel and food. The two individuals are self-reporting behavior about how they perceive people can be "generally" trusted, but the information used to generate those perceptions comes from fundamentally different trust environments, not the same or even similar trust environments. Would the two individuals from different property rights regimes make different decisions when considering the same trust situation? Data from a self-reported question of the form above is incapable of providing an answer to that question.

Upon initial consideration, one may reasonably think that fixed effect analysis would solve this problem, since such an analysis would limit all variation to being variation within a country rather than between countries. While fixed effects analysis would help with doing away with the concern that people from some countries may be more predisposed to some types of interactions than people from other countries, fixed effects analysis would not be able to address the concern that the variation of interest (property rights to continue the example) may be causally responsible for differences in types of interactions individuals engage in. In order to address that concern, we need exogenous control over the micro-level exchange environment institutions under consideration, while leaving the natural endogenous macro-level institutions in place. One way to do this is through considering experimental data. Consider the same target of "trust", but as explored through a controlled experimental trust paradigm (such as Berg et al. 1995) conducted in different countries (rather than a survey.) If such an experimental paradigm is run with the same experimental institution (set of rules governing the interaction of the participants), then differences in behavior observed between data from a low property right regime and a high property right regime are coming from differences in the macro-level institutional environment and not from differences in the

micro-level institutional environment of the experimental trust interaction. [1] Experimental data of this form combined with country level fixed effect analysis helps eliminate country level systematic differences (like culture, sample biases, etc.) and would give us a rigorous analysis of the influence of macro-level institutions on micro-level economic behavior.

Exploring the influence of macro-level institutions on micro-level economic behavior is important for several reasons. Most modern day societies have built institutions that are costly to set up, in order to prevent individual opportunistic behavior. While social welfare could be larger in the absence of institutions in place to regulate economic behavior if individuals chose to never default in their actions, most societies still choose to build institutions. An analysis, like ours, is important to identify and prepare for what might be unexpected effects of such institutional changes.

In our paper, we look at macro-level institutional changes through measures of economic freedom. As defined by the Heritage Institute, "Economic freedom is the fundamental right of every human to control his or her own labor and property. In an economically free society, individuals are free to work, produce, consume, and invest in any way they please. In economically free societies, governments allow labor, capital, and goods to move freely, and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself." Since measures of economic freedom contain information regarding the institutional structures within a region, we can use these measures to track changes in such institutions over time. We use data from the Economic Freedom of the World (EFW) annual reports as published by the Fraser Institute to look at how macro-level institutions have changed within geographical regions of interest for us over the years. These economic freedom measures look at areas of interest to us which include the size of the government, the efficiency of the legal system, measures of monetary soundness, regulatory measures and barriers to international trade. How countries and regions change over time in these measures

---

[1]This is not to say that there are not many potential mechanisms for country level institutional differences to influence behavior in the experimental environment, but only saying that differences can be identified to be coming from the external institutional differences not due to differences from facing fundamentally different economic choices.

imply structural changes in macro-economic institutions within these regions.

We combine experimental data from six different meta-analyses on seven different behavioral paradigms (including dictator games, ultimatum games, prisoner's dilemma games, trust games, public goods games, oligopoly games, and lying behavior) to form a measure of pro-social and Nash play behavior. Using the economic freedom measures, we perform a country level fixed effect analysis to inspect the relationship between these measures of prosociality and macro-institutional changes. We observe a U-shaped relationship between economic freedom and prosociality. Pro-social behavior decreases as the economic freedom measures improve from "least free" countries which fall within the bottom 40 percentile to countries which have average levels of economic freedom. While pro-social behavior improves as economic freedom measures increase from average levels to "most free" countries which fall in the top 90th percentile of countries. Similar U-shaped relationship is observed across USA metro level areas too, which serves as a robustness check for our cross-country analysis.

Our paper is organized as follows. Next, in Section 2, we provide a brief overview of the existing literature on economic freedom, institutions and prosociality. In Section 3, we introduce the data used for our analysis and describe the methodology used for curating the data. Section 4 presents the models used for our analysis and the results. Section 5 discusses some implications of our analysis and concludes.

2 Background literature

2.1 Existing literature on pro-social behavior

A number of studies link differences in location to differences in economic preferences and decision making. Previous work on how preferences depend on environmental factors have looked at the role of institutions in place, policies undertaken and interaction between people (Polak, 1976; Bowles, 1998; Rabin, 1998; and Dietrich, 2014).
Aghion et al. (2011) propose a theoretical model where they show that lack of trust increases

the demand for regulation and find correlation between trust levels in various countries with support for regulation. In a similar vein, Pinotti (2012) uses cross-country data to argue that differences in regulation reflects concern for market failures and finds that the variation in entry regulations around the world mostly stems from demand pressures from individuals that can be captured by differences in trust.

Lowes et al. (2017) on the other hand, finds that centralized formal institutions are correlated with weaker norms of rule-following and an increased propensity to cheat for gain.

Bénabou and Tirole (2006) theoretically, and Cárdenas et al. (2000), and Falk and Kosfeld (2006) experimentally, inspected whether incentives may crowd out pro-social behaviour. They find that participants behave more selfishly when there exists greater control. Bohnet and Beytelman (2007) find that control impacts trust but not trustworthiness. In contrast, Cabrales et al. (2020) find that the existence of institutions, even if they do not constrain participants, is enough to affect trustworthiness.

There is also a growing literature which looks at the effect of culture on economic performance. Algan and Cahuc (2010) use the trust of immigrants inherited from their home countries as a proxy for contemporaneous trust and find a substantial impact of inherited trust on changes in income per capita. They assume that the immigrants' country of residence gradually modifies their level of trust. Tabellini (2010) inspects the impact of culture on economic performance using data from eight European countries and finds that regions with higher levels of trust also has significantly higher income per capita and higher growth rates. Culture as measured by Tabellini (2010) looks at individual values and beliefs like trust, respect for others or confidence in the link between effort and economic success and in order to avoid reverse causality, utilizes prior literacy rates and restrictions on executive power as instruments for contemporaneous trust.

2.2 Existing literature on economic freedom

There has been substantial work on economic freedom (which serves as our basis for measuring structural macro-level institutional changes across regions) in recent years. Research on economic freedom has focused mainly on the cross-country analysis measured in the Economic Freedom Index (Gwartney et al., 1996). The aggregation of this measurement is analyzed by Heckelman and Stroup (2005). It has been used to understand the relationship between economic freedom and economic growth (Carlsson and Lundström, 2002; de Haan and Sturm, 2000; Gwartney et al., 1999; Heckelman, 2000), income (Gwartney et al., 1999, 2004), foreign direct investment in Latin America (Bengoa and Sanchez-Robles, 2003), investment (Gwartney et al., 2006), corruption (Graeff and Mehlkop, 2003), international trade (Berggren and Jordahl, 2005), entrepreneurship (Bjørnskov and Foss, 2008; Nyström, 2008), and new business formation (Campbell and Rogers, 2007). Economic freedom has been shown to positively impact economic growth regardless of the level of aggregation (Doucouliagos and Ulubasoglu, 2006). Empirically, economic freedom has been important in explaining cross-country differences in economic performance (de Haan et al., 2006). However, using the index components instead of the aggregate index as published by The Heritage Foundation, some studies have found that the effects differed across components (Heckelman and Stroup, 2000; Carlsson and Lundstrom, 2002).

Farr et al. (1998) and Hanson (2000) discuss the advantages of institutions that promote economic freedom. Berggren and Jordahl (2006) use a cross-country survey to look for the relationship between trust in institutions and economic freedom. Ashby (2007) looks at measurements of economic freedom and migration within the United States. Adkins et al. (2002) find that institutions which respect economic freedom promote efficiency. Economic freedom has also been found to be positively correlated to tolerance and cooperation (Berggren and Nilsson, 2016), and greater transparency and less corruption (Dreher et al., 2010).

3   Data and Methodology

3.1   Behavioral Data from Meta-analyses

We base our meta-meta-analysis here upon the work of six separate meta-analyses of different experimental economics paradigms. These studies explored dictator games, ultimatum games, prisoner's dilemma games, trust games, public goods games, oligopoly games, and lying behavior. The chosen meta-analyses were identified based on topics of interest and data availability.[2] Table 1 details which meta-analyses are associated with which underlying paradigms.

Table 1: Meta Analyses Used

Paradigm	Meta Analyses
Dictator Game	Engel (2011) Experimental Economics
Prisoner's Dilemma	Mengel (2018) The Economic Journal
Trust Game	Johnson and Mislin (2011) Journal of Economic Psychology
Ultimatum Game	Oosterbeek et al. (2004) Experimental Economics
Lying Game	Abeler et al. (2019) Econometrica
Oligopoly	Fiala and Suetens (2017) Experimental Economics
Voluntary Contributions Mechanism	Fiala and Suetens (2017) Experimental Economics

Most of the meta-analyses' chosen, included conference papers, pre-publication studies and unpublished replications to ensure minimization of the potential bias arising from including only published studies with significant findings (Rosenthal, 1979). The six meta-analyses which together contributed to make up the 1259 different experimental studies/treatments that make up the observations of our analysis.

In addition to the data from the meta-analyses three coders independently looked at each individual study from the meta-analyses and coded each study along many margins. This coding provided the relevant variables we needed for the present study. The coders were provided a common coding procedure and spreadsheet template for data entry and instructed to proceed in coding in a different order. Coders were instructed to look at each paper from

---

[2]We thank the authors of each of these meta-analyses for either making their data/code publicly available in or connected to their published papers or providing us with their data/code directly.

the meta-analyses and find within the paper specific variables of interest. Relevant for this current paper were variables that coded each study's city, state, country, and year of data collection/publication. Where data was collected at a university, coders were provided with a list of "IPEDs" codes, and instructed to label the data with the relevant code for the university the data was collected at. If data was collected at multiple sites/universities, coders indicated each location. These variables were used to connect the behavioral data with the data on economic freedom in our study. Each coder also had a separate variable spot where they could indicate any problems/confusions/issues with data collection/coding for each variable in each study.

Once all the coders submitted their data sets, the data sets were combined to form a single data set for all the relevant variables. For any discrepancies in coding among the three coders the following procedure was used. If two codes reflected the same value, the third code was ignored. In case of discrepancies among all three sets of coded data, the variable of interest was re-inspected and re-coded from the relevant paper by the more senior student coder. This process ensured minimization of human error in the coding process.

To obtain our main variables of interest for our analysis, to indicate the degree of Nash and degree of Pro-Social behavior in each study, we generate a singular variable that maps behavior from each paradigm into common variables that are comparable between paradigms. Table 2 shows the definition of Nash and Pro-Social behavior that maps behavior from each of the variables of interest in the meta-analyses to the dependant variables of interest in our study. Note that Nash and Pro-social behavior are inverses of each other in the variables from the dictator game, prisoner's dilemma, VCM, and trust game paradigms. In the lying, ultimatum, and oligopoly paradigms there is not a clear "pro-social" behavior and thus there are only clean Nash behaviors. This variation helps to enable us to think about Pro-social and Nash play as separate variables, though the close connection should be noted.

Table 2: Variable Definitions

Game	Variable in Meta Analyses (x)	Pro-Social Variable	Nash Variable
Dictator Game	% sent	x	1-x
Prisoner's Dilemma	% cooperate	x	1-x
Trust Game: Investor	% invested	x	1-x
Trust Game: Trustee	% returned	x	1-x
Ultimatum Game: Proposer	% offered		1-x-0.1
Ultimatum Game: Respondent	% rejected		1-x
Lying Game	Lying Index		x
Oligopoly	% cooperate		1-x
Voluntary Contributions Mechanism	% contribute	x	1-x

3.2 Economic Freedom Index Data

Since our study seeks to connect micro-level behavioral data on propensities to engage in pro-social and Nash behavior with Macro-institutional structure, we need to have an independently constructed common measure of macro-institutional structure for every year of data collection in every country of our data. To do this, we use the index generated in the Fraser Institute Reports on World Economic Freedom (1970-2021). This data set provides objective measures of the institutions within each country in five major areas: size of government, legal system and security of property rights, sound money, freedom to trade internationally, and regulation. Table 3 below provides a summary of each of the five main areas. Within the five major areas, there are 26 components in the index. Many of those components are themselves made up of several sub-components. In total, the index consists of 44 distinct variables. Each component and sub-component is scored on a scale from 0 to 10 reflecting the distribution of the underlying data. At each component stage of the index, the sub-component ratings are averaged to derive the component rating. Thus, each country in the index has a freedom score in the range of 0(least free) to 10(most free). The index itself has a two-year lag due to time needed to ensure availability of comprehensive data.

Table 3: Underlying categories of economic freedom: World EFI

Category name	Factors
Government size	government consumption and investment, transfers and subsidies, top marginal tax rate and state ownership of assets
Legal system and security of property rights	judicial independence, impartiality and integrity of legal institutions, protection of property rights, enforcement of contracts, regulatory cost of property sale, business cost of crime, reliability of police, military interference in rule of law and politics and gender disparity adjustment
Sound money	money growth, inflation, standard deviation of inflation and freedom to own foreign currency bank accounts
Freedom to trade	tariffs, regulatory trade barriers, black market exchange rates and regulations on movement of labor and capital
Regulations	credit market, labor market and business regulations

Using the coders data on when and where behavioral data from each study was collected and the World EFI data, we generate new variables in the data set that indicate the macro-institutional environment when the data was collected. Variables include the overall EFI score for each country and their scores in each of the main five areas above.
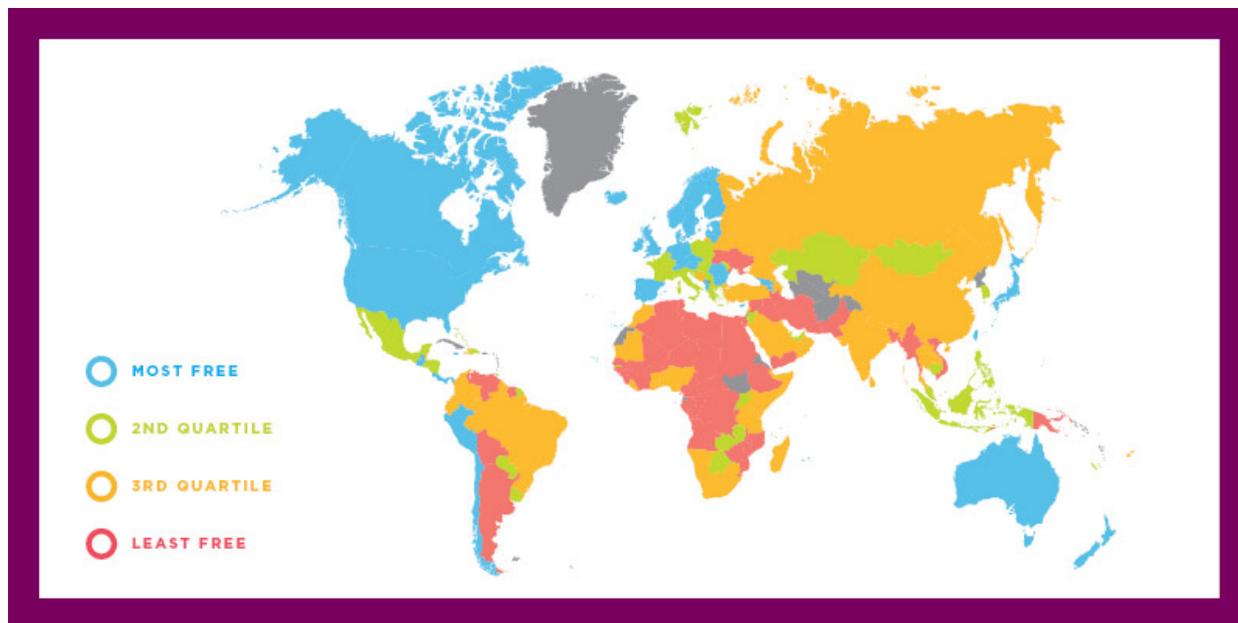

Figure 1: Economic Freedom of the World: 2021 (Fraser Institute 2021 Annual Report)

Figure 1 depicts the economic freedom measures across countries as reported in the Economic Freedom of the World: 2021 (Fraser Institute 2021 Annual Report). Here, the

countries coloured in blue, depict the "most free" countries (top most quartile) which include parts of North America, Europe and Asia as well as Australia, New Zealand and Chile. The second quartile of countries, depicted in green cover parts of North and South Americas, Europe, Asia and Africa. The third quartile of countries, depicted in orange and the "least free" countries (bottom quartile), depicted in red are distributed across South America, Africa and Asia.

We also look at the deviations stemming from individual country differences within each quintile of the world economic freedom index. Table A1 in Appendix A summarizes the standard deviations of overall EFI as well as deviations noticed for each major component of the economic freedom index in our dataset.

North American data makes up the bulk of the observations in the data set and thus provides an opportunity for a substantial analysis at metro level data. We look at the Fraser Institute Economic Freedom of North America (1981-2020) data to build the Index at the USA metro level. Similar to the world data, the sub-national index looks at three major areas: Government Spending, Taxes, and Labor Market Freedom. Table 4 below provides a summary of each of the three main areas. Within the three major areas, there are 10 components in the index. Similar to the world index, the sub-national index also has a freedom score in the range of 0(least free) to 10(most free).

Table 4: Underlying categories of economic freedom: Sub-national Index

Category name	Factors
Government spending	General Consumption Expenditures by Government as a Percentage of Income, Transfers and Subsidies as a Percentage of Income, Insurance and Retirement Payments as a Percentage of Income, Government Investment
Taxes	Income and Payroll Tax Revenue as a Percentage of Income, Top Marginal Income Tax Rate and the Income Threshold at Which it Applies, Top marginal income and payroll tax rate, Property Tax and Other Taxes as a Percentage of Income, Sales Tax Revenue as a Percentage of Income
Regulation	Labor Market Freedom (comprising of Minimum Wage Legislation, Government Employment as a Percentage of Total State/Provincial Employment, Union Density)

Figure 2 shows the distribution of economic freedom across the states of the USA as reported in the Economic Freedom of USA: 2020 (Fraser Institute Economic Freedom of North America 2020 Report). Similar to figure 1, here too, the economic freedom measures are divided into quartiles. The "most free" states, depicted in blue are mostly clustered around the Eastern and Southern parts of the country with some Midwestern states also showing higher economic freedom. The second quartile, depicted in green covers majorly the Midwest with some Eastern states also featuring here. The third quartile, shown in orange covers states mostly in the Midwest alongside some Eastern and Western states. "Least free" states, depicted in red cover large portions of the West coast as well as parts of Midwest and Alaska.
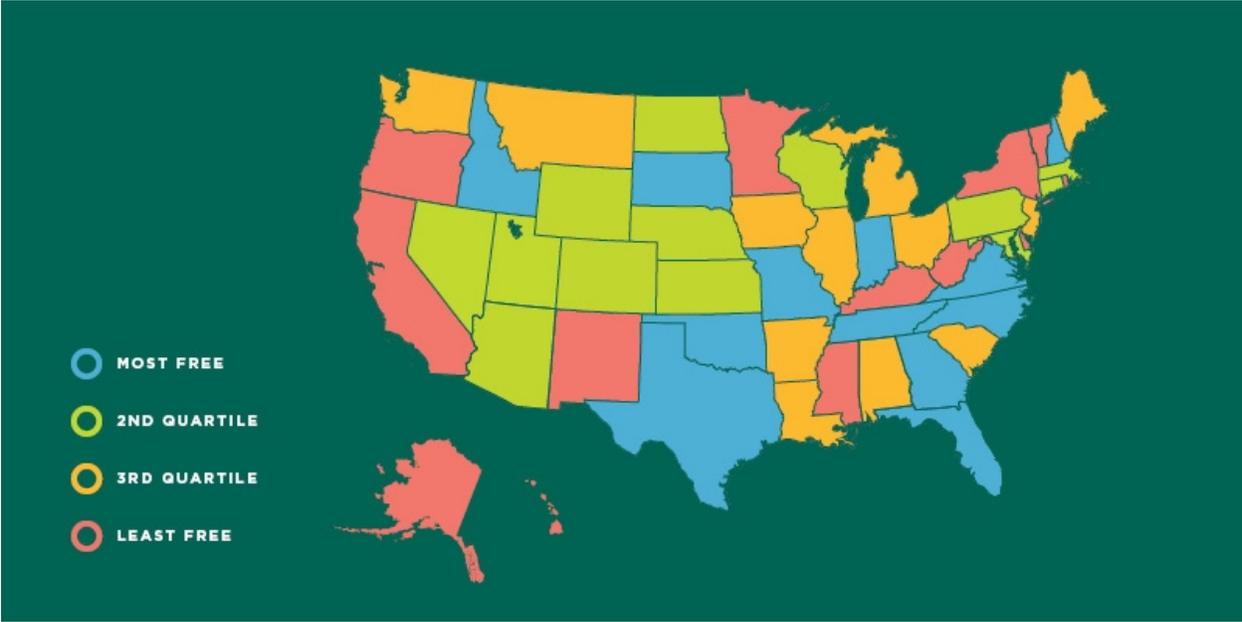
Figure 2: Economic Freedom of USA: 2020 (Fraser Institute Economic Freedom of North America 2020 Report)

Similar to the world freedom index, for the sub-national index too, we look at the variation in the MSA level EFI terciles stemming from the individual MSA level differences in economic freedom. Table A2 in Appendix A summarizes the standard deviations of overall EFI as well as deviations noticed for each major component of the economic freedom index at the MSA level in our dataset.

4   Results and Analysis

Firstly, we replicate each of the original six meta-analyses which we use in our analysis. The replications for the six meta-analyses we use in our study can be found in Appendix B. We further calculate the standardized residuals for each study from each meta-analysis as relevant new dependent variables which also helps factor in unexplained variations from original meta-studies. Our dependant variables: Pro-social or Nash Play are based on their respective definitions as given in Table 2 previously. The resulting data arising from each individual meta-analyses is merged into one single dataset. To this, we add the location, and date of study variables for each individual study within our six meta-analyses as generated by the coders. We further add the corresponding EFI data from the Fraser Institute Reports on World Economic Freedom and the Fraser Institute Economic Freedom of North America (only for studies conducted within USA).

We inspect the impact of the measures of economic freedom on Pro-social and Nash behavior . We estimate the following model using a fixed effects model:

$$Y_{it} = \gamma_0 + \beta EFI_{it} + \gamma_1 C_i + \epsilon_{it} \tag{A.1}$$

where Y_{it} represents the Pro-social or Nash play variables generated, EFI_{it} is the region and year specific economic freedom index, C_i represents unobserved time-invariant heterogeneities across the regions. Letting $\alpha_i = \gamma_0 + \gamma_1 C_i$, we obtain the model:

$$Y_{it} = \alpha_i + \beta EFI_{it} + \epsilon_{it} \tag{A.2}$$

Having individual specific intercepts $\alpha_i, i = 1, 2, ..., n$ where each of these can be understood as the fixed effect of entity i representing the ith region. The EFI measure includes

either the overall EFI or is broken down into the major components of the overall EFI for both the world index and the sub-national index as applicable.

We look at the relationship between micro-economic behavior and both overall economic freedom measures across countries (for the country level analysis) and MSAs (for the MSA level analysis within USA) as well as the major components of economic freedom as described in the Fraser Institute index. In our analysis, as shown in Tables A3-A11 (in Appendix A), models (1) and (3) inspect the relationship between overall economic freedom and micro-economic behavior while models (2) and (4) look at the relationship between the components of economic freedom and micro-economic behavior.

4.1   World EFI

For our analysis at the world level, we categorize the countries included in our analysis based on their EFI values and group them together based roughly on EFI quintiles.

Our first EFI quintile contains countries which fall over the 90 percentile and includes Australia, Canada, Finland, Mongolia, New Zealand, Singapore, Switzerland, United Kingdom, and United States.

Our second EFI quintile contains countries which fall within 80 and 90 percentile and includes Austria, Chile, Denmark, Germany, Japan, Netherlands, Norway, Portugal, Rwanda, Spain, and Sweden.

Our third EFI quintile contains countries which fall within 60 and 80 percentile and includes Belgium, Costa Rica, France, Guatemala, Iceland, Italy, Peru, South Korea, Uganda, and Uruguay.

Our fourth EFI quintile contains countries which fall within 40 and 60 percentile and includes Columbia, Fiji, Ghana, Greece, Honduras, India, Israel, Kenya, Madagascar, Malaysia, Mexico, Morocco, Paraguay, South Africa, Tanzania, Thailand, and Turkey. Our fifth EFI quintile contains countries which fall under 40 percentile and includes Argentina, Bangladesh, Bolivia, Brazil, China, Ecuador, Indonesia, Papua New Guinea, Vietnam, Cameroon, Demo-

cratic Republic of Congo, Nigeria, and Zimbabwe.

For our measure of pro-social behavior, we estimate the following models:

$$Pro-social_{it} = \alpha_i + \beta EFITotal_{it} + \epsilon_{it} \tag{1}$$

$$Pro-social_{it} = \alpha_i + \beta_1 EFISizeofGov't_{it} + \beta_2 EFIPropertyRights_{it}$$
$$+\beta_3 EFISoundMoney_{it} + \beta_4 EFITrade_{it} + \beta_5 EFIRegulation_{it} + \epsilon_{it} \tag{2}$$

here, α_i represents country specific unobserved time-invariant effect and while model (1) looks at the impact of overall economic freedom, model (2) looks at the impact of each of the major components of economic freedom on measure of pro-social behavior.

Similarly for our measure of Nash play, we estimate the following models:

$$Nash_{it} = \alpha_i + \beta EFITotal_{it} + \epsilon_{it} \tag{3}$$

$$Nash_{it} = \alpha_i + \beta_1 EFISizeofGov't_{it} + \beta_2 EFIPropertyRights_{it}$$
$$+\beta_3 EFISoundMoney_{it} + \beta_4 EFITrade_{it} + \beta_5 EFIRegulation_{it} + \epsilon_{it} \tag{4}$$

Here too, model (3) looks at the impact of overall economic freedom, model (4) looks at the impact of each of the major components of economic freedom on measure of Nash play.

We find significant positive (negative) relationships between economic freedom and Pro-social (Nash) play at the highest levels of economic freedom. In particular, freedom in the domains of Trade and Regulation play an important role in the above 90 EFI percentile countries, as seen in Table A3.

In countries with moderate levels of economic freedom, which fall in the mid-level EFI percentiles of between 40 and 80, while overall economic freedom does not show any significant relationship with Pro-social or Nash play, we find significant negative relationship between the domain of sound money and pro-social play, as seen in Table A5 and A6. Alongside, specifically in the case of countries falling under EFI percentiles between 40 and 60, Nash play also shows significant positive relationship with sound money. In this particular EFI quintile, the domain of property rights also shows significant negative relationship with pro-social play, as seen in Table A6.

For countries at the lowest level of economic freedom, we find a negative relationship between economic freedom and pro-social behavior. In the particular domain of size of government, we find a significant negative (positive) relationship between economic freedom and pro-social (Nash) play. The domains of property rights, and sound money show significant positive relationship between economic freedom and Nash play, while the domain of trade shows significant negative relationship between economic freedom and Nash play, as seen in Table A7.

Figure 3 graphically shows the distribution of the marginal effect of overall EFI on the pro-social residual for the various quintiles on our world economic freedom measure. As seen in our fixed effects model, for countries with lower level of overall EFI, any marginal increase in economic freedom leads to a decrease in pro-social behavior in these countries. The relationship between economic freedom and pro-social behavior is not significant for countries which are in the middle tiers of overall EFI. For countries within the top quintile of overall EFI, on the other hand, any marginal increase in economic freedom leads to an increase in pro-social behavior. Figure 3 also displays the variability in the marginal effect

of total EFI on pro-social residual for countries within these pre-defined quintiles. This is further indication of how countries with the same level of economic freedom might still show wide variation on the impact of an increase in economic freedom on pro-social behavior. While there exists little variability for countries in the top quintile, for countries in the remaining quintiles, there exists moderate to significant amount of variability.
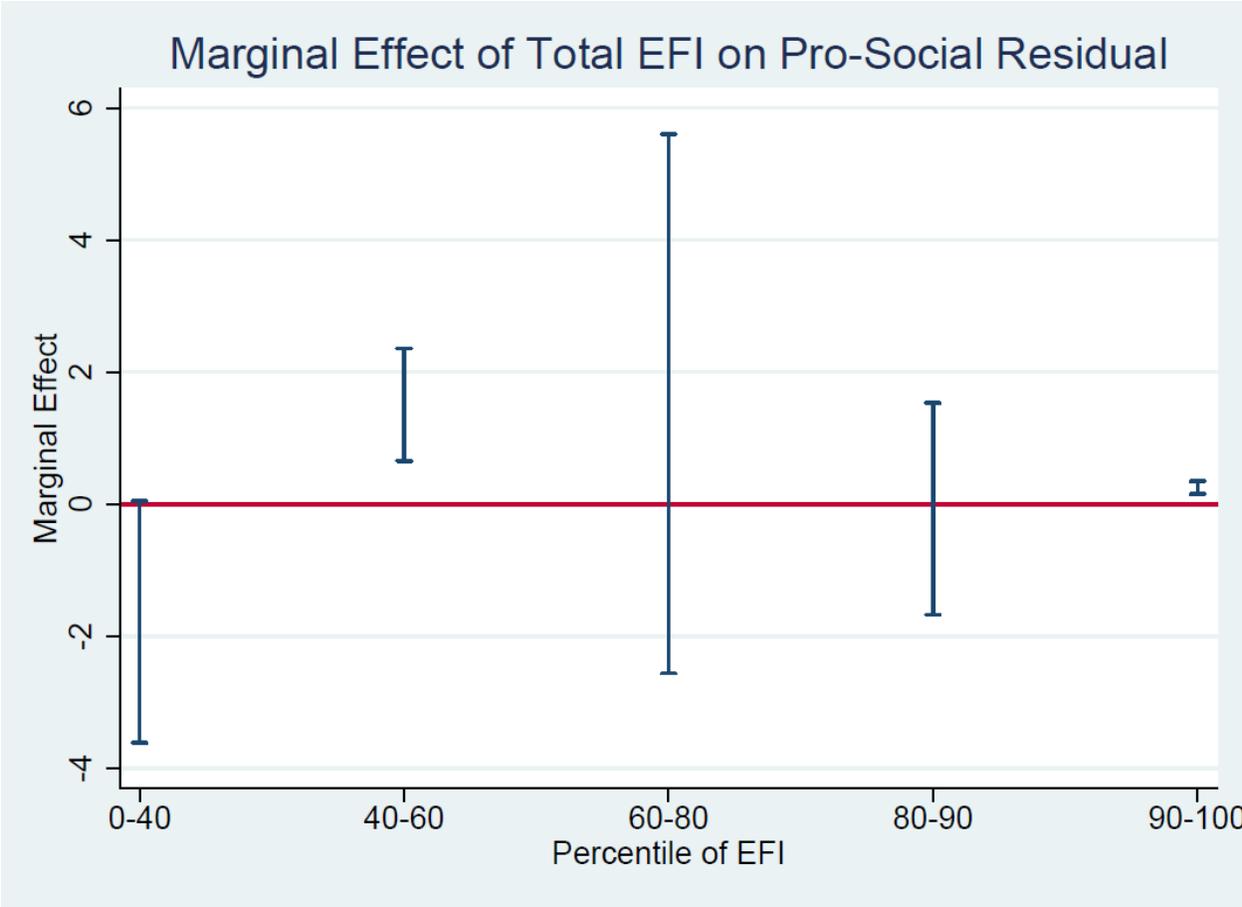
Figure 3: Impact of overall economic freedom on pro-social play for World EFI

Similar to the graph for overall world EFI, we also look at the distribution of marginal effect of the components of world EFI on the pro-social residual in our study in figure 4. This helps illustrate the variation in each of these components across our pre-defined quintiles.

Figure 4a displays differing levels of variation in marginal effect of the index of government size on pro-social residual across the various quintiles of grouped countries. While countries in the top quintile display very little variation, countries in the remaining tiers display high

variability.
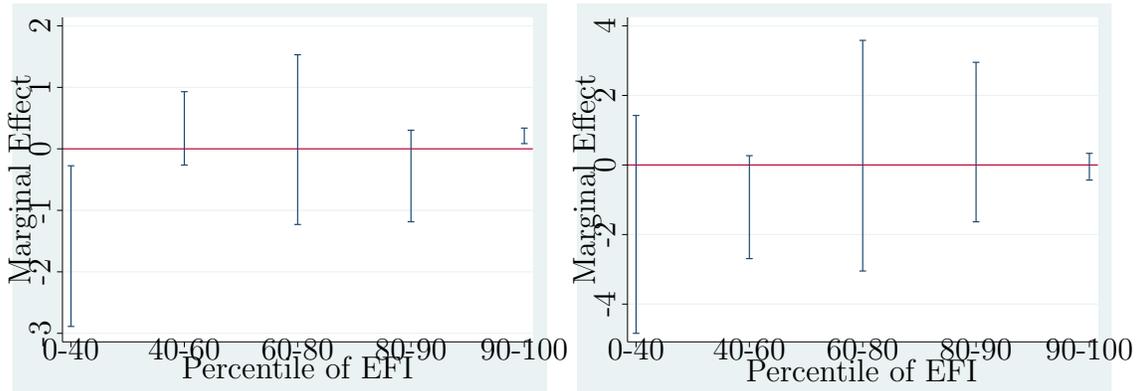
(a) Figure 4a. Size of Gov't

(b) Figure 4b.Property Rights
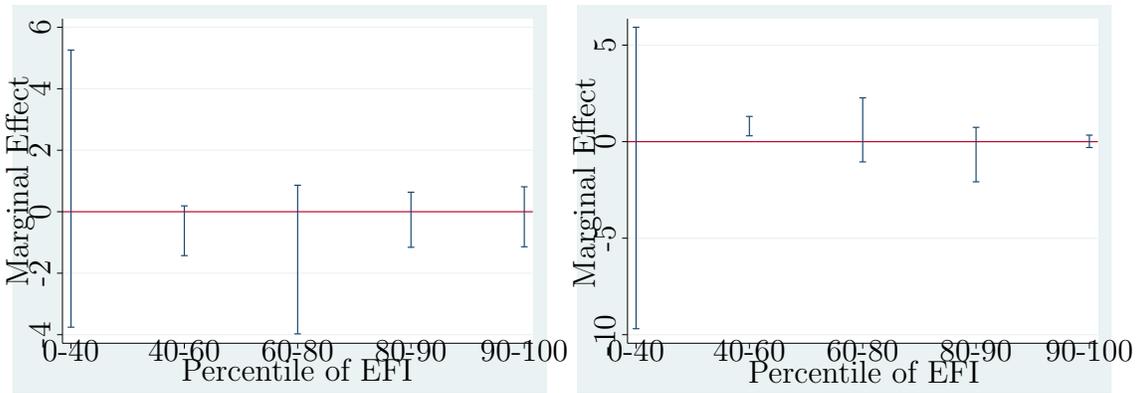
(c) Figure 4c. Sound Money

(d) Figure 4d. Trade
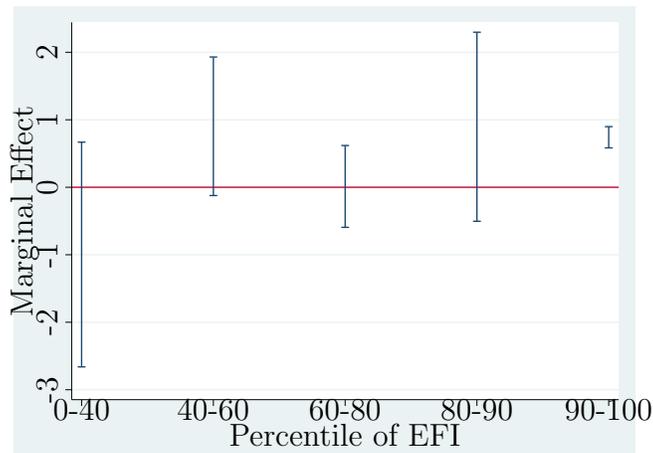
(e) Figure 4e. Regulation

Figure 4: Marginal Effect of World EFI Components on Pro-social behavior

Figure 4b shows high variation in marginal effect of property rights index on pro-social residual across all quintiles of the groups of countries with an indication of a mostly negative

relationship for countries belonging to the 40-60 percentile of the EFI distribution.

Figure 4c also shows some variation in marginal effect of sound money index on pro-social residual across all quintiles of the groups of countries with an indication of a mostly negative relationship for countries belonging to the 40-60 percentile of the EFI distribution. Countries belonging to the bottom quintile and the countries belonging to the 60-80 percentile displays the highest variation in this aspect.

Figure 4d shows moderate variation in marginal effect of the index of trade on pro-social residual across all quintiles except for the bottom quintile of countries. The variation is negligible for the top-most quintile of countries as well as for the countries belonging to the 40-60 percentile group here.

Figure 4e displays moderate to significant amount of variation in marginal effect of the index of regulation on pro-social residual across the different quintiles of countries. For countries in the top quintile though, there exists very little variation and the graph indicates a positive relationship for these countries in this aspect.

Similarly, figure 5 shows the distribution of the marginal effect of overall EFI on the Nash residual for the various tiers of the grouped countries in our study. Here, we find a moderate to significant amount of variability in the distribution of the marginal effect for all the quintiles other than the top-most quintile of countries. The top quintile of countries show a small amount of variability in the marginal effect on the Nash residual and indicate that the relationship between the marginal effect on the residual and the measure of EFI is negative, as seen in the fixed effects model estimation for the group of countries in the 90-100 percentile.

In addition, here too, we look at the distribution of the marginal effect of the different components of the world EFI on the Nash residual in our study as shown in figure 6. These individual components provides us further clarity regarding the variation in the distribution of the marginal effect within the country groupings used in our study.

Figure 6a shows differing levels of variation in marginal effect of the index of government

21
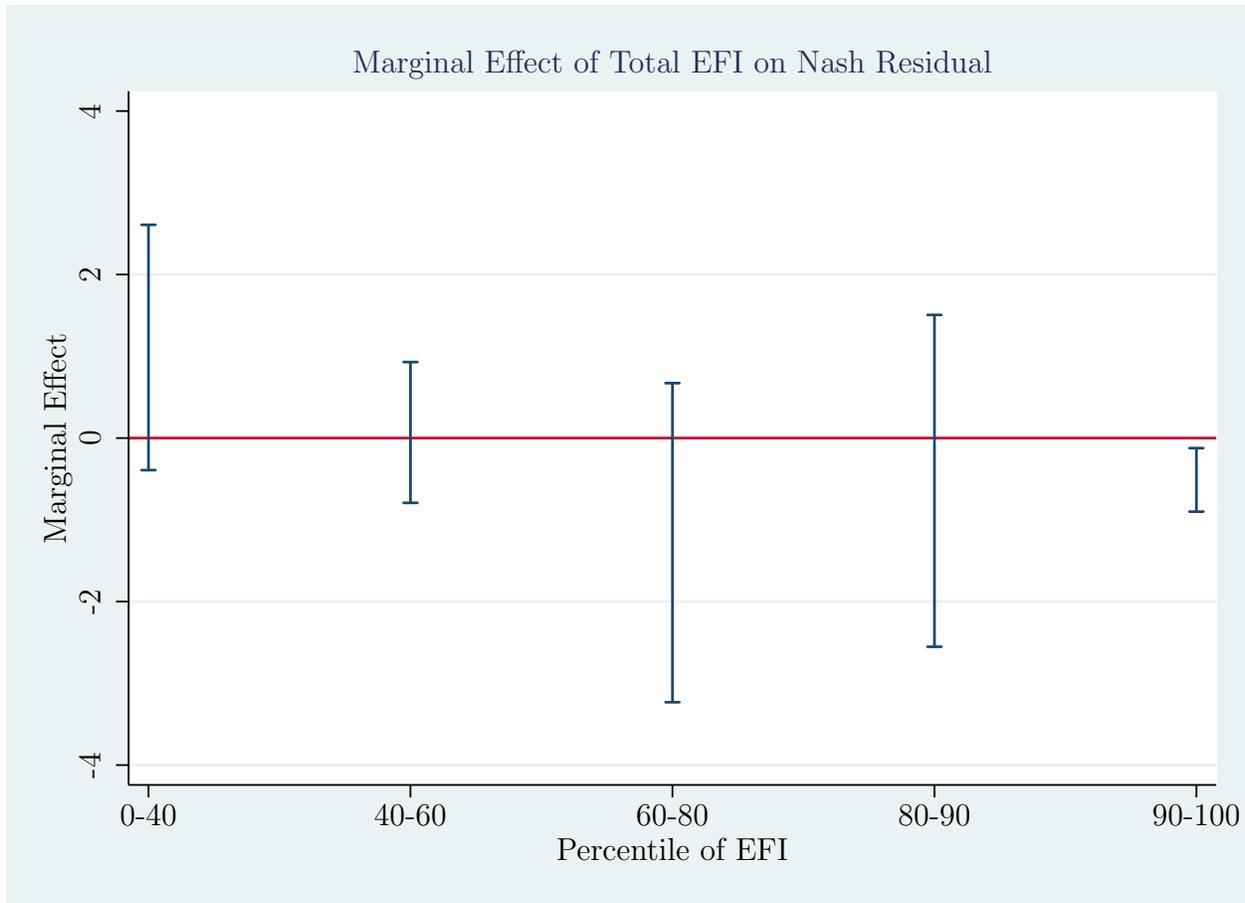
Figure 5: Impact of overall economic freedom on Nash play for World EFI

size on Nash residual across the various quintiles of grouped countries. While countries in the top quintile display less variation, countries in the remaining tiers display high variability. Specifically, countries in the 60-80 percentile show a significantly high amount of variability.

Figure 6b displays differing levels of variation in marginal effect of the index of property rights on Nash residual across the various quintiles of grouped countries. Here too, we see high levels of variation across all quintiles with the least amount of variation seen in the countries belonging to the top-most quintile and those in the 40-60 percentile of EFI .

Figure 6c displays differing levels of variation in marginal effect of the index of sound money on Nash residual across the various quintiles of grouped countries. Here, we see moderate to high amount of variation across all quintiles.

Figure 6d shows differing levels of variation in marginal effect of the index of trade on
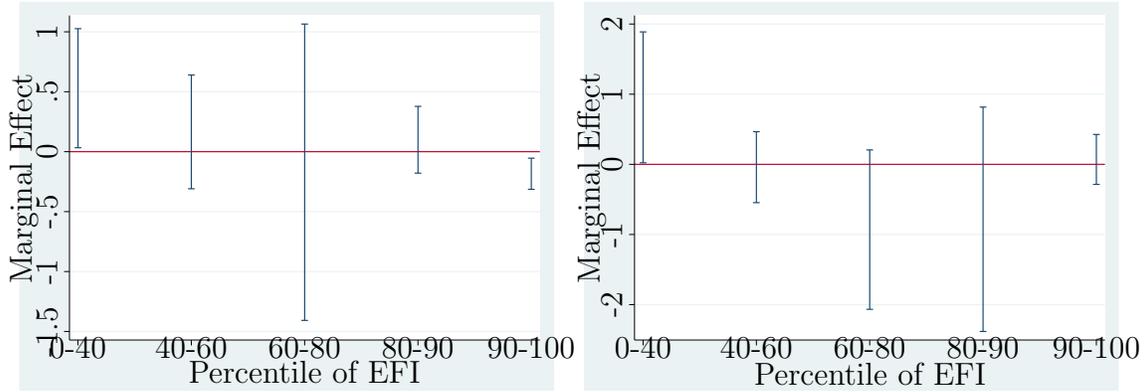
(a) Figure 6a. Size of Gov't

(b) Figure 6b.Property Rights
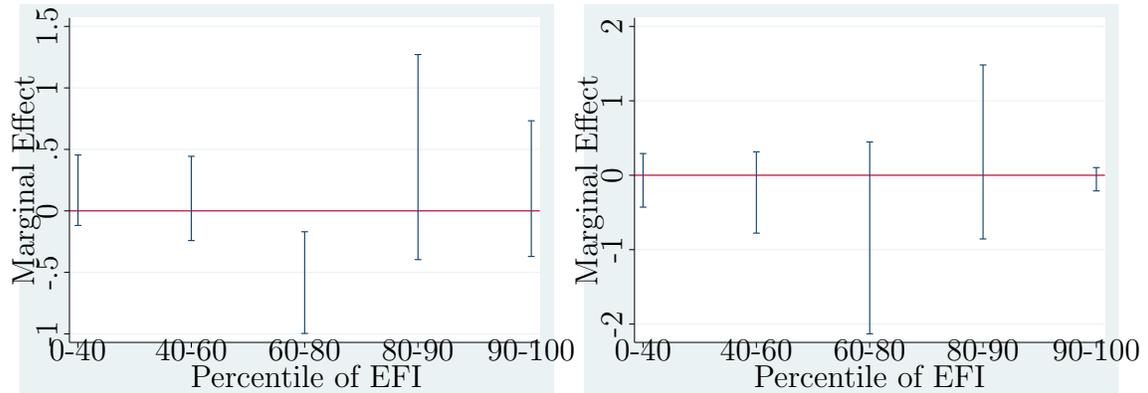
(c) Figure 6c. Sound Money

(d) Figure 6d. Trade
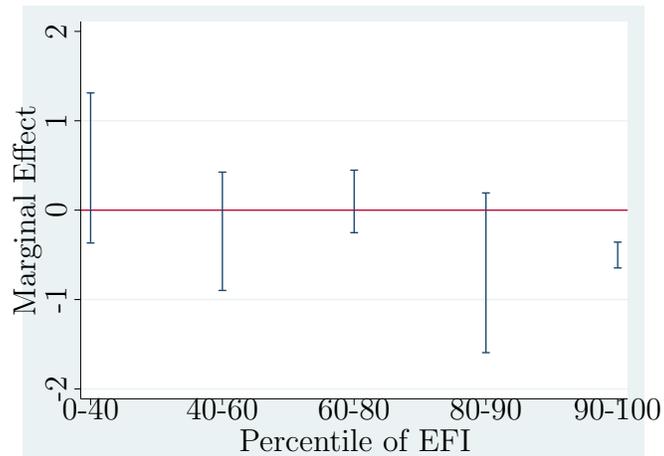
(e) Figure 6e. Regulation

Figure 6: Marginal Effect of World EFI Components on Nash behavior

Nash residual across the various quintiles of grouped countries. Here, we see moderate to high amount of variation across some quintiles. Here, the highest and the lowest quintiles display relatively less amount of variation in their distribution of the marginal effect on Nash

residual.

Figure 6e shows differing levels of variation in marginal effect of the index of regulation on Nash residual across the various quintiles of grouped countries. Here, we see a moderate amount of variation across most quintiles. Here, the highest quintile of countries display relatively less amount of variation in their distribution of the marginal effect on Nash residual.

4.2 MSA EFI

In addition to the world economic freedom, we also look at the Fraser Institute Economic Freedom of North America data to build the Index at the USA metro level. This analyses using USA data provides corroborating evidence regarding the relationship between economic freedom and pro-social and Nash play. We divide the MSA EFI data into terciles for ease of analyses and compare the groups similar to our analysis with the world economic freedom data. As the sub-national index varies a bit from the world index, we cannot directly compare the overall economic freedom or its components at the MSA level with those at the world level. However, we find similarities in patterns across the two economic freedom indices.

For our analysis at the MSA level, once again, we look at the impact of both overall economic freedom measure as well as the impact of the major components of economic freedom on pro-social behavior and Nash play. While our model specification for models (1) and (3) remains the same as for the country level analysis, for the MSA level, as the components of economic freedom differ, we re-specify models (2) and (4) here:

$$Pro-social_{it} = \alpha_i + \beta_1 EFITaxes_{it} + \beta_2 EFIGovernmentSpending_{it}$$
$$+\beta_3 EFILaborFreedom_{it} + \epsilon_{it} \tag{2}$$

$$Nash_{it} = \alpha_i + \beta_1 EFITaxes_{it} + \beta_2 EFIGovernmentSpending_{it}$$
$$+\beta_3 EFILaborFreedom_{it} + \epsilon_{it} \tag{4}$$

For the top tercile of MSAs with the most econoimc freedom, we find a significant positive relationship between the domain of taxes and pro-social play as seen in Table A8. This mimics the positive relationship noticed between economic freedom and pro-social play among the most economically free countries in our world EFI analysis.

For the least economically free MSAs, we find a significant negative (positive) relationship between economic freedom and pro-social (Nash) play, as seen in Table A10. In particular, the domains of taxes and labor freedom shows a significant negative (positive) relationship between economic freedom and pro-social (Nash) play. In addition, the domain of government spending shows a significant positive impact on pro-social play.

Similar to the world EFI measures, for the MSA EFI measures also, we look at the distribution of the marginal effect of the total EFI measure as well as the marginal effect of the components of the EFI measure on the pro-social and Nash residuals. These can be seen in figures 7 and 8 respectively.

For the MSA EFI measures, we see very high amount of variability in the distribution of the marginal effect of total EFI on the pro-social residual for the lowest tercile of MSAs. In comparison, the two upper terciles have less amount of variation in their distribution, as can be seen in figure 7a.

In addition to the overall EFI measure, we also look at the marginal effect of the components of MSA EFI. Here, we find that in the case of the component of government spending, the distribution of the marginal effect of the government spending index on the pro-social residual is very large in the case of the middle tercile. It is relatively more moderate in the case of the other two terciles. This can be seen in figure 7b.

Alongside, for the distribution of the marginal effect of the index of taxes and that of

labor freedom on the pro-social residual, we see moderate distributions across all terciles for both the measures. This can be seen in figures 7c and 7d respectively.

(a) Figure 7a. Total MSA EFI

(b) Figure 7b.Gov't Spending

(c) Figure 7c. Taxes

(d) Figure 7d. Labor Freedom
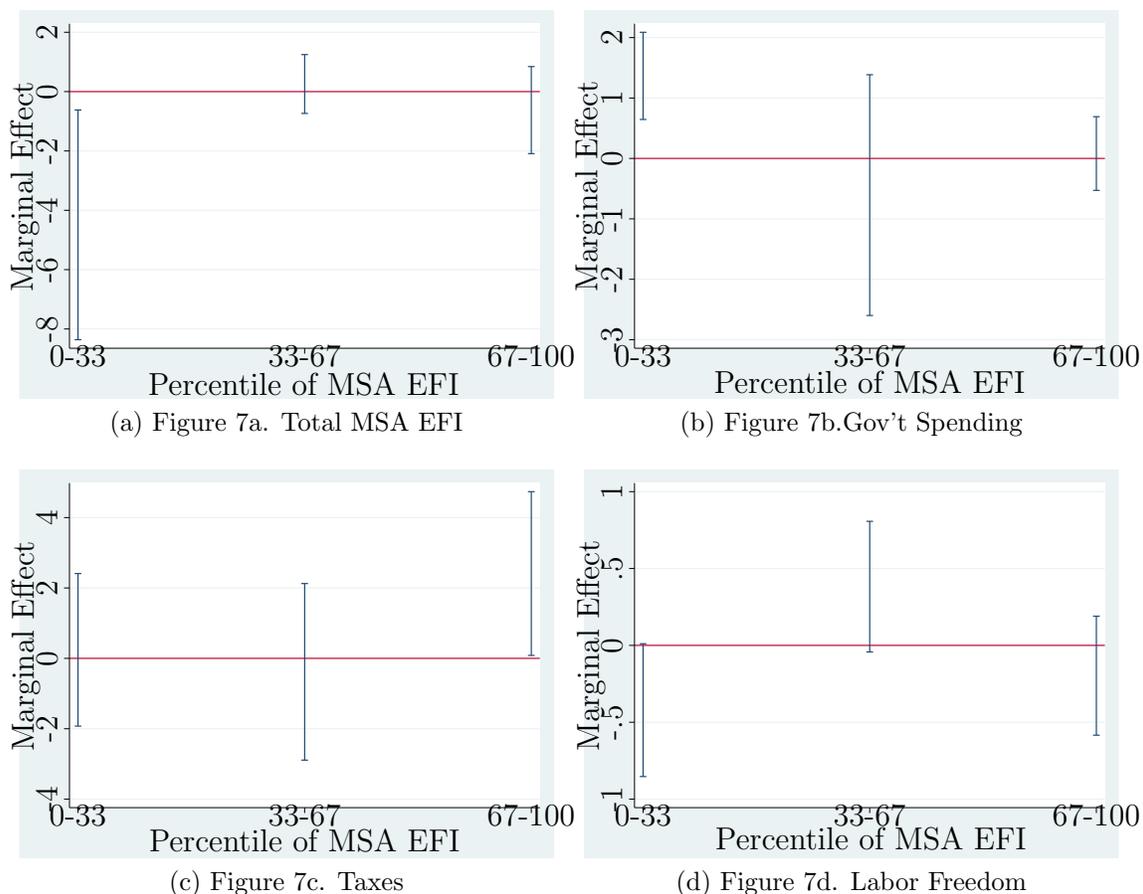
Figure 7: Marginal Effect of MSA EFI and its Components on Pro-social behavior

Similar to the pro-social residual, we also look at the distribution of the marginal effect of the MSA EFI measure and its components on the Nash residual. This is shown in figure 8.

For the distribution of the marginal effect of total EFI on the Nash residual, we see a high variability in the lowest tercile, similar to the case of the pro-social behavior. Here too, the distribution is comparatively much less in the case of the other two terciles.

For the case of the distribution of the marginal effect of the components of the MSA EFI on Nash residual, we see similar moderate levels of variability across all the terciles for all the components of the index. These can be seen in figure 8b, 8c and 8d for the marginal

effect of government spending, taxes and labor freedom respectively.

(a) Figure 8a. Total MSA EFI

(b) Figure 8b.Gov't Spending

(c) Figure 8c. Taxes

(d) Figure 8d. Labor Freedom
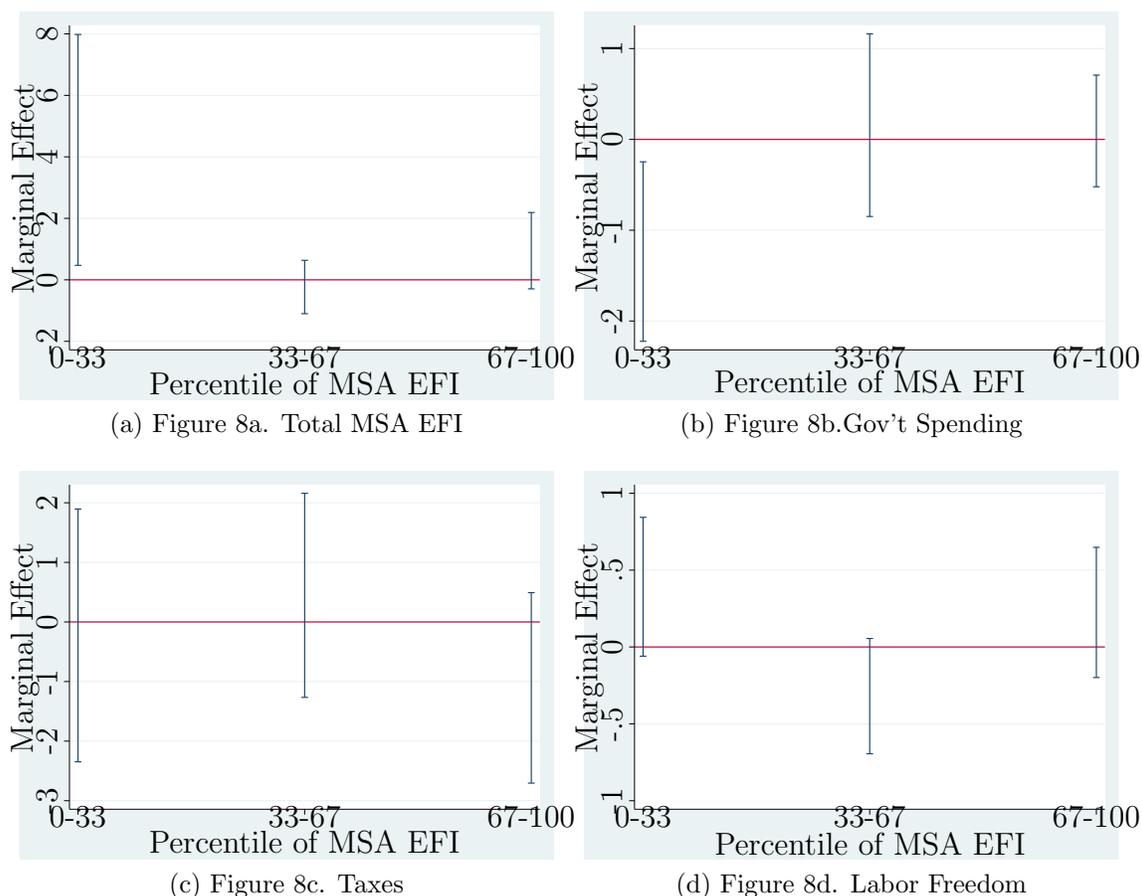
Figure 8: Marginal Effect of MSA EFI and its Components on Nash behavior

4.3 Eastern Block Countries

In addition to the world economic freedom index and the sub-national economic freedom index in the case of USA, we also look at the eastern block countries specifically to inspect the relationship between economic freedom and pro-social and Nash play in these countries. Since these countries share similarities in their historical institutional background, we look into the relationship between the components of economic freedom and the level of pro-social behavior and Nash play in these societies.

These group of countries contain countries across four quintiles of our original grouping of countries based on their economic freedom. In our analyses, we have data on Georgia,

Lithuania, Slovakia, Czech Republic, Hungary, Poland, Russia, and Romania.

We find a significant negative relationship between pro-social play and the domains of economic freedom including size of government, property rights, sound money, and trade, as seen in Table A11. Additionally, we find significant positive relationship between Nash play and the domains of size of government, and trade.

5   Discussion

Institutional change rests at the heart of modern research in development, political economy, environmental, and many other forms of applied economics. Such studies typically utilize broad survey or governmental data or utilize narrow randomized control trial data to explore the impact of institutional change upon economic decision making. These methods largely complement each other as RCTs typically provide exogenous control with an intentionally narrow geographic and institutional scope (focused typically upon a very specific institution in one or a few countries,) while survey/governmental data lack tight control but can provide a breadth of institutional and geographic scope. These studies provide a bounty of intriguing and interesting results while also bringing about lingering questions. RCTs often face a problem of lower replicability in other countries while survey results often face salience problems in drawing firm conclusions. When we observe a survey result, distinguishing between the impact of the legislative macro-institutions in an economy and the types of interactions that occur in the micro-economy and corresponding micro-institutions; e.g. the informal and formal institutions that govern individual person to person interactions, often proves to be problematic. In our study, we contribute to these literature with a meta-meta-analysis of over 1200 experimental studies from 6 meta-analyses and 50 countries to explore the relationship between country-level macro-institutional structure and behavior in person-to-person economic decision making in exogenously controlled micro-institutional economic decision making environments.

We find that marginal changes in macro-institutions have differential effects on changes in pro-social/Nash play depending upon the baseline institutional structure of the macro-economy. Our results indicate that policy-makers should not assume that policies that are effective in one country will result in similar behavior when applied in a different country, and may help explain why such exogenously implemented changes have failed in the past. Gasmi et al. (2013) looked at the impact of privatization of the fixed-line telecommunications operator on sector performance, inspecting the outcomes of privatization reforms in a 1985 to 2007 panel dataset on a selection of 108 countries (including OECD countries, Asia, Africa, Latin America). They find positive impact of privatization on sector outcomes in the OECD countries, Central America, and the Caribbean, as well as in resource-scarce coastal Africa and Asia. However, they find a negative impact in South America and in African resource-scarce landlocked countries, and find no significant impact in resource-rich African countries. They explain these differences through variation in institutional structures across these countries. They find that countries with successful privatizations focused on creation of appropriate institutional structures which improved the effectiveness of policies. On the other hand, privatization outcomes were poor in South America, in both resource-scarce landlocked African countries and resource-rich African countries due to weak contractual design and inadequate enforcement of policies in the infrastructure sector.

We find a similar pattern of results when looking at institutional changes across different metro areas within the United States that we find when looking across different countries.

Our findings have large implications for the importance of replication in applied microeconomics studies of policy and institution change. Our results suggest that empirical findings about the effects of institutional change from a subset of areas are not likely to apply to institutional changes that occur in a alternative non-tested areas that have different baseline institutional foundations. Replications/extensions of such studies are needed in these alternative environments to be confident in the generalizability of findings from such applied studies. Take the development literature for example. The data of Sukhtankar (2017)

showed that of 1,138 empirical development studies published in the top 10 general interest economics journals from 2000 to 2015, only 6.2 percent had another paper self-report being an attempted replication (either successful or unsuccessful.) In order to avoid the issues we indicate are possible, pure replications are not sufficient, replications that extend studies to different baseline institutional environments within a country and/or different countries is needed.

Finally, it should not be forgotten that institution change can occur from the top down (arising from a desire for change within the governing body) or bottom up (through pushes for change by the people being governed.) The degree to which each of these forms of change occurs would, of course, be expected to differ between countries. Our fixed effects analysis is useful in removing country specific time-invariant correlates of institutional change from our results. It is possible however that some country specific factors that change over time may be related to both institution change and pro-social behavior, such as changes to underlying culture and norms. Our results indicate that propensity to engage in pro-social decision making is related to institutional structure but we make no claims as to whether the institutional structural changes are causing underlying changes in factors like norms for pro-social play or whether changes in institutional structure are caused by such underlying changes in factors like norms. Our work provides strong evidence that there is an underlying mechanism that needs to be explored more. We hypothesize that future work will likely find that the causal relationship actually runs in both ways. We suspect that savvy governmental agents that notice underlying changes in their constituent populations culture and norms would adopt new policies with these changes in mind, given that these agents' incentives are tied to the decisions of the population. Likewise, we suspect that institutional changes are noticed by a constituent population and the accompanying incentive changes expose such a population to a new set of decisions and constraints. These new decision environments require adaptation and learning which would likely be associated with an adapted culture, norms, etc. Future work is needed however to explore these causal mechanisms more directly.

Our study exogenously imposes and holds the underlying decision making environment and micro-level institutions constant and explores decisions making in such environments across the spectrum of naturally varying, endogenously set, macro-level institutions. Other work that exogenously varies macro-level institutions and that allows micro-level institutions to naturally (endogenously) vary would be informative and would complement our study well.

Along the same lines, the U-shaped relationship we observe between economic freedom and prosociality suggests that similar relative changes are resulting in differential behavioral results. This may be due to the unobserved relationship between how/why policy changes occur and the base-level of economic freedom within a country. If high and low base levels spawn bottom-up or top-down institutional changes at different rates, this may help explain why they result in differential behavioral responses changes. In the hidden costs-of-control literature, Falk and Kosfeld (2006) indicates that when individuals are exogenously controlled it matters a great deal the manner in which that control comes about. This literature suggests that those individuals who are being controlled respond differently depending upon whether control regimes comes about voluntarily or involuntarily, exogenously or endogenously, uniformly or discriminatorily, etc. Our study suggest there is great potential value in applying this experimental laboratory work more broadly to understand the relationships we between institutions (implicitly "control") and decision making that we see at play in our data.

References

Abeler, J., Nosenzo-D.- Raymond C. 2019. "Preferences for truth-telling." *Econometrica*, 87(4): 1115–1153.

Adkins, L.C., Moomaw R.L., and A. Savvides. 2002. "Institutions, Freedom, and Technical Efficiency." *Southern Economic Journal*, 69(1): 92–108.

Aghion, P., Algan Y., and P. Cahuc. 2011. "Civil society and the state: The interplay between cooperation and minimum wage regulation." *Journal of the European Economic Association*, 9(1): 3–42.

Algan, Y., and P. Cahuc. 2010. "Inherited Trust and Growth." *The American Economic Review*, 100: 2060–2092.

Arrow, K.J. 1972. "Economic Welfare and the Allocation of Resources for Invention." *Rowley C.K. (eds) Readings in Industrial Economics. Palgrave, London*, 219–236.

Ashby, N.J. 2007. "Economic Freedom and Migration Flows between U.S. States." *Southern Economic Journal*, 73(3): 677–697.

Bengoa, M., and B. Sanchez-Robles. 2003. "Foreign direct investment, economic freedom and growth: new evidence from Latin America." *European Journal of Political Economy*, 19: 529 – 545.

Berggren, N., and H. Jordahl. 2005. "Does free trade really reduce growth? Further testing using the economic freedom index." *Public Choice*, 122: 99–114.

Berggren, N., and H. Jordahl. 2006. "Free to Trust: Economic Freedom and Social Capital." *KYKLOS*, 59(2): 141–169.

Berggren, N., and T. Nilsson. 2016. "Tolerance in the United States: Does economic freedom transform racial, religious, political and sexual attitudes?" *European Journal of Political Economy*, 45(Supplement): 53–70.

Berg, J., Dickhaut J., and K. McCabe. 1995. "Trust, reciprocity, and social history." *Games and Economic Behavior*, 10(1): 122–142.

Bjørnskov, C., and N. Foss. 2008. "Economic freedom and entrepreneurial activity: Some cross-country evidence." *Public Choice*, 143(3): 307–328.

Bohnet, I., and Y. Baytelman. 2007. "Institutions and trust. Implications for preferences, beliefs and behavior." *Rationality and Society*, 19: 99–135.

Bohnet, I., Greig F.-Herrmann B., and R. Zeckhauser. 2008. "Betrayal aversion: Evidence from Brazil, China, Oman, Switzerland, Turkey and United States." *American Economic Review*, 98: 294–310.

Boubakri N., Cosset J.-C., Fischer K., and Guedhami O. 2005. "Privatization and Bank Performance in Developing Countries." *Journal of Banking and Finance*, 29: 2015–41.

Bowles, S. 1998. "Endogenous preferences: the cultural consequences of markets and other economic institutions." *Journal of Economic Literature*, 36(1): 75–111.

Bénabou, R., J. Tirole. 2006. "Incentives and prosocial behavior." *American Economic Review*, 96(5): 1652–1678.

Cabrales, A., Clots-Figueras I. Hernan Gonzalez R., and P. Kujal. 2020. "Institutions, opportunism and prosocial behavior: Some experimental evidence." *Discussion Papers 2020-09, The Centre for Decision Research and Experimental Economics, School of Economics, University of Nottingham.*

Camerer, C., and K. Weigelt. 1988. "Experimental test of a sequential reputation game." *Econometrica*, 56(1): 1–36.

Campbell, N.D., and T.M. Rogers. 2007. "Economic Freedom and Net Business Formation." *Cato Journal*, 27(1): 23–36.

Carlsson, F., and S. Lundstrom. 2002. "Economic Freedom and Growth: Decomposing the Effects." *Public Choice*, 112(3-4): 335–44.

Cox, J.C. 2004. "How to identify trust and reciprocity." *Games and Economic Behavior*, 46(2): 260–281.

Cárdenas, J. C., Stranlund J., and C. Willis. 2000. "Local Environmental Control and Institutional Crowding-Out." *World Development*, 28(10): 1719–1733.

De Haan, J., and J. Sturm. 2000. "On the relationship between economic freedom and economic growth." *European Journal of Political Economy*, 16(2): 215–241.

De Haan, J., S. Lundström, and J. Sturm. 2006. "Market-Oriented Institutions and Policies and Economic Growth: A Critical Survey." *Journal of Economic Surveys*, 20(2): 157–191.

Dickhaut, J., Hubbard J, and K. McCabe. 1998. "Trust Reciprocity and Interpersonal History: Fool Me Once Shame on You Fool Me Twice Shame on Me." *SSRN*.

Dietrich, F. 2014. "Anti-terrorism politics and the risk of provoking." *Journal of Theoretical Politics*, 26(3): 405–441.

Dirks, K.T., and D.L. Ferrin. 2002. "Trust in leadership: Meta-analytic findings and implications for research and practice." *Journal of Applied Psychology*, 87: 611–628.

Doucouliagos, C., and M.A. Ulubasoglu. 2006. "Economic freedom and economic growth: Does specification make a difference?" *European Journal of Political Economy*, 22(1): 60–81.

Dreher, A., Kotsogiannis C., and S. McCorriston. 2009. "How do institutions affect corruption and the shadow economy?" *International Tax and Public Finance*, 16: 773–796.

Engel, C. 2011. "Dictator games: a meta study." *Experimental Economics : A Journal of the Economic Science Association*, 14(4): 583–610.

Falk, A., and M. Kosfeld. 2006*a*. "The Hidden Costs of Control." *The American Economic Review*, 96(5): 1611–1630.

Falk, A., and M. Kosfeld. 2006*b*. "The hidden costs of control." *The American Economic Review*, 96(5): 1611–1630.

Farr, W.K., Lord R.A., and J.L. Wolfenbarger. 1998. "Economic Freedom, Political Freedom, and Economic Well-Being: A Causality Analysis." *Cato Journal*, 18(2): 247–262.

Fehr, E. 2009. "On the economics and biology of trust." *Journal of European Economic Association*, 2(2-3): 235–266.

Fiala, L., and S. Suetens. 2017. "Transparency and Cooperation in Repeated Dilemma Games: A Meta Study." *Experimental Economics*, 20: 755–771.

Fisman, R., and R. Gatti. 1999. "Decentralization and corruption: Cross-country and cross-state evidence." *The World Bank, Washington, D.C.*

Frank, R.H. 1988. "Passion within reason: The strategic role of emotions." *New York, NY: W.W. Norton and Company, Inc.*

Gasmi F., Maingard A. A., Noumba Um P. P., and Virto L. R. 2013. "The Privatization of the Fixed-Line Telecommunications Operator in OECD, Latin America, Asia, and Africa: One Size Does Not Fit All." *World Development*, 45: 189–208.

Graeff, P., and G. Mehlkop. 2003. "The impact of economic freedom on corruption: different patterns for rich and poor countries." *European Journal of Political Economy*, 19(3): 605–620.

Guiso, L., Sapienza P., and L. Zingales. 2004. "The role of social capital in financial development." *American Economic Review*, 94(3): 526–556.

Gwartney, J., and R. Lawson. 2002. "Economic Freedom of the World 2002, Annual Report." *The Fraser Institute, Vancouver.*

Gwartney, J.D., Holcombe .G., and R.A. Lawson. 1999. "Economic Freedom and the Environment for Economic Growth." *Journal of Institutional and Theoretical Economics*, 155(4): 643–663.

Gwartney, J.D., Holcombe .G., and R.A. Lawson. 2004. "Economic Freedom, Institutional Quality, and Cross-Country Differences in Income and Growth." *Cato Journal*, 24(3): 205–233.

Gwartney, J.D., Holcombe .G., and R.A. Lawson. 2006. "Institutions and the Impact of Investment on Growth." *KYKLOS*, 59(2): 255–273.

Hanson II, J.R. 2000. "Prosperity and Economic Freedom: A Virtuous Cycle." *The Independent Review*, 4(4): 525–531.

Heckelman, J.C. 2000. "Economic Freedom and Economic Growth: A Short-run Causal Investigation." *Journal of Applied Economics*, 3: 71–91.

Heckelman, J.C., and M.D. Stroup. 2005. "A comparison of aggregation methods for measures of economic freedom." *European Journal of Political Economy*, 21: 953–966.

Johnson, N.D., and A.A. Mislin. 2011. "Trust Games: A meta-analysis." *Journal of Economic Psychology*, 32: 865–889.

King-Casas, B., Sharp C. Lomax-Bream L. Lohrenz T. Fonag y P. Montague P.R. 2008. "The rupture and repair of cooperation in borderline personality disorder." *Science*, 321(5890): 806–810.

Knack, K., and P. Keefer. 1997. "Does social capital have an economic payoff? A cross-country investigation." *Quarterly Journal of Economics*, 112: 1251–1288.

La Porta, R., Lopez-de-Silanes-F. Shleifer A., and R. Vishny. 1997. "Trust in organizations." *American Economic Review Papers and Proceedings*, LXXXVII: 333–338.

La Porta, R., Lopez-de-Silanes-F. Shleifer A., and R.W. Vishny. 1999. "The Quality of Government." *Journal of Law, Economics, and Organization*, 15: 222–279.

Lowes, S., Nunn N.-Robinson-J.A., and J. Weigel. 2017. "The evolution of culture and institutions: Evidence from the Kuba Kingdom." *Econometrica*, 85(4): 1065–1091.

Mengel, F. 2018. "Risk and temptation: a meta-study on prisoner's dilemma games." *The Economic Journal*, 128(616): 3182–3209.

Nyström, K. 2008. "The institutions of economic freedom and entrepreneurship: evidence from panel data." *Public Choice*, 136(3): 269–282.

Oosterbeek, H., Sloof R.- van de Kuilen G. 2004. "Cultural differences in ultimatum game experiments: evidence from a meta-analysis." *Experimental Economics*, 7(2): 171–188.

Pinotti, P. 2012. "Trust, Regulation and Market Failures." *Review of Economics and Statistics*, 94: 650–658.

Polak, R. 1976. "Interdependent preferences." *American Economic Review*, 66(3): 309–320.

Putnam, R.D. 1993. "Making democracy work: Civic traditions in modern Italy." *Princeton: Princeton University Press*.

Rabin, M. 1998. "Psychology and economics." *Journal of Economic Literature*, 36(1): 11–46.

Rosenthal, R. 1979. "The file drawer problem and tolerance for null results." *Psychological Bulletin*, 86(3): 638–641.

Smith, Adam, 1723-1790. 2000. "The Wealth of Nations / Adam Smith ; Introduction by Robert Reich ; Edited, with Notes, Marginal Summary, and Enlarged Index by Edwin Cannan." *New York :Modern Library*.

Smith, T.W., Marsden-P.-Hout M., and J. Kim. 1972-2014. "General Social Surveys, [machine-readable data file] /Principal Investigator, Tom W. Smith; Co-Principal Investigator, Peter V. Marsden; Co-Principal Investigator, Michael Hout; Sponsored by National Science Foundation." *NORC ed.- Chicago: NORC at the University of Chicago [producer and distributor].*

Stansel, D., Torra-J., and F. McMahon. 2020. "Economic Freedom of North America 2021." *Fraser Institute.*

Sukhtankar, S. 2017. "Replications in Development Economics†." *American Economic Review,* 107(5): 32–36.

Tabellini, G. 2010. "Culture and institutions: economic development in the regions of Europe." *Journal of the European Economic Association,* 8(4): 677–716.

A Appendix A

A.1 Summary Statistics

Table A1: Standard Deviation of World EFI by Percentiles

Variables	p0-40	p40-60	p60-80	p80-90	p90-100	East Block
EFI Total	0.209	0.260	0.095	0.071	0.153	0.127
EFI Size of Gov't	0.301	0.426	0.220	0.285	0.343	0.144
EFI Property Rights	0.283	0.147	0.132	0.102	0.279	0.105
EFI Sound Money	0.362	0.562	0.152	0.116	0.098	0.239
EFI Trade	0.265	0.285	0.101	0.215	0.246	0.239
EFI Regulation	0.354	0.359	0.309	0.223	0.308	0.417
Observations	86	125	75	198	769	32

Table A2: Standard Deviation of MSA-level EFI by Percentiles

Variables	p0-33	p33-67	p67-100
EFI Total	0.078	0.097	0.086
EFI Taxes	0.131	0.105	0.105
EFI Government Spending	0.124	0.136	0.175
EFI Labor Freedom	0.233	0.289	0.233
Observations	81	155	154

A.2   World EFI

Table A3: Fraser World EFI, p90+

Variables	Pro-social		Nash	
	(1)	(2)	(3)	(4)
EFI Total	0.5916*		-0.5117**	
	(0.242)		(0.172)	
EFI Size of Gov't		-0.0015		-0.0385
		(0.184)		(0.068)
EFI Property Rights		-0.0200		0.0733
		(0.183)		(0.127)
EFI Sound Money		-0.3027		0.2460
		(0.241)		(0.267)
EFI Trade		0.2333**		-0.2352**
		(0.094)		(0.084)
EFI Regulation		0.7786***		-0.5211***
		(0.065)		(0.085)
Observations	605	605	737	737
R^2	0.050	0.084	0.045	0.067
Countries	7	7	10	10

Country-level fixed effects for Australia, Canada, Finland, Mongolia, New Zealand, Singapore, Switzerland, United Kingdom, and United States. Standard errors clustered by country. ***p<0.01, **p<0.05,*p<0.1.

Table A4: Fraser World EFI, p80-90

Variables	Pro-social		Nash	
	(1)	(2)	(3)	(4)
EFI Total	-0.3564		-0.5232	
	(1.531)		(0.897)	
EFI Size of Gov't		-0.5691		0.0729
		(0.347)		(0.139)
EFI Property Rights		1.9214		-1.0246
		(2.139)		(1.047)
EFI Sound Money		0.6016		-0.0023
		(0.711)		(0.646)
EFI Trade		-0.3229		0.2343
		(0.925)		(0.389)
EFI Regulation		0.5045		-0.6709
		(0.497)		(0.451)
Observations	149	149	195	195
R^2	0.121	0.165	0.158	0.186
Countries	8	8	10	10

Country-level fixed effects for Austria, Chile, Denmark, Germany, Japan, Netherlands, Norway, Portugal, Rwanda, Spain, and Sweden. Standard errors clustered by country. ***p<0.01, **p<0.05,*p<0.1.

Table A5: Fraser World EFI, p60-80

Variables	Pro-social		Nash	
	(1)	(2)	(3)	(4)
EFI Total	0.5123		-1.2796	
	(1.498)		(0.903)	
EFI Size of Gov't		-0.2318		-0.0057
		(0.192)		(0.456)
EFI Property Rights		0.4131		-0.7398
		(1.074)		(0.713)
EFI Sound Money		-2.3087***		-0.1005
		(0.643)		(0.497)
EFI Trade		0.2970		-0.5841
		(0.795)		(0.483)
EFI Regulation		0.2243		0.0340
		(0.407)		(0.167)
Observations	58	58	78	78
R^2	0.104	0.115	0.114	0.128
Countries	10	10	14	14

Country-level fixed effects for Belgium, Costa Rica, France, Guatemala, Iceland, Italy, Peru, South Korea, Uganda, and Uruguay. Standard errors clustered by country. ***$p<0.01$, **$p<0.05$,*$p<0.1$.

Table A6: Fraser World EFI, p40-60

Variables	Pro-social		Nash	
	(1)	(2)	(3)	(4)
EFI Total	0.4126		0.0684	
	(0.813)		(0.402)	
EFI Size of Gov't		0.5208		0.2289
		(0.297)		(0.146)
EFI Property Rights		-1.5846**		-0.4752
		(0.555)		(0.315)
EFI Sound Money		-0.9957***		0.4385***
		(0.270)		(0.137)
EFI Trade		0.1062		-0.6257
		(0.446)		(0.441)
EFI Regulation		0.0488		-0.4373
		(0.761)		(0.729)
Observations	84	84	128	128
R^2	0.342	0.466	0.285	0.362
Countries	10	10	15	15

Country-level fixed effects for Columbia, Fiji, Ghana, Greece, Honduras, India, Israel, Kenya, Madagascar, Malaysia, Mexico, Morocco, Paraguay, South Africa, Tanzania, Thailand, and Turkey. Standard errors clustered by country. ***p<0.01, **p<0.05,*p<0.1.

Table A7: Fraser World EFI, p0-40

Variables	Pro-social		Nash	
	(1)	(2)	(3)	(4)
EFI Total	-3.9603*		1.1080	
	(1.871)		(0.689)	
EFI Size of Gov't		-1.8732**		1.0321***
		(0.607)		(0.212)
EFI Property Rights		-3.0756		0.7452***
		(1.770)		(0.199)
EFI Sound Money		2.8389		0.4365***
		(2.210)		(0.092)
EFI Trade		-1.0931		-0.7394***
		(1.688)		(0.140)
EFI Regulation		1.6654		0.0563
		(1.009)		(0.190)
Observations	49	48	85	84
R^2	0.345	0.410	0.275	0.370
Countries	10	10	13	13

Country-level fixed effects for Argentina, Bangladesh, Bolivia, Brazil, China, Ecuador, Indonesia, Papua New Guinea, Vietnam; and p0-20 countries: Cameroon, Democratic Republic of Congo, Nigeria, and Zimbabwe. Standard errors clustered by country. ***p<0.01, **p<0.05,*p<0.1.

A.3   MSA EFI

Table A8: MSA EFI, Top Tercile

Variables	Pro-social		Nash	
	(1)	(2)	(3)	(4)
EFI Total	-0.6229		0.9482	
	(0.666)		(0.570)	
EFI Taxes		2.9002**		-1.0987
		(1.290)		(0.716)
EFI Gov't Spending		0.4598		0.5048
		(0.541)		(0.300)
EFI Labor Freedom		0.0168		0.4590*
		(0.266)		(0.255)
Observations	133	133	150	150
R^2	0.288	0.315	0.307	0.320
Countries	12	12	13	13

Standard errors clustered by MSA. ***p<0.01, **p<0.05,*p<0.1.

Table A9: MSA EFI, Middle Tercile

Variables	Pro-social		Nash	
	(1)	(2)	(3)	(4)
EFI Total	0.2560		-0.2335	
	(0.465)		(0.411)	
EFI Taxes		-2.0943		1.1461
		(1.224)		(1.012)
EFI Gov't Spending		-0.7299		-0.0208
		(0.928)		(0.522)
EFI Labor Freedom		0.7935		-0.6523
		(0.535)		(0.490)
Observations	137	137	152	152
R^2	0.160	0.188	0.171	0.186
Countries	16	16	18	18

Standard errors clustered by MSA. ***p<0.01, **p<0.05,*p<0.1.

Table A10: MSA EFI, Bottom Tercile

Variables	Pro-social		Nash	
	(1)	(2)	(3)	(4)
EFI Total	-4.4899**		4.2252**	
	(1.738)		(1.750)	
EFI Taxes		-4.4354***		3.9945***
		(0.660)		(0.958)
EFI Gov't Spending		0.8955**		-0.6768
		(0.358)		(0.403)
EFI Labor Freedom		-2.1692***		1.9860***
		(0.190)		(0.355)
Observations	63	63	77	77
R^2	0.679	0.711	0.674	0.696
Countries	11	11	15	15

Standard errors clustered by MSA. ***p<0.01, **p<0.05,*p<0.1.

A.4 Eastern Block Countries

Table A11: Fraser World EFI, East Block

Variables	Pro-social		Nash	
	(1)	(2)	(3)	(4)
EFI Total	0.7799		-0.8810	
	(1.822)		(0.869)	
EFI Size of Gov't		-27.1433***		4.5242**
		(0.616)		(1.379)
EFI Property Rights		-186.9892***		-2.9185
		(5.339)		(1.963)
EFI Sound Money		-24.3973***		-0.6069*
		(0.698)		(0.279)
EFI Trade		-26.0237***		1.0333**
		(0.679)		(0.328)
EFI Regulation				0.2363
				(0.781)
Observations	14	14	36	36
R^2	0.586	0.914	0.386	0.502
Countries	3	3	9	

Country-level fixed effects for p80-90 countries:Georgia, Lithuania, and Slovakia; p60-80 countries: Czech Republic, Hungary, and Poland; p40-60 country: Russia; and p0-20 country: Romania. Standard errors clustered by country. ***p<0.01, **p<0.05,*p<0.1.

B Appendix B

B.1 Replications of Meta-analyses

B.1.1 Dictator Game

In line with the analyses performed in Engel (2011), we report the results for the complete meta-regression model, i.e. the regression with weighted study means as the dependent variable here.Similar to Engel (2011), our analysis also explains almost half of the variance. We report only the result of the meta-regression model here, as opposed to the multiple models reported in Engel (2011). The meta-regression gives us the Residual Maximum Likelihood (REML) estimate of the betweeen-study variance, which denotes the proportion of between-study variance explained by the model.

Table B1: Meta-regression

Variables	Mean
Limited action space	-0.063*
	(0.033)
Degree of uncertainty	-0.035
	(0.182)
Incentive	-0.015
	(0.019)
Repeated game	-0.066***
	(0.024)
Group decision	-0.054*
	(0.030)
Identification	0.042
	(0.026)
Social cue	0.004
	(0.032)
Concealment	-0.065**
	(0.033)
Double bind	-0.017
	(0.019)
Take option	0.067
	(0.090)

Table B1: (continued)

Variables	Mean
Deserving recipient	0.083***
	(0.019)
Recipient earned	0.129**
	(0.053)
Efficiency recipient	0.024*
	(0.013)
Multiple recipients	0.151***
	(0.044)
Recipient endowment	-0.178***
	(0.048)
Dictator earned	-0.178***
	(0.032)
Real money	0.021
	(0.021)
Degree of social proximity	-0.054***
	(0.013)
Student	-0.103***
	(0.035)
Child	0.116**
	(0.050)
Middle age	0.461***
	(0.068)
Old age	0.117***
	(0.043)
Developing country	0.017
	(0.032)
Indigenous society	-0.007
	(0.048)
Constant	0.313***
	(0.051)
Observations	616
adj. R^2	0.483

Standard errors are in parentheses. Significance at the 1, 5, and 10 percent level is denoted by ***, **, and *, respectively.

B.1.2   Lying

We replicate the analyses of Abeler et al. (2019), where they look into the factors that might impact lying behavior across populations. In line with Abeler et al. (2019), we find that there exists significant gender differences on reporting lying behavior and that age also has an impact. The results reported here in table B2 are only for repeated reports as opossed to one-shot reports. Thus, the number of rounds also has an impact on the reported behavior, as also found in Abeler et al. (2019).

Table B2: Regression results Lying

Dependent variable: Standardized report					
	(1)	(2)	(3)	(4)	(5)
Round	0.001**				
	(0.000)				
1 if female		-0.057***			
		(0.009)			
Age			-0.002***	-0.004	
			(0.001)	(0.003)	
Age squared				0.000	
				(0.000)	
1 if economics/management student					0.003
					(0.022)
1 if psychology student					-0.054
					(0.078)
Treatment FE	Yes	Yes	Yes	Yes	Yes
# Decisions					
# Subjects					
# Treatments					
# Studies					
# Clusters	4806	22116	15472	15472	4655

Notes: OLS regressions. Robust standard errors clustered on individual subjects are in parentheses. The sample in each specification is restricted to those treatments in which the independent variable(s) vary. Significance at the 1, 5, and 10 percent level is denoted by ***, **, and *, respectively.

B.1.3 Oligopoly

We replicate the analyses performed in the Fiala and Suetens (2017) paper for the Oligopoly games in line with the various specifications they use in their paper. Tables B3 and B4 give the impact of the variables under study on the degree of collusion reported in the underlying experiments collated in the meta-analysis.

Table B3: Regression results oligopoly

Dependant variable: Degree of collusion								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
F.indichoice	-0.188				0.556***	0.499***	0.156	0.491***
	(0.122)				(0.176)	(0.160)	(0.195)	(0.160)
F.aggchoice		0.306**			0.335**	0.404***	0.358***	0.414***
		(0.122)			(0.133)	(0.123)	(0.121)	(0.123)
F.indipayoffs			-		-	-	-0.398**	-
			0.481***		0.782***	0.643***		0.639***
			(0.119)		(0.168)	(0.158)	(0.173)	(0.158)
F.ownpayoff				-0.132	-0.026	-0.101	0.594	-0.063
				(0.493)	(0.396)	(0.359)	(0.448)	(0.361)
Complements						0.374***	0.459***	0.374***
						(0.113)	(0.120)	(0.113)
'Friedman' index							0.307**	
							(0.128)	
Group size								-0.053
								(0.057)
Constant	-0.117	-	-0.061	-0.060	-0.395	-0.464	-1.339**	-0.313
		0.395***						
	(0.076)	(0.100)	(0.062)	(0.489)	(0.413)	(0.374)	(0.507)	(0.408)
Observations	50	50	50	50	50	50	46	50
R-squared	0.047	0.116	0.255	0.001	0.403	0.522	0.567	0.532

Table B3 reports results from linear regressions based on data from oligopoly experiments. The numbers of independent observations by unit of observation (treatment) are used as weights (p values in parentheses). ***, ** or * indicate that the effect of the variable

is statistically significant at the 1, 5 or 10 percent level, respectively. F.aggchoice refers to aggregate feedback about choices in one's group, F.indichoice to feedback about each group member's choice, F.indipayoffs to feedback about each group member's payoff, and F.ownpayoff to feedback about one's own payoff.

Table B4: Regression results oligopoly (reduced sample)

Dependant variable: Degree of collusion		
	(1)	(2)
F.aggchoice	-0.070	-0.359**
	(0.264)	(0.166)
F.indipayoffs	-0.584**	-0.861***
	(0.265)	(0.184)
F.ownpayoff	0.227	-0.114
	(0.702)	(0.197)
Complements	0.228	0.187
	(0.147)	(0.141)
'Friedman' index	0.141	
	(0.293)	
Group size		0.013
		(0.036)
Constant	-0.413	0.260
	(1.115)	(0.269)
Observations	24	28
R-squared	0.823	0.800

Table B4 reports results from linear regressions based on data from oligopoly experiments that have no treatment variation in one of the feedback variables. The dependent variable is degree of collusion. The numbers of independent observations by unit of observation (treatment) are used as weights (p values in parentheses). ***, ** or * indicate that the effect of the variable is statistically significant at the 1, 5 or 10 percent level, respectively. F.aggchoice refers to aggregate feedback about choices in one's group, F.indipayoffs to feedback about each group member's payoff, and F.ownpayoff to feedback about one's own payoff.

B.1.4 Voluntary Contribution Mechanism

Similar to the Oligopoly experiments, we replicate the model specifications used in the Fiala and Suetens (2017) paper for the public goods experiments for our data on voluntary contribution mechanism. Tables B5-B7 report the analysis results of the choice variables on share of endowment contributed in the experiments enlisted in the meta-analysis.

Table B5: Regression results public goods

Dependant variable: Share of endowment contributed								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
F.indichoice	0.030				0.042	0.056**	0.046	0.061**
	(0.026)				(0.029)	(0.027)	(0.030)	(0.028)
F.aggchoice		-0.007			-0.014	-0.015	-0.015	-0.016
		(0.033)			(0.040)	(0.037)	(0.040)	(0.037)
F.indipayoffs			-0.048		-0.073	-0.120**	-0.075	-0.123**
			(0.043)		(0.049)	(0.048)	(0.050)	(0.048)
F.ownpayoff				-0.002	0.004	0.032	0.010	0.039
				(0.046)	(0.048)	(0.046)	(0.049)	(0.046)
MPCR						0.446***		0.450***
						(0.109)		(0.109)
Group size							0.004	0.004
							(0.005)	(0.005)
Constant	0.404***	0.426***	0.425***	0.419***	0.411***	0.174**	0.389***	0.145*
	(0.019)	(0.029)	(0.014)	(0.044)	(0.053)	(0.076)	(0.062)	(0.083)
Observations	116	115	116	114	113	113	113	113
R-squared	0.011	0.000	0.011	0.000	0.035	0.165	0.040	0.172

Table B5 reports results from linear regressions based on data from public goods experiments. The numbers of independent observations by unit of observation (treatment) are used as weights (p values in parentheses). Stars ***, ** or * indicate that the effect of the variable is statistically significant at the 1, 5 or 10 percent level, respectively. F.aggchoice refers to aggregate feedback about choices in one's group, F.indichoice to feedback about each group member's choice, F.indipayoffs to feedback about each group member's payoff,

and F.ownpayoff to feedback about one's own payoff.

Table B6: Regression results public goods with MPCR<0.7

Dependant variable: Share of endowment contributed

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
F.indichoice	0.024				0.051*	0.053*	0.054*	0.057*
	(0.028)				(0.029)	(0.029)	(0.030)	(0.029)
F.aggchoice		0.028			0.019	0.006	0.018	0.004
		(0.037)			(0.040)	(0.040)	(0.040)	(0.040)
F.indipayoffs			-		-	-	-	-
			0.173***		0.181***	0.180***	0.182***	0.181***
			(0.052)		(0.055)	(0.055)	(0.055)	(0.055)
F.ownpayoff				-0.015	-0.009	0.012	-0.004	0.020
				(0.049)	(0.048)	(0.049)	(0.049)	(0.050)
MPCR						0.300*		0.317*
						(0.164)		(0.165)
Group size							0.003	0.004
							(0.005)	(0.005)
Constant	0.397***	0.387***	0.421***	0.421***	0.386***	0.244**	0.367***	0.210**
	(0.020)	(0.034)	(0.014)	(0.047)	(0.055)	(0.095)	(0.064)	(0.103)
Observations	104	103	104	102	101	101	101	101
R-squared	0.007	0.005	0.098	0.001	0.125	0.155	0.128	0.161

Table B6 reports results from linear regressions based on data from public goods experiments. The numbers of independent observations by unit of observation (treatment) are used as weights (p values in parentheses). ***, ** or * indicate that the effect of the variable is statistically significant at the 1, 5 or 10 percent level, respectively. F.aggchoice refers to aggregate feedback about choices in one's group, F.indichoice to feedback about each group member's choice, F.indipayoffs to feedback about each group member's payoff, and F.ownpayoff to feedback about one's own payoff.

Table B7: Regression results public goods (reduced sample)

Dependant variable: Share of endowment contributed	
F.indichoice	0.062**
	(0.029)
F.aggchoice	-0.006
	(0.040)
F.indipayoffs	-0.114**
	(0.055)
F.ownpayoff	0.036
	(0.047)
MPCR	0.450***
	(0.112)
Group size	0.004
	(0.005)
Constant	0.142*
	(0.084)
Observations	107
R-squared	0.163

Table B7 reports results from linear regressions based on data from public goods that have no treatment variation in one of the feedback variables. The numbers of independent observations by unit of observation (treatment) are used as weights (p values in parentheses). ***, ** or * indicate that the effect of the variable is statistically significant at the 1, 5 or 10 percent level, respectively. F.aggchoice refers to aggregate feedback about choices in one's group, F.indichoice to feedback about each group member's choice, F.indipayoffs to feedback about each group member's payoff, and F.ownpayoff to feedback about one's own payoff.

B.1.5 Prisoner's Dilemma

We replicate the analyses done in Mengel (2018), where they look at the role of 'risk' (to co-operate unilaterally) and 'temptation' (to defect against a co-operator) in one-shot and finite horizon repeated games of the prisoner's dilemma.

In line with Mengel(2018), we find that risk and efficiency play a significant role in one-shot games, while temptation plays a significant role in repeated games.

Table B8: Average cooperation rate regressed on variables of interest with number of stages/matches fixed effects and interactions

	One-shot/ stranger			Repeated game					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Risk	-0.255***	-0.266***	-0.260***	0.009	0.008	-0.008	-0.016	0.164	0.003
	(0.061)	(0.053)	(0.072)	(0.111)	(0.103)	(0.123)	(0.127)	(0.655)	(0.116)
Tempt	0.003	-0.093	0.116	-0.104	-0.299***	-0.087	-0.299**	0.057	-0.038
	(0.080)	(0.071)	(0.087)	(0.107)	(0.094)	(0.117)	(0.098)	(0.234)	(0.326)
Efficiency	0.291***	0.346***	0.370***	0.320**	-0.005	0.313**	-0.047	0.442	0.462***
	(0.089)	(0.082)	(0.105)	(0.114)	(0.164)	(0.123)	(0.211)	(0.447)	(0.151)
Matches/ stages			0.013					0.045	0.082
			(0.015)					(0.072)	(0.143)
Matches/stages X Risk			0.004					-0.019	-0.213
			(0.010)					(0.066)	(0.125)
Matches/stages X Tempt			-0.038***					-0.017	-0.060
			(0.011)					(0.020)	(0.279)

Table B8: (continued)

	One-shot/ stranger			Repeated game					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Matches/stages X Efficiency			-0.016					-0.022	-0.082
			(0.015)					(0.038)	(0.071)
Constant	0.370***	0.451***	0.322***	0.189	0.496**	0.191	0.521**	-0.159	0.066
	(0.084)	(0.077)	(0.102)	(0.141)	(0.166)	(0.151)	(0.187)	(0.748)	(0.213)
Observations	73	73	73	23	23	23	23	23	23
R-squared	0.377	0.607	0.513	0.353	0.822	0.363	0.824	0.516	0.467

Standard errors in parentheses. *** indicates statistical significance at 1 percent level, ** indicates statistical significance at 5 percent level, * indicates statistical significance at 10 percent level.

B.1.6 Trust Game

Table B9: Replication of regression results in Johnson and Mislin (2011)

Variable	Trust (sent fraction)			Trustworthiness (returned fraction)		
	(1)OLS	(2)OLS	(3)Robust	(4)OLS	(5)OLS	(6)Robust
Sender end	0.001	0.001	-0.001	0.000	-0.000	-0.001
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
Receiver end	-0.107	-0.105	-0.279***	-0.021	-0.014	0.000
	(0.133)	(0.116)	(0.102)	(0.125)	(0.116)	(0.089)
Anonymous	-0.289	-0.372*	-0.309	0.461	0.508	0.381**
	(0.199)	(0.191)	(0.205)	(0.292)	(0.316)	(0.166)
Rate of ret	0.141	0.082	-0.015	-0.608***	-0.548***	-0.593***
	(0.212)	(0.188)	(0.188)	(0.150)	(0.133)	(0.142)
Double blind	0.131	0.129	0.097	0.072	-0.032	-0.032
	(0.143)	(0.132)	(0.119)	(0.120)	(0.104)	(0.091)
Student	0.093	-0.128	0.215	-0.276**	-0.269**	-0.281***
	(0.131)	(0.152)	(0.132)	(0.128)	(0.109)	(0.106)
Strategy method	0.175	0.107	-0.039	0.034	0.016	0.113
	(0.138)	(0.114)	(0.105)	(0.128)	(0.121)	(0.089)
Both roles	0.213	0.206	-0.084	-0.192	-0.236*	-0.284***
	(0.208)	(0.182)	(0.124)	(0.151)	(0.132)	(0.099)
Random pay	-0.608***	-0.650***	-0.280**	0.060	0.067	-0.008
	(0.187)	(0.180)	(0.133)	(0.192)	(0.172)	(0.110)
Real person	0.341*	0.377**	0.405*			
	(0.176)	(0.181)	(0.219)			
Trust				0.316***	0.292***	0.228***
				(0.096)	(0.102)	(0.068)
Europe		- 0.110	-0.211*		0.122	0.035
		(0.137)	(0.109)		(0.131)	(0.088)
Asia		-0.496**	-0.188		0.272**	0.058
		(0.193)	(0.155)		(0.132)	(0.137)
S. America		-0.396*	-0.186		0.071	-0.082
		(0.204)	(0.222)		(0.168)	(0.168)
Africa		-0.557**	-0.317*		-0.267*	-0.220
		(0.220)	(0.192)		(0.155)	(0.147)
Observations	161	161	161	137	137	137
F-stat	3.26	3.12	2.04	7.72	10.27	4.07
R-square	0.186	0.274	0.163	0.368	0.434	0.319

Notes: Huber-white robust standard errors are reported in parenthesis for specifications (1), (2), (3), (4), (5) and (6).

*Significant at 10-percent, **Significant at 5-percent, ***Significant at 1-percent level

We replicate the analyses done in Johnson and Mislin (2011), where they look into the effect of the experimental protocols and the geographic variations on measures of trust and trustworthiness. In Table B9, models (1),(2), and (3) have Trust as the dependant variable. Random payment has a significant negative impact on trust while playing with a real person has a positive significant impact on trust. On the other hand, we see mixed results of anonymous partner and whether receiver was given an endowment. We also see robust negative significant impact of the Africa regional dummy.

Models (4), (5), and (6) uses Trustworthiness as a dependant variable. Here we see rate of return and student have significant and robust negative impact on trustworthiness while trust has significant and robust positive impact. We also see mixed results for anonymous partner, and whether subjects played both roles.

The results are a perfect replication of the the analysis in Johnson and Mislin (2011).

B.1.7 Ultimatum Game

We replicate the analyses performed in Oosterbeek et al. (2004), where they investigate differences in bargaining behavior in ultimatum games across countries.

Tables B10 and B11 represents results for offered shares and rejection rates respectively. We have ommitted the region specific dummies from the reported results here but our results are similar to those reported in Oosterbeek et al. (2004) when including the regional dummies. In line with the results found in Oosterbeek et al. (2004), we too find that the share offered is smaller for larger pie sizes and larger when a strategy method is used or when subjects are inexperienced. In addition, rejection rate is lower for larger pie sizes and for larger shares offered.

Table B10: Determinants of offered share

	(1)	(2)	(3)	(4)	(5)	(6)
Year	-0.153	-0.146	-0.167	-0.114	-0.169	-0.252
	(0.158)	(0.162)	(0.154)	(0.168)	(0.159)	(0.175)
100*Pie/ GDP per capita	-0.329**	-0.484**	-0.326*	-0.303**	-0.292**	-0.434**
	(0.161)	(0.216)	(0.164)	(0.142)	(0.144)	(0.195)
Strategy method	2.289*	3.144**	2.029	2.837**	2.325*	2.676*
	(1.232)	(1.518)	(1.312)	(1.191)	(1.307)	(1.367)
First/ single round	2.872*	3.487**	2.930*	3.735**	2.688	2.505
	(1.478)	(1.493)	(1.535)	(1.411)	(2.042)	(1.631)
Economics students	-0.464	1.147	-0.213	-0.592	-0.576	1.447
	(1.346)	(1.699)	(1.583)	(1.259)	(1.368)	(1.373)
IDV				0.006		
				(0.031)		
PDI				0.034		
				(0.040)		
AUTH					-1.562**	
					(0.743)	
TRUST						1.504

	(1)	(2)	(3)	(4)	(5)	(6)
						(8.151)
COMP						0.474
						(1.248)
GDP per capita/ 100						-0.015
						(0.010)
GINI Index						0.093
						(0.088)
Constant	40.958**	37.851**	39.055**	40.389**	39.148**	39.512**
	(3.164)	(3.596)	(4.380)	(3.170)	(5.522)	(3.931)
Observations	75	75	75	75	75	75
R-squared	0.142	0.209	0.148	0.183	0.144	0.181

Note: Robust standard deviations in parentheses; *** indicates statistical significance at 1 percent level, ** indicates statistical significance at 5 percent level, * indicates statistical significance at 10 percent level.

Table B11: Determinants of rejection rates

	(1)	(2)	(3)	(4)	(5)	(6)
Year	-0.507	-0.257	-0.236	-0.384	-0.412	-0.343
	(0.373)	(0.349)	(0.309)	(0.311)	(0.343)	(0.312)
100* Pie/ GDP per capita	-1.019***	-0.759***	-0.870***	-0.846***	-0.820***	-0.959***
	(0.239)	(0.189)	(0.204)	(0.202)	(0.196)	(0.216)
Strategy method	12.611***	12.123***	10.659***	11.244***	11.337***	11.130***
	(3.422)	(4.070)	(3.894)	(3.802)	(3.928)	(3.933)
First/single round	-2.562	-3.746	-3.816	-4.189	-4.436	-3.545
	(2.498)	(3.562)	(2.793)	(2.750)	(3.333)	(3.209)
Economics students	1.345	6.874	5.615	1.843	1.671	4.353
	(3.036)	(6.562)	(4.518)	(2.941)	(3.516)	(4.587)
IDV			-0.074			
			(0.079)			
PDI			0.042			
			(0.096)			
AUTH				-0.138		
				(1.387)		

Table B11: (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
TRUST					1.442	
					(12.650)	
COMP					0.454	
					(2.082)	
GDP per capita/100						-0.022
						(0.025)
GINI index						0.027
						(0.161)
Constant	44.070**	35.731**	40.140**	44.286**	42.401**	44.945**
	(13.802)	(15.735)	(14.044)	(14.256)	(14.321)	(13.806)
Observations	66	66	66	66	66	66
R-squared	0.341	0.426	0.315	0.290	0.291	0.300

Note: Robust standard deviations in parentheses; *** indicates statistical significance at 1 percent level, ** indicates statistical significance at 5 percent level, * indicates statistical significance at 10 percent level.