Economic Freedom and People's Views of Competition

August Torngren Wartin

LUND UNIVERSITY
School of Economics and Management

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Department of Economics

Supervised by Martin Nordin[1]

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ABSTRACT

This paper examines whether the extent to which institutions and policies are market-oriented influences people's thoughts on the competitive process. Through the use of country-level panel data, as well as a cross-sectional sensitivity analysis linking individual-level and country-level data, this paper examines the effects of general, and five different areas of, economic freedom on people's views of competition. A central result, found in both analyses, is that a small government is associated with greater support for competition, although the effect is small. Furthermore, greater regulation of the economy is associated with an increase in one measure of country-level competition endorsement. There is also a negative and quite substantial relationship between the quality of the legal system and the percentage of people regarding competition as completely undesirable. Sound money further seems to be negatively associated with the share of people expressing a very strong competition endorsement, although the effect is small. Finally, at the individual-level, free trade seems to be negatively associated with competition endorsement among households in the lowest income decile in particular. The direction of causality is argued to go from economic freedom to views of competition in at least some of these cases. Since competition is widely considered a pivotal prerequisite for any modern market economy, this study can be seen as a contribution to the broader understanding of people's support for, or opposition against, the capitalist economy in general.

Key words: Economic Freedom, Competition, Panel data, Values, Institutions.

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1 INTRODUCTION

Competition is a prevalent feature of any modern market economy. Co-workers compete for promotion, companies compete for customers and applicants compete for jobs. According to Bowles, Edwards & Roosevelt (2005, p. 54), competition refers to those ‘‘aspects of economic relationships in which voluntary exchange and choice among a large number of possible buyers and sellers play the predominant role.’’ Competition has also been defined as the ‘‘formally peaceful’’ process by which actors try to obtain advantages also wanted by other actors (see Hayward & Kemmelmeier 2007, p. 368). Although economists may debate to what extent such competition is desirable in certain areas of the economy, for instance in the education sector (see Vlachos 2012), they generally view competition as a pivotal prerequisite for a dynamic market economy (Mankiw 2012; Stiglitz 2001). For instance, Mankiw (2012) writes that ‘‘[s]ince the days of Adam Smith, economists have understood that the invisible hand of the marketplace works only if producers of goods and services vie with one another’’ and that this competition ‘‘keeps prices low and provides an incentive to improve and innovate.’’

Competition can also be contrasted with cooperation, and the dilemma of competition versus cooperation can be seen as basically a question of caring for ‘‘me’’ versus caring for ‘‘we’’ (Loch, Galunic & Schneider 2006). Viewed in this way, it can be argued that neoclassical economics occasionally overestimate the importance of competition for progress, since it is often important for people to cooperate, i.e. refrain from competing, with each other for an organization to be successful (Bowles, Edwards & Roosevelt 2005, p. 50). Nevertheless, few economists would deny the importance and desirability of competition in the modern market economy. Although companies often cooperate in various accepted ways, most societies have competition laws in order to protect against monopolization (Magnusson 2009, pp. 72-74).

While the reasons for economists’ favorable view of competition may seem quite clear, it may also be of interest to understand what predicts the views of people in general. This is especially true if one accepts the notion that ‘‘competition is the underpinning of the market economy, and the success of any market economy is contingent on the acceptance of the principles of competition’’ (Hayward & Kemmelmeier 2007, p. 365).

Institutions can be thought of as the ‘‘rules’’ of the economy. They can be either formal, like legislation, or informal, such as norms (Magnusson 2009, pp. 68-69). Is there a (causal) connection between market-oriented institutions and policies favoring competition, and people’s thoughts on competition? Since institutions and policies can be changed, this question

may be of interest to policymakers trying to increase public support for the competitive process. Examining this question may also contribute to the understanding of the reasons behind people's support for, or opposition against, the capitalist economy in general. Following Gwartney, Lawson & Hall (2012), ''economic freedom'' is defined as being present when actors are free to participate and compete in the marketplace, when their property rights are protected, and when there is great scope for choice and voluntary exchange through markets. This paper examines if the extent of economic freedom, as measured by the Fraser Institute's Economic Freedom of the World Index, affects people's views of competition.

To the author's knowledge, this paper is unique in examining the relationship between five separate areas of economic freedom and people's competition endorsement. The study estimates a fixed effects model using country-level panel data, and also includes a sensitivity analysis using OLS on a cross section of linked individual-level and country-level data. The main result, found both in the main analysis as well as the sensitivity analysis, is that a larger government is associated with a lower support for competition. Heavier regulation of the economy further seems to be associated with a greater percentage of people leaning towards or completely embracing the view that competition is good, and there is a negative and substantial relationship between the quality of the legal system and the percentage of people viewing competition as completely undesirable. Furthermore, sound money seems to be negatively associated with the share of people expressing a very strong competition endorsement, although the effect is small. Finally, at the individual level free trade seems to be negatively associated with the support for competition among individuals from low-income households in particular. The direction of causality is argued to go from economic freedom to people's views of competition in at least a few of these cases.

Section 2 presents a short overview of the earlier research on the relationship between the economy and people's values and preferences, and then a theoretical discussion about the specific relationships of interest in this paper can be found in section 3. Section 4 presents the data used in this paper, and section 5 the choice of method. In section 6 the results are presented together with a sensitivity analysis. Finally, section 7 consists of a concluding discussion. References can be found in section 8 and the Appendix in section 9**.**

2 EARLIER RESEARCH

Before proceeding with the question of why one would expect a relationship between the economic institutions and policies of a country and people's views of competition, a brief review of the research on the origins and causes of people's personalities, values and preferences[2] might be useful.

According to Loch, Galunic & Schneider (2006), human evolution has given rise to inherited ''emotional algorithms'' that direct people to compete or cooperate. The idea that people possess innate capabilities for both cooperation and competition seems consistent with the experimental evidence suggesting that most individuals may act selfishly under some economic circumstances but may be concerned about ''fair'' outcomes in others. For instance Fehr, Naef & Schmidt (2006, p. 1912) summarize the research on social preferences by concluding that ''a large majority of subjects behaves as if completely self-interested in some circumstances, such as in competitive experimental markets with standardized goods or in the final rounds of public goods experiments; while in other circumstances a large majority behaves as if strongly motivated by fairness concerns, e.g., in competitive markets with incomplete contracts or in public goods experiments with punishment opportunities.'' Bowles (2012, p. 131-145) further explores the experimental evidence and suggests a reconsideration of *Homo economicus*, the completely selfish actor often imagined in economic theory (but less common in real life).[3]

Loch, Galunic & Schneider (2006, p. 230) further argue that the innate ''emotional algorithms'' behind cooperative and competitive behavior among humans are connected to, and often work through, culture. While genetics plays a role in shaping preferences, so does learning (Bowles 1998, p. 79). A very simple example of this is the quite universal taste for fatty and sweet food, which is probably genetically determined, while the fact that Italians often prefer pasta may be better explained by culture (Bowles, Edwards & Roosevelt 2005, p. 41). And despite the important role of genes, people's personalities are not set in stone. For instance, there is evidence that personality traits can be altered, for example through interventions during early childhood or adolescence (Heckman & Kautz 2012, pp. 460-61).

[2] Bowles (1998, p. 78-79) defines ''preferences'' as ''reasons for behaviors, that is, attributes of individuals that (along with their beliefs and capacities) account for the actions they take in a given situation'', acquired both through ''genetic inheritance and learning''.

[3] Interestingly, the experimental evidence in Fehr, Naef & Schmidt (2006) shows that the behavior of economists differs from noneconomist. Maybe the presence of *Homo economicus* in economics courses plays a role in this?

Thus, individuals are formed both by genes and culture. Accordingly, the empirical evidence shows that the way people think and behave is related to the economy in which they live and act. On average, participants in cooperative production (for instance, whale hunters collaborating in large teams) seem to care more about ‘‘fairness’’ when taking part in economic experiments such as the ultimatum game, when compared to people with a background in more individualized production (Bowles, Edwards & Roosevelt 2005, pp. 43-46). There is also evidence that differences in the economic structure of societies are associated with differences in child-rearing (Barry, Child & Bacon 1959). Furthermore, a family's position in the social hierarchy and the extent of self-direction on the job seem to affect the values of parents and, in turn, their children, and there seems to be a causal influence going from occupation to personality (Kohn et al. 1986; Bowles 1998, p. 98). There is also evidence that more market integration[4] is associated with larger average offers in the dictator and ultimatum games (Henrich et al. 2010). An earlier study found similar results (summarized in Bowles, Edwards & Roosevelt 2005, pp. 43-46). Furthermore, using detailed data from the US, Francois, Fujiwara & van Ypersele (2009) found that ‘‘working in a competitive environment builds trust’’.

Bowles, Edwards & Roosevelt (2005, pp. 42, 46-47) conclude that ‘‘the economy produces more than just goods and services; it also produces people’’ and that ‘‘[e]conomic institutions shape people's preferences in part because institutions determine what kinds of individuals will be successful, and people try to copy the successful.’’ For instance, an industrial worker in a market economy must be willing to follow orders while a hunter in a forager group must be independent (Bowles, Edwards & Roosevelt 2005, p. 46). The idea that certain kinds of individuals are generally more successful is supported by the increasing body of evidence showing that certain personality traits, preferences and motivations (so called ‘‘soft skills’’) are highly valuable in the labor market (and other areas) and produce success in life (Heckman & Kautz 2012). Furthermore, there is evidence that schools reward many of the personality traits preferred by employers (Bowles, Edwards & Roosevelt 2005, pp. 47).

It is important to bear in mind that while causality may go from economic institutions to preferences and values, it may also go the opposite way: Norms, preferences and values may simultaneously influence and be influenced by economic structures. For instance, certain norms

[4] The measure of market integration used in the Henrich et al. (2010) study is the percentage of the household's calories that are not homegrown or hunted but bought in the marketplace.

and values may be helpful when establishing functioning market institutions. Bowles (1998, p. 92) writes that ‘‘where contracts are incomplete or unenforceable, trustworthiness and other norms facilitate exchange.’’ Accordingly, there is evidence suggesting that culture may affect the economy (see Guiso, Sapienza & Zingales 2006).

As already mentioned, this paper will focus on the specific relationship between the extent of market-friendly economic institutions and policies (i.e. the degree of economic freedom) on the one hand, and people’s views on whether competition is desirable on the other. The existing economic freedom literature includes many studies on the relationship between economic growth and economic freedom (see for example Heckelman 2000 and Doucouliagos 2005). But there are also studies on the relationship between economic freedom and people’s values and views. For instance, Berggren & Nilsson (2013) investigated whether economic freedom fosters tolerance, and found a positive relationship with tolerance towards homosexuals. They used central-bank independence and hyperinflation as instruments and interpreted the relationship as causal, pointing out that ‘‘[t]he time dimension in the first-difference results as well as the instrumental variable analysis for the cross-sectional results, indicate that the relationship between economic freedom and tolerance towards homosexuals can probably be regarded as causal: economic freedom indeed appears to foster tolerance’’ (Berggren & Nilsson 2013, p. 200). Berggren & Jordahl (2006) further encountered relationships between economic freedom and trust (using legal origin as an instrument). In particular, legal structure and the protection of property rights (the second area of the index also used in this paper), seemed to play a significant role in predicting trust. These results suggest that economic freedom may help explain the way people think.

Of greater interest for the purposes of this paper, Hayward & Kemmelmeier (2007) explored the many factors associated with people’s endorsement of competition. To the author’s knowledge their paper is the only existing study examining the specific relationship between economic freedom and people’s views of competition. The authors found a negative relationship between the two variables, concluding that ‘‘market freedom is associated with *lower* levels of endorsement of competition’’ (Hayward & Kemmelmeier 2007, p. 382). While certainly an interesting result, one should note that this was a cross-sectional country-level association found between a summary index of economic freedom and people’s mean endorsement of competition, without controlling for such important variables as GDP (see Hayward & Kemmelmeier 2007, p. 392, footnote 3). It is plausible that these factors could affect their result. Therefore this paper includes GDP as a control variable, as well as various

dependent variables (not only mean endorsement of competition, which could be quite misleading[5]) and further includes regression results using five separate areas of economic freedom in addition to results using a summary index. Thus, this paper will follow in the footsteps of the Hayward & Kemmelmeier (2007) study, but will focus specifically on economic freedom, and will use different methods as well as a different index of economic freedom.[6] This paper is also more detailed in the sense that it includes expanded data with a longitudinal dimension, allowing for correlation between time-invariant unobserved factors and the independent variables through fixed effects estimation (see section 5 for a more detailed discussion). It further includes additional control variables, as well as a sensitivity analysis of a cross-section of country-level economic freedom together with individual-level data.

3 THEORETICAL BACKGROUND

To summarize, there seems to be some truth to the idea that ‘‘the economy produces people’’, and there is evidence that economic freedom affects how people think. The measure of economic freedom used in this paper is the Economic Freedom of the World index from the Fraser Institute and its constituent five areas (see section 4.2 and Gwartney, Lawson & Hall 2012 for more details). This paper therefore follows Berggren & Nilsson (2013, pp. 181-187) in first discussing economic freedom in general, i.e. the summary index, and then the five separate areas of the economic freedom index. Partly because of the lack of earlier studies, the theoretical discussion is not particularly advanced or well-developed. But, as in the abovementioned studies on the relationship between economic freedom and tolerance (Berggren & Nilsson 2013), and economic freedom and trust (Berggren & Jordahl 2006), the reasoning should be fairly straightforward.

If the widespread use of markets as an allocation mechanism fosters greed and selfishness[7] (see Hirschman 1982; Berggren & Nilsson 2013, p. 181) and entails market failures, then it is possible that people might come to view the competitive process as the culprit. On the other

[5] See the discussion in section 4.1.

[6] i.e. the Fraser Institute’s Economic Freedom of the World Index (see section 4.2).

[7] This idea is in line with classical Marxist claims about the effects of capitalism, asserting that it entails ‘‘universal venality’’ and ‘‘general corruption’’, since it allows for all things, including love, to be traded for money (Marx [1847] 2008, pp. 86-87). However, as suggested by the empirical evidence reviewed in section 2, the use of markets does not seem to be associated with less generosity (see again Henrich et al. 2010; Bowles, Edwards & Roosevelt 2005, pp. 43-46). Gintis (2012) further conclude that ‘‘[t]he notion that the market economy makes people greedy, selfish, and amoral is simply fallacious’’ and that ‘‘[t]olerance, equality, and democracy have flourished in market societies and nowhere else.’’

hand, if greater use of market institutions and the market process increases personal choice, for instance between products and employers, and further promotes empathy and social bonds between companies and their customers (see Hirschman 1982, p. 1472), then people may come to view competition as a force for good.

Furthermore, if a competitive attitude is necessary for success in a market-oriented society and if ‘‘people try to copy the successful’’ (Bowles, Edwards & Roosevelt 2005, p. 47), this may lead people in market-oriented societies to embrace competition. In line with the research reviewed earlier, parents in market societies may transfer competitive values to their children and schools may further reward and foster (competitive) personality traits and attitudes necessary for success in the economy.[8]

In societies with less or no dependence on markets, the benefits of competition may not be as visible. As suggested by Berggren & Nilsson (2013, p. 184), ‘‘[i]n a setting with no or weak market institutions, where the market process is not very developed, the group depends on its own production capacity to obtain the goods and services its members need and desire. In such a closed, autarkic setting, there is a strong tendency to meddle and to control people’s lives: what they do concerns everybody.’’ In such ‘‘closed’’ societies, competition may be perceived as eroding ‘‘positive social ties’’ (Hayward & Kemmelmeier 2007, p. 364), dividing the group or network and undermining the cohesion necessary for survival. The idea that competition should be widely endorsed in market-friendly societies but not as widely endorsed in less market-oriented societies has been summarized in the following (quite blunt) way: ‘‘A belief that competition is virtuous supports and helps to justify the excesses of free-market capitalist economies but threatens the stability of more closed systems; thus, competition should come to be broadly endorsed in places with free markets and distrusted in places with closed markets’’ (Hayward & Kemmelmeier 2007, p. 367).[9]

[8] It has also been suggested that endorsing competition as a desirable and fair process could bring further psychological advantages to people in market-societies since it may reduce ‘‘existential anxiety by facilitating the belief that the world is just and fair’’ (Hayward & Kemmelmeier 2007, p. 367).

[9] This is quite consistent with the Marxist assertion that the predominant values and ideology of a (capitalist) society is shaped by the existing economic power structures, and further that these dominant values tend to reinforce existing economic relationships in a way that benefits the powerful (i.e. the capitalist class) of society (Marx [1932] 2003, pp. 109-116; Hayward & Kemmelmeier 2007, p. 366). This view has been summarized as implying that ‘‘in a society driven by free-market capitalism, competition between individuals and between products benefits the capitalist class and therefore comes to be embraced on an ideological level by the general public’’, something which is supposed to be equally true in other types of economies; ‘‘people are expected to value obedience in a slave economy, hierarchy in a feudal economy, and so forth’’ (Hayward & Kemmelmeier 2007, p. 366).

As already pointed out above, causality may go from the economy to values, but it may also go the opposite way: Norms, values and preferences may simultaneously shape and be shaped by economic structures and policies. It is plausible that a widespread endorsement of competition may facilitate the rise and stability of market-friendly institutions and policies (i.e. economic freedom). This is consistent with the alleged existence of quite stable cultural traits with historical roots influencing people's views of competition which, in turn, shape economic policies and institutions (Hayward & Kemmelmeier 2007, p. 366).

In summary, while the expected relationship might not be perfectly clear, especially in light of the findings reported by Hayward & Kemmelmeier (2007, p. 382) and discussed in the previous section, most of the abovementioned ideas lend support to the hypothesis that more overall economic freedom should be associated with greater endorsement of competition.

So far only general economic freedom has been discussed. But what about the separate areas of the economic freedom index used in this paper? Together with a short description of the five areas, this is briefly discussed below, inspired to some degree by the reasoning in Berggren & Jordahl (2006, p. 147-148) and Berggren & Nilsson (2013, p. 185-187), but (of course) adapted to the context and dependent variable(s) of this paper. Again, the discussion is not particularly comprehensive, and the net effect on people's views on competition seems unclear throughout many of these various areas, underlining the need for empirical examination and further suggesting that the previous discussion about overall economic freedom might not suffice.

- *Size of government*, measuring the degree to which the allocation of goods, services and resources goes through government (instead of through the market). A higher score means more dependence on markets and *less* dependence on government. The effect on people's competition endorsement might depend on what the government spends money on. For instance, if government spending corrects market failures and protects people against the downsides of competition (for instance through generous unemployment benefits), or makes competition ''fair'' by subsidizing education for the less well-off, people may come to view competition as basically a fair and desirable process. On the other hand, it is possible that greater government allocation of resources tend to change the nature of competition and make its possible advantages less visible. Competition for government resources may not be seen as a productive force for good in the same way as competition for, let's say, customers in a market. In societies with greater government control over resource allocation, people may tend to associate competition with trying to get first in the queue for a government subsidized apartment or with interest groups competing for government support, instead of companies competing for

customers in a market through innovation and the improvement of products. Overall, the expected net effect of the size of government is unclear.

- *Legal system & property rights*. Measures the quality of the legal system and the protection of people and their property rights. Includes components such as the impartiality of the courts and contract enforcement. When courts are impartial, property rights are protected and when contracts are enforced, it is plausible that people may come to see competition as generally a fair and productive process. If, on the other hand, the legal system is discriminatory and actors are not confident that their property rights will be protected, the possible advantages of competition (and the market economy in general) may become less visible, and people may come to see the process of competition between people or companies (and the ensuing outcome) as unfair, which may possibly affect their views on the desirability of competition in general. Thus, a positive effect is expected.

- *Sound Money*, measuring things such as the absence of inflation and the ease by which people may access foreign currency. As suggested by Berggren & Nilsson (2013, p. 186), ‘‘high and variable inflation tends to redistribute wealth in a manner which may be perceived as unfair and which may therefore cause tension in society.’’ While not totally clear, it is possible that when people feel insecure about something as fundamental as the value of money, the possible advantages of the market economy might not be as visible, which may make people less supportive of competition. If so, a positive association is expected.

- *Freedom to trade*. Measures the absence of barriers to voluntary exchange over national borders, such as tariffs, controls on the mobility of capital etc. If free trade and the associated competition from abroad[10] is perceived as threatening the jobs of natives, then this may affect people’s competition endorsement in a negative way (especially among the groups particularly affected, such as low-wage workers). On the other hand, if free trade and competition from abroad increase choice the opposite effect is possible. Or both may be possible, but for different groups of society. Thus, the net effect is unclear.

- *Regulation*, measuring the absence of regulation of credit, business and labor such as, for instance, regulations on the firing of people, bureaucratic costs and restrictions on the rates of interest. Greater regulation of the economy might strengthen people’s support for competition if it corrects market failures and protects people from the more unpleasant aspects of market competition (for instance through firing regulations) and if it limits deceptive and bad behavior

[10] For instance, ‘‘cheap imports’’ produced by foreign low-wage workers.

among market actors. But regulation might also possibly undermine people's support for competition if it tends to protect powerful interests and make competition ''unfair'' in the eyes of the public. Again, the net effect is not totally clear.

As briefly discussed in the previous section, reverse causality may arise in many (maybe all) of these cases. For instance, higher support for competition may lead to less regulation or a smaller government. Similarly, a low support for competition could lead to restrictions on imports from abroad, and so on. These possibilities are discussed later.

Finally, because of the inclusion of four different dependent variables in this paper (see section 4.1), the predicted relationship between economic freedom and competition endorsement would of course manifest itself in different ways depending on which dependent variable is used. But since the meaning of these four variables are quite straightforward (again, see section 4.1), this should not pose any problem for the reader.

4 DATA

The main study in this paper is based on country-level panel data. In other words, this is an examination of country aggregates with a time dimension, examining the various relationships between explanatory variables such as the overall degree of economic freedom in a country and various country-level measures of people's views of competition.

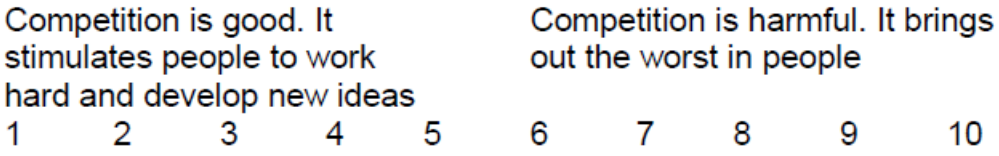
The data on the dependent variables are taken from the World Values Survey & European Values Study Group (2013). The survey data are from between 1989-1993 (denoted ''wave 1'' throughout this paper), 1994-1998 (wave 2), 1999-2002 (wave 3), and 2004-2007 (wave 4). Thus, the data from every survey wave were collected during a period of a few years. Therefore the data were ''matched'' with regard to the dependent and independent variables with the intention that for every wave, all of the data for every country on all variables should be from the same year. For instance, if data on the dependent variable for Spain in wave 3 are from the year 2000 then the data on inequality and economic freedom (see below) are also from the year 2000. However, because of a major lack of data for some years, this is not always the case. Some of the data on economic freedom are from different years than the rest of the variables, but the difference is mostly just one year.

The panel data set is unbalanced, with many countries having missing data for some time periods. It is hard to think of any obvious reason why the cause of the missing data should be correlated with the time-changing unobserved factors u_{it} (see section 5.1), and so it seems reasonable to assume no serious problem with using this unbalanced panel (Wooldridge 2013, p. 473).

4.1 DEPENDENT VARIABLES

I include four dependent variables, each providing a measure of people's views of competition. The data for all dependent variables are calculated from people's responses to the following question in the widely used World Values Survey and European Values Study:

''How would you place your views of this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between.''



Source: World Values Survey 2013

All data were collected and computed from the World Values Survey online database (World Values Survey & European Values Study Group 2013). The first dependent variable is computed by taking the mean of all responses for each country. This variable was reverse coded, so that a higher value implies more positive views of competition. One reason why the mean could be quite misleading is the fact that just calculating the mean of the responses in a particular country means that a country with a divided population (50% responding 1 and 50% responding 10 in the extreme case) would have a mean similar to that of a country with responses concentrated around 5 and 6. Thus, in order to get more information out of the data, the percentage of people responding 1 and the percentage of people responding 10 were included as additional dependent variables. These two variables should be good indicators of the share of people expressing entirely positive and entirely negative views of competition respectively. There should be almost no ambiguity when interpreting the meaning of these two variables, since the answer 1 should imply that a person thinks that there is only good things to

say about competition and the answer 10 should imply that there is only bad things to say. Finally, this study also includes as a dependent variable the percentage of people in each country responding 1, 2, 3, 4 or 5, i.e. the percentage of people ‘‘leaning’’ towards or completely agreeing with the view that ‘‘Competition is good’’.[11]

To summarize, these are the four included dependent variables:

- *Mean views of competition*. The mean response to the question in each country. Recoded so that a higher mean implies more positive views of competition.

- *Competition is mostly good.* The percentage of people responding 1, 2, 3, 4, or 5, i.e. that competition is more desirable than it is undesirable.

- *Competition is good.* The percentage of people responding that competition is as desirable as it can possibly get, i.e. giving the response 1.

- *Competition is bad.* The percentage of people responding that competition is as undesirable as it can possibly get, i.e. giving the response 10.

It is clear from just glancing at the data that people are generally quite supportive of competition, with the mean share of people responding 1, 2, 3, 4 or 5, i.e. that competition is more desirable than it is undesirable, being as high as 80.61 percent across all countries and time periods (see Table A1 in the Appendix).

4.2 INDEPENDENT VARIABLES

The explanatory variables of interest are described below:

- *Economic Freedom.* As an independent variable measuring the extent to which an economy is free from government intervention and involvement and the extent to which there is scope for free markets, this paper makes use of data from the Economic Freedom of the World index from the Fraser Institute (Fraser Institute 2012). Because of the panel data structure, the chain-linked data recommended for longitudinal studies is used (Gwartney, Lawson & Hall 2012, pp. 15, 26). Fraser Institute’s Economic Freedom index is used quite widely in research and has several advantages, of which its transparency and the non-arbitrariness of using the five areas can be taken as an example (Berggren & Nilsson 2013, pp. 187-188). It consists of forty-two

[11] Of course one could just as well have included the percentage of people leaning towards or completely agreeing with the view that ‘‘Competition is bad’’ by responding 6, 7, 8, 9 or 10.

variables, and five areas of economic freedom (for a more detailed description of the index and its five areas, see Gwartney, Lawson & Hall 2012, pp. 3-9). Each variable can take on values from 0 to 10, implying no or full economic freedom, respectively. As already discussed in greater detail in section 3, the five areas of economic freedom are:

- *Size of government*.

- *Legal system & property rights*.

- *Sound Money*.

- *Freedom to trade*.

- *Regulation*.

In addition to regressions including the summary index, regressions using these five separate areas of the summary index as independent variables are also included throughout this paper.

4.3 CONTROL VARIABLES

In addition to the main explanatory variables of interest, several control variables are included, all described below:

- *GDP per capita.* Following the discussion in Hayward & Kemmelmeier (2007, p. 369-371), it seemed reasonable to control for a possible relationship between economic development and people's endorsement of competition. It is possible that the public becomes either less or more supportive of competition as countries grow richer. The first idea suggests that people in undeveloped societies tend to care more about basic needs, and thus value competition more since it is essential for survival. According to this views, as countries become richer people tend to care more about ''soft'' things such as the environment, justice and other ''post-material'' values, and less about competition. The second idea suggests the opposite: People become more selfish and competitive following technological and economic development and the associated erosion of the traditional community. Thus, the net effect is unclear.

The measure of per capita income used in this study is PPP converted GDP per capita at 2005 constant prices from The Center for International Comparisons of Production (Heston, Summers & Aten 2012). Since the value is a positive amount measured in dollars, this study follow the rules of thumb of Wooldridge (2013, p. 185) and take the natural logarithm of this variable.

- *Net Gini*. It also seemed reasonable to control for the possibility that inequality might weaken people's support for markets and competition (if people see markets and competition as the culprits behind this inequality). As the inequality variable, the Gini index of net income inequality from the Standardized World Income Inequality Database (Solt 2009) is used.

- *Education*. When examining the effects of economic freedom on trust, Berggren & Jordahl (2006) include the share of people who has completed secondary school as a control variable. This study similarly include as a control Barro & Lee's (2010) estimates of the average years of total schooling among the population aged 15 and over. Borrowing from the discussion regarding GDP, education may lower people's support for competition if it generally makes people care more about ''soft'' values, but other effects might also be possible (for instance, if education fosters a competitive mindset among children and students).

- *Trust.* As mentioned earlier, Berggren & Jordahl (2006) found a connection between economic freedom and trust. There is a possibility that trust might also be associated with people's views of competition. For instance, if people trust each other, including the various actors of the market, then they may come to see competition as generally a force for good. If, on the other hand, they do not generally trust other people, then they may expect actors in the market to act deceptively, and thus show less support for competition. Conversely, it might also be possible that people in low trust societies react in the opposite way by forming a competitive attitude as a defense strategy against perceived deceptive and untrustworthy strangers, thus possibly showing greater support for acting competitively. Regardless of which is the most plausible net effect, it seemed reasonable to control for trust levels in society and thus this study includes a control variable measuring the percentage of the population responding that ''most people can be trusted'' to the World Values Survey question about trust, calculated from the World Values Survey & European Values Study Group (2013) online database.

4.4 TIME DUMMY VARIABLES

In order to account for aggregate changes over time that are not otherwise included in the model, time dummy variables for each survey wave are included, with wave number 1 acting as the omitted category.

5 CHOICE OF METHOD

As already mentioned, the data structure used in this paper is panel data, also called longitudinal data, i.e. a cross section of countries (in this study) with a time-series for every country (Wooldridge 2013, pp. 10-11). In other words, one examines a group of countries over a period of years. One major advantage of using panel data instead of a simple cross section is that it makes it possible to control for time-invariant characteristics that are unobserved (see the discussion below).

There are two major ways of fitting panel data models: Random effects and fixed effects regression. Since the sample in this study cannot be seen as a random sample from the whole population of countries in the world, the author follows the recommendations of Dougherty (2011, pp. 525-527) and use fixed effects estimation (instead of random effects).[12] Furthermore, in contrast to random effects (or simple OLS), fixed effects allows for the time-invariant unobserved factors affecting the dependent variable, captured by a_i in (1) below, to be correlated with the independent variables (Wooldridge 2013, pp. 477-478). Thus, it could be a good idea to use fixed effects (instead of random effects or OLS) in this study. For instance, it is quite possible that some unobserved time-constant cultural characteristic of a country (captured by a_i), which is affecting people's attitudes towards competition (the dependent variable), might be correlated with the overall degree of economic freedom (one of the main explanatory variables).

While the fixed effects method used in this paper allows for correlation between the independent variables and those unobserved factors that do not change over time, it should be noted that the idiosyncratic errors u_{it} in (1) below, i.e. the unobserved factors that *do* change over time and affect people's views on competition, should be uncorrelated with the independent variables over every time period (Wooldridge 2013, p. 467, 490). Thus, although time dummy variables are included, and while time-constant unobserved factors are eliminated (see the discussion below), it might still be possible that some omitted variable that change over time (captured by u_{it} in (1) below) affects both economic freedom and people's views of competition.

[12] For instance, there is an overrepresentation of OECD-countries in the data (see Table A3 in the Appendix).

5.1 MODEL

Consider the model,

$$y_{it} = \beta_0 + \delta_0 d2_t + \delta_1 d3_t + \delta_2 d4_t + \beta_1 x_{it1} + \beta_2 x_{it2} + ... + \beta_k x_{itk} + a_i + u_{it}, \quad (1)$$

with *k* independent variables, where *t* indicates the time period, and *i* denotes the country, and *d2*, *d3* and *d4* are time dummy variables,[13] *d2* taking on the value of 1 when *t* = 2 and 0 otherwise etc. This is often called an unobserved effects model. The dependent variable y_{it} is affected by unobserved factors, which consists of factors that do not change over time, captured by a_i, and factors that do change over time, captured by u_{it} (Wooldridge 2013, p. 443-444).

Panel data are often collected in order to allow correlation between a_i (the unobserved effect) and the independent variables (Wooldridge 2013, p. 445). One way to allow this is through the fixed effects (within) estimator, which is used in this study. The fixed effects estimator makes use of a transformation in order to eliminate a_i before estimation (Wooldridge 2013, p. 466-467).

Consider (1) above. The fixed effects (within) estimator is obtained by taking the average of equation (1) over time for every *i*, and then removing a_i by subtracting the obtained average equation from (1) for every *t*. Then a so called time-demeaned equation is obtained, and the fixed effects (within) estimator implies using pooled OLS on these time-demeaned variables. Time-demeaning is thus used on all explanatory variables and pooled OLS is used on the time-demeaned variables.

Thus, one makes use of the variation in the dependent and independent variables through time ‘‘within’’ every cross-sectional observation. Every independent variable that (for all *i*) does not change over time is removed by this fixed effects transformation, which implies that time-constant explanatory variables cannot be included. The intercept is also removed by the transformation (for more details, see Wooldridge 2013, pp. 466-468).

[13] In this study for Wave 2, 3 and 4 respectively, which is why (1) includes three such time dummy variables.

5.2 MODEL SPECIFICATION AND DISCUSSION

The models below were used in this study:

$$CompetitionViews = \beta_0 + \beta_1\, SizeofGov + \beta_2\, LegalSystem + \beta_3\, SoundMoney + \beta_4 FreedomtoTrade + \beta_5 Regulation + \beta_6 logGDPppp + \beta_7 Gini\_net + \beta_8 Trust + \beta_9 Education + \delta_1 dWave2 + \delta_2 dWave3 + \delta_3 dWave4 + a_i + u_{it}$$

$$CompetitionViews = \beta_0 + \beta_1\, EFSummary + \beta_2 logGDPppp + \beta_3 Gini\_net + \beta_4 Trust + \beta_5 Education + \delta_1 dWave2 + \delta_2 dWave3 + \delta_3 dWave4 + a_i + u_{it}$$

Below is an overview of the included variables:

- *CompetitionViews* = In the depiction above, the four different dependent variables, *Mean views of competition, Competition is mostly good, Competition is good* and *Competition is bad* (already described in section 4.1) are all simply summarized under the common name *CompetitionViews*.

- *EFSummary* = The summary index of economic freedom.

- *SizeofGov* = Size of Government.

- *LegalSystem* = Legal System & Property Rights.

- *SoundMoney* = Sound Money.

- *FreedomtoTrade* = Freedom To Trade.

- *Regulation* = Regulation.

- *logGDPppp* = The natural logarithm of PPP Converted GDP per capita at 2005 constant prices.

- *Gini_net* = The Gini index of net income inequality.

- *Trust* = The percentage of the population believing that ‘‘most people can be trusted’’.

- *Education* = Average years of total schooling among the population aged 15 and over.

- *Wave2, 3 and 4* = Dummy variables for the time periods (i.e. the four included survey waves of the World Values Survey & European Values Study Group), with time period 1 as reference category.

- a_i is the unobserved effect, while u_{it} is the idiosyncratic error.

The initial intention was to include values on the independent variables from an earlier year than the dependent variable. But since data on the various independent variables were not always available for the years before the survey data on the dependent variable, and in order to avoid losing lots of observations, this idea was dropped.

The correlations between the independent variables were studied in order to see if multicollinearity could be detected. According to the rule of thumb suggested by Westerlund (2005, p. 160), a correlation greater than 0,8 would be a problem. None of the obtained correlations were greater than 0,8.

One of the assumptions for fixed effects estimation is that the idiosyncratic errors (the time-varying errors, representing unobserved factors that change over time and affect the dependent variable) are normally distributed. If this is the case then F and t statistics have exact F and t distributions. Without this assumption, a large N and small T is required for inference (Wooldridge 2013, p. 690), which should arguably be the case in this study where there is 50 countries, N, and a small number of time periods, T.[14]

Finally, following the discussion in Wooldridge (2013, p. 691), the inference was made robust to heteroskedasticity and serial correlation through clustered robust standard errors. When working with panel data, the use of cluster robust statistics is justified if N is much larger than T, which is the case in this study where there is 50 countries but only a maximum of 4 time periods.

6 RESULTS AND ANALYSIS

6.1 PANEL DATA RESULTS

Table 1 presents the fixed effects estimates.[15] Column 2 and 3 presents the estimates using people's mean views of competition as the dependent variable, with the summary index of

[14] Thanks to Johan Blomquist, Martin Nordin and Daniel Ekeblom for their helpful comments regarding the assumption of normally distributed idiosyncratic errors in panel data fixed effects analysis.

[15] Before engaging in a more careful panel data analysis, preliminary OLS regressions were run on a cross-section of countries with the same four dependent variables and economic freedom and GDP per capita as independent variables, using data from the 2004-2007 survey wave and data on the explanatory variables from the same years. In most of these cases there was a significant relationship (at the 5% level) between economic freedom and people's views on competition, with R^2 values varying between 0.17 and 0.45. For instance, it

economic freedom as the explanatory variable of interest in column 2, and the five areas of economic freedom as the explanatory variables of interest in column 3. Similarly, column 4 and 5 presents the estimates with the percentage of people indicating that competition is mostly or completely desirable as dependent variable, and so on.

The coefficients on the summary economic freedom index are never statistically significant. Thus, no support was found for the prediction that a higher overall level of economic freedom should be associated with greater support for competition. However, when looking at the separate areas of economic freedom, several significant relationships were found.

Both mean views of competition and the percentage of people completely embracing or leaning towards the idea that competition is good (people responding 1, 2, 3, 4 or 5 to the competition question) seems to be associated with the size of government, significant at the 5% and 1% level respectively. A one point increase in the score on the size of government area of economic freedom (implying *less* government involvement) is associated with a 0,08 point increase in people's mean views on competition, and a 1.62 point increase in the percentage of people believing that competition is more desirable than it is undesirable, after controlling for the other areas of economic freedom, GDP, education, inequality, trust and aggregate time effects (and, of course, eliminating time-invariant unobserved factors). The increase in people's mean views on competition is small, which is also true regarding the increase in the percentage of people embracing or leaning towards the view that competition is good, taking into consideration that the latter percentage is often above 80% (see Table A1 in the Appendix). As discussed in section 3, if competition for government resources may not be perceived as particularly productive or benign compared to competition for customers in a market, then greater government allocation of resources could affect people's support for competition negatively. But it is also quite possible that causality may instead go from greater support for competition to a smaller government, or it may go both ways (such causality issues will be discussed in section 7).

Another finding is that a one point increase in the score on the regulation area is associated with a 1.2 point decrease in the percentage of people holding the view that competition is more desirable than it is undesirable (significant at the 5% level), again after having controlled for various other dimension of economic freedom, inequality et cetera. A higher score means less

was found that greater general economic freedom is quite substantially and significantly positively related to the percentage of people in a country leaning towards or completely agreeing with the view that competition is good. This is consistent with most of the theoretical discussion in section 3, in contrast to the results reported by Hayward & Kemmelmeier (2007). These very preliminary results are not reported here but can be obtained on request.

regulation of the economy, so this implies that less regulation, for instance a one point higher score, is associated with a decrease of around 1.2 points in the percentage of people fully embracing or leaning towards the view that competition is good. The effect is quite small, since this percentage of people is generally very big. The reason behind this association might be the fact that if regulation protects people from the possible negatives of competition and tend to correct market failures, then more regulation (i.e. a *lower* score on the regulation area) may make people more inclined to support the competitive process.

A one point increase in the score on the legal system and property rights area is associated with a 1.14 point decrease in the percentage of people viewing competition as completely undesirable (significant at the 5% level). At first glance, this may seem like a small effect, but actually the effect is quite big, since the share of people expressing very negative views of competition is almost always very small (the mean percentage of people responding 10 to the competition question across all countries and time periods is 4.14). Thus, in societies were governments manage to ensure impartial courts and enforcement of contracts, and generally succeed in protecting people and their property rights, the group of people showing a very strong dislike for competition tend to be substantially smaller, after controlling for the other four areas of economic freedom, GDP, inequality, trust, education and aggregate time changes not otherwise included in the model (as well as eliminating time-constant unobserved factors). In contrast, in societies where the government is not as good at protecting property rights and ensuring an impartial legal system, the group of people showing a strong dislike for competition tend to be larger. Thus, some support was found for the expected positive effect of high scores on the legal system and property rights area on people's competition endorsement, but only in the sense that the group of people expressing a strong dislike for competition shrinks when the score on the legal system area increases. One possible interpretation of this result is that the group of people feeling completely alienated from the economic system, and thus expressing a strong dislike for competition, may be larger when legal system is discriminatory and cheaters are rarely punished, since people may more easily interpret their precarious situation as a result of an unfair process of competition between people or companies. And conversely, this group may be smaller in societies where property rights are protected and contracts are enforced, because the competitive process may be perceived as basically fair and thus not as easily ''blamed'' as the reason for people's possible economic misfortunes.

Table 1

Panel Data Results

Dependent variable:	Mean Views of Competition	Mean Views of Competition	Competition is Mostly Good	Competition is Mostly Good	Competition is Bad	Competition is Bad	Competition is Good	Competition is Good
Economic Freedom	-0.0687038 (0.0549652)		-0.9807697 (0.8427632)		-0.0135954 (0.3842321)		-1.188926 (0.9149829)	
Size of Government		0.0785643** (0.036961)		1.621786*** (0.5858352)		-0.3738283 (0.3204108)		0.5322353 (0.8627593)
Legal System & Property Rights		0.0095224 (0.0538535)		0.1524345 (.6766537)		-1.138402** (0.520213)		-1.301078 (1.852)
Sound Money		-0.0303292 (0.0199846)		-0.3041474 (0.3361757)		0.0255826 (0.0945824)		-0.6866325* (0.3684149)
Freedom to Trade		-0.037383 (0.0415403)		-0.5946827 (0.5597061)		-0.1637256 (0.3181859)		-0.4371217 (1.029859)
Regulation		-0.0327957 (0.041246)		-1.21562** (0.5867894)		0.4275394 (0.3924927)		0.4733506 (0.9477612)
Log GDP per capita	-0.3111512 (0.2208025)	-0.2328099 (0.304052)	-4.733167* (2.755551)	-2.824291 (4.445353)	0.0723395 (1.363566)	0.6848546 (1.898335)	-3.536087 (4.757602)	-2.330724 (5.192572)
Net Gini	-0.0120044 (0.0142127)	-0.017505 (0.0154124)	-0.1457676 (0.2003359)	-0.212675 (0.2292363)	0.2031316* (0.1106228)	0.1724316 (0.106123)	-0.1347731 (0.2964029)	-0.3008407 (0.3153426)
Trust	-0.0075527 (0.0065412)	-0.0094152 (0.0066684)	-0.0609485 (0.077523)	-0.1035906 (0.0720104)	-0.0229603 (0.0435158)	-0.0302214 (0.0390136)	-0.193803 (0.1956919)	-0.2252895 (0.1954221)
Education	-0.024764 (0.0849978)	-0.0075911 (0.0810555)	-0.3228202 (1.342276)	-0.0765577 (1.273495)	-0.1900283 (0.4505262)	-0.3551641 (0.4534001)	-0.1996714 (1.389311)	-0.0077628 (1.148854)
Wave 2	-0.1813924 (0.1096968)	-0.2025564* (0.1016989)	-1.9808 (1.752521)	-2.085232 (1.488369)	-0.3714818 (0.5453823)	0.2296174 (0.698464)	-3.61164* (1.953615)	-3.804818** (1.845514)
Wave 3	-0.1870508 (0.1271964)	-0.1958397 (0.1227133)	-2.410658 (2.145336)	-2.302774 (1.908326)	0.8928725 (0.7541191)	1.341238* (0.7904542)	-1.529014 (2.130465)	-1.6019 (2.150275)
Wave 4	-0.2976936 (0.1845308)	-0.3990191** (0.1961117)	-2.547757 (3.02266)	-4.203148 (3.313934)	-0.2131511 (1.045325)	0.0086673 (1.076119)	-7.48398*** (2.710791)	-8.844452*** (2.870349)
R^2 (within)	0.3581	0.3891	0.2934	0.3574	0.1461	0.287	0.2936	0.3131
Observations	145	145	145	145	145	145	145	145
Observations per Group	2 to 4	2 to 4	2 to 4	2 to 4	2 to 4	2 to 4	2 to 4	2 to 4
Groups/Clusters	50	50	50	50	50	50	50	50

***Notes*: Cluster robust standard errors in parentheses. * denotes significance at 10%; ** significance at 5%; and *** significance at 1%.**

Finally, a one point increase in the score on the sound money area is associated with a 0.69 point decrease in the percentage of people responding that competition is very good (significant at the 10% level). This is not consistent with the theoretical discussion, and it is not clear how this result should be interpreted. It could be that a lower score on sound money, for instance because of high inflation, might make some people more competitive (if this is necessary for survival in an unstable and unpredictable economy). But, since the mean percentage of people responding 1 to the competition question is 25.6, the effect is small.

The controls are almost never significant. However, when studying the share of people believing that competition is completely undesirable, and using overall economic freedom as the explanatory variable of interest, Net Gini is significant at the 10% level, with a 1 point increase in the Net Gini being associated with a 0.2 percentage point increase in the percentage of people believing that competition is bad. Furthermore, when studying the share of people leaning towards or completely embracing the view that competition is good, and again using overall economic freedom as the explanatory variable of interest, the negative coefficient on GDP per capita is significant at the 10% level.

The coefficients on the time dummy variables are statistically significant (at various levels) in 7 out of 24 cases, and they are often nontrivial in size. The time dummy variables would capture the effects of any factors affecting people's views of competition that are changing in a similar way for the different countries between the survey waves. Overall, the reasons for the results on the time dummy variables are not totally clear, but some tentative interpretations are possible. For instance, the negative and significant coefficients on the dummy variables for wave 2 in column 3, 8 and 9 could indicate that people's support for the market economy and thus their competition endorsement generally tended to decline during 1994-1998, after having reached particularly high levels globally during the years 1989-1993 (i.e. the years of the omitted category) because of the fall of communism and apparent ''victory'' of capitalism. However, this is of course mere speculation, and the negative and significant coefficients on the dummy variables for wave 4 (in column 3, 8 and 9) may seem harder to explain.

Table 1 follow Wooldridge (2013, p. 469) in reporting the R-squared based on the within transformation, which can be thought of as the variation through time in the dependent variable explained through the time variation of the independent variables. The R-squared values vary between 0.15 and 0.39. In the cases including the five areas of economic freedom (the only cases with significant coefficients on the explanatory variables of interest), the values on the R-squared vary between 0.29 and 0.39.

6.2 SENSITIVITY ANALYSIS

The panel data analysis includes controls for some country-level variables, eliminates time-invariant unobserved factors (at the country-level) and further accounts for aggregate time changes. But since many individual-level variables are not controlled for in the panel data analysis (for instance, people's subjective health and/or employment status), a sensitivity analysis was conducted to see if the results hold when also including individual-level data. The sensitivity analysis is conducted using a cross-section of individual-level data from the 2004-2008 wave of the World Values Survey (2009), together with country-level data from the same sources as in the panel data analysis. The advantages of using panel data are lost but, because of differences in the data availability when using this data structure, there is a simultaneous gain in examining a somewhat different set of countries (see Table A3 in the Appendix) as well as the possibility to control for individual-level characteristics. The comparable results from the panel data analysis are mainly the ones from column 2, 3 (and possibly also 4 and 5) in Table 1, since the regression results reported in the other columns in Table 1 uses the percentage of people in a country with extremely negative and extremely positive views of competition as the dependent variable, and these would not be easily comparable with the results of this sensitivity analysis.

The dependent variable is the individual-level response to the competition question also used to construct the various dependent variables in the panel data analysis, taken from the 2004-2008 wave of the World Values Survey (2009) and reverse coded so that a higher value implies a more positive view of competition. In other words, after recoding the data, 10 is the most positive view and 1 is the most negative view.[16] The independent variables of interest are again the summary Economic Freedom index and the five areas of economic freedom (Fraser Institute 2012), and the country-level controls are GDP per capita (PPP) (Heston, Summers & Aten 2012) and inequality (Solt 2009). The individual-level controls, constructed from the 2004-2008 wave of the World Values Survey (2009) data set, include a female dummy variable, a dummy variable for being unemployed, a protestant dummy variable, the respondent's age, the income decile in which the respondent includes her/his household, education level, subjective

[16] Just as in the country-level panel data analysis, the survey data were collected in different years. Therefore the individual-level data were ''matched'' with country-level data from the same year. For instance, since the survey of individuals was conducted in Sweden in 2006, the data on Swedish GDP, economic freedom and inequality are also from 2006.

health, subjective happiness and trust.[17] A detailed description of all these individual-level control variables can be found in the Appendix. Furthermore, time dummy variables are added for the years included in this survey wave.[18]

Ordinary least squares (OLS) is used on a cross section of tens of thousands of individuals from many different countries. OLS picks estimates in order to minimize the sum of the squares of the residuals (Wooldridge 2013, p. 69). The data consists of groups of observations, i.e. the 50 country samples (also called ‘‘clusters’’), and it is quite likely that outcomes within the included countries (i.e. within the clusters) are correlated (Wooldridge 2013, pp. 482-483). For instance, if two Swedish individuals are randomly picked, they are likely to hold more similar beliefs than two randomly selected individuals from Sweden and Uruguay, i.e. the observations are non-independent. Neglecting this fact can lead to the underestimation of the standard errors and incorrectly make effects significant (Hayward & Kemmelmeier 2007, pp. 372-373). In order to account for this, clustered standard errors are used (see Wooldridge 2013, pp. 483), just as in the panel data analysis.[19] In the context of individual-level data collected from various states in a single year or across various years, Primo, Jacobsmeier & Milyo (2007, pp. 451-452) write that ‘‘50 clusters are more than sufficient’’ for valid inference using clustered standard errors (which also corrects for heteroskedasticity). The 50 clusters included in the data, i.e. the 50 countries, should thus be enough.[20]

The first regression results in this sensitivity analysis indicated that the freedom to trade had a negative impact on people’s support for competition, with a negative coefficient of -0.19, significant at the 10% level (not reported here). This is consistent with the signs of the comparable coefficients in the panel data analysis (although they are not significant in the panel data analysis). As mentioned earlier, it is quite possible that if low-wage workers are particularly vulnerable to the possible negatives of free trade, then a higher score on this index

[17] Initially, in order to control for the respondent’s position in the workplace hierarchy, the analysis included a dummy variable taking on the value of 1 if the respondent considers himself/herself as either an employer, foreman or supervisor on the job. This variable was included in order to control for the possibility that one’s position in the occupational hierarchy might be related to one’s values (see for instance Kohn et al. 1986). Because of a lack of data for many countries, leading to a lower number of clusters than recommended (see the later discussion), this variable was dropped.

[18] i.e. 2004. 2005, 2006, 2007 and 2008, with 2004 as the reference category.

[19] Another alternative would be to use a multi-level mixed effects regression technique to estimate the effects of various individual-level and country-level variables on the views of competition (see Steele 2008; Hayward & Kemmelmeier 2007, p. 373). The clustered error technique used in the sensitivity analysis is a straightforward alternative to multilevel models (Primo, Jacobsmeier & Milyo 2007).

[20] Through personal communication with the authors, David M. Primo (August 31, 2013) confirmed that their technique for clustering should work fine not only in the context of 50 states but also in the context of 50 countries.

area may lower the support for competition among this group in particular. In order to examine the possibility that the effect of free trade on people's competition endorsement might depend on household income, this sensitivity analysis includes an interaction between the scale of income, i.e. the income decile in which the respondent includes her/his household, and the freedom to trade (see Wooldridge 2013, pp. 190-192).

Since the sample is large, the normality assumption regarding the errors is not necessary for inference (Westerlund 2005, pp. 99-100, 134-135, 147). Studying the correlations between the independent variables did not indicate any major problem of multicollinearity. Finally, as already pointed out, the clustered standard errors allow for heteroskedasticity and ''cluster correlation'' (Wooldridge 2013, p. 483).

The results from this sensitivity analysis is reported in Table 2. Because of space limitations, the coefficients on the time dummy variables are not reported. As can be seen, the results largely confirm the results of the panel data analysis reported in column 2 and 3 (as well as 4 and 5) in Table 1. The coefficient on the summary index of economic freedom is not significant, confirming the results of the panel data analysis. Less government involvement, i.e. a higher score on the size of government area of economic freedom, is again associated with greater support for competition (significant at the 5% level).[21]

As mentioned above the sensitivity analysis includes an interaction between income scale, i.e. the income decile in which the respondent includes her/his household, and freedom to trade. The results suggest that for people in the lowest income decile (income decile 1), a one point increase in the score on the free trade area is associated with a decrease in the support for competition by 0.33 points,[22] after controlling for the various other areas of economic freedom, GDP, inequality, aggregate time changes and several individual characteristics. This is a nontrivial effect, larger than the negative effect of being a female and much larger than the positive effects of a one point increase in education or subjective health. This coefficient is significant at the 1% level when rerunning the regression as recommended by Wooldridge (2013, p. 192).[23]

[21] The coefficient on regulation is negative in this analysis, just as in the significant (but maybe not fully comparable) case of column 5 in Table 1, but it is not significant.
[22] -0.3751787 + 0.040816(1) = -0.3343627
[23] These results are not reported here, but can be obtained on request from the author.

Table 2

Cross-sectional results

Dependent variable:	Views of Competition	Views of Competition
Constant	7.697813*** (0.9732954)	8.350961*** (1.19029)
Individual-level parameters		
Age	0.0038713 (0.0017687)**	0.0046762*** (0.001569)
Education Level	0.0798935*** (0.0141061)	0.0875249*** (0.0136133)
Scale of Income	0.0154907 (0.0182849)	-0.2925685*** (0.0963151)
Female	-0.2395735*** (0.0296145)	-0.2433439*** (0.0293545)
Protestant	0.1882908** (0.0835449)	0.2387555*** (0.0787375)
Happiness	0.0672692* (0.0394954)	0.0823112** (0.0384125)
Health	0.0956213*** (0.0229851)	0.0914953*** (0.0193592)
Unemployed	-0.1432616 (0.0933548)	-.1000372 (.0797168)
Trust	-0.0339488 (0.0552922)	-.021188 (.0486949)
Country-level parameters		
Economic Freedom	0.0380405 (0.1536364)	
Size of Government		0.1376768** (0.0571184)
Legal structure & property rights		-0.0004901 (0.0878701)
Sound money		0.1103714 (0.0873707)
Freedom to trade		-0.3751787*** (0.107665)
Regulation		-0.0682194 (0.0722256)
Log GDP per capita (PPP)	-0.2053612* (0.1025035)	-0.1441157 (0.1258842)
Net Gini	-0.0031927 (0.0067022)	-0.0026766 (0.0077251)
Interaction parameters		
Freedom to trade × Scale of Income		0.040816*** (0.0125293)
R^2	0.0263	0.0327
Observations	49675	49675
Clusters	50	50

Notes: Cluster robust standard errors in parentheses. * denotes significance at 10%; ** significance at 5%; and * significance at 1%.**

On the opposite end of the income scale, a one point increase in the free trade slightly increases support for competition by 0.03 points,[24] but this effect is not even close to being significant. Finally, using the mean income scale of the sample, 4.57, the coefficient becomes -0.19 (significant at the 10% level).[25] These results are consistent with the idea that free trade and the ensuing competition from abroad cause members of low-income households in particular to view competition as less desirable.

Many of the coefficients of the individual-level controls are statistically significant, and they suggest that individuals that should presumably be better able to compete successfully (for instance healthier, more educated and happier individuals) are more supportive of competition. Causality may also go the other way, for instance from more competitive individuals to higher education, or they could both be caused by a third factor. It should further be noted that in column 3 of Table 2, because of the inclusion of the interaction term between scale of income and free trade, the coefficient on scale of income measures the effect on competition endorsement when the score on the freedom to trade area is zero, which should not be given a literal interpretation.[26]

As is often the case when studying individual-level data, the R-squared is small.[27] A small R-squared implies that there are many factors affecting people's views of competitions (the dependent variable) that one has failed to account for. But, this does not necessarily mean that there is a correlation between the explanatory variables and the factors captured by the error (Wooldridge 2013, pp. 77, 192-193). Still, in this analysis, it is certainly possible that these unobserved factors are actually correlated with the explanatory variables. Since this might be the case, it could be a good idea to interpret the results with some caution.

7 GENERAL DISCUSSION

Does economic freedom affect people's views of competition? Neither the results from the country-level panel data analysis nor the cross-sectional sensitivity analysis linking individual-level and country-level data lend any support to the idea that greater overall economic freedom, as measured by the summary index, should be associated with higher support for competition.

[24] -0.3751787 + 0.040816(10) = 0.0329813.
[25] -0.3751787 + 0.040816(4.57) = -0.18864958.
[26] The lowest score on the freedom to trade area in the sample is 5.26 (see Table A2 in the Appendix).
[27] Thanks to Martin Nordin who pointed out that the R-squared is expected to be small when studying individual-level data.

The lack of statistical significance also means that we cannot confirm the finding of Hayward & Kemmelmeier (2007) that general economic freedom is associated with lower support for competition. This suggests that the use of broad measures of economic freedom does not help us much when examining the factors influencing people's views of competition.

Examining the separate areas of economic freedom indicates that a smaller government is associated with greater support for competition, although the coefficients are not very large. This result is also confirmed in the sensitivity analysis. Furthermore, in the country-level panel data analysis less regulation of the economy is associated with a (small) decrease in the percentage of people holding the view that competition is more desirable than it is undesirable, and there is further a quite substantial negative relationship between the legal system and protection of property rights area of economic freedom and the percentage of people regarding competition as completely undesirable. There also seems to be a negative relationship between the percentage of people responding that competition is very good and the score on the sound money area, although the coefficient is small. Furthermore, when examining the cross-section in the sensitivity analysis, free trade seems to be negatively associated with competition endorsement among individuals from low-income households in particular. The coefficients on free trade are negative also in the comparable cases of the panel data analysis, but they are not significant. One could speculate whether significance would be obtained also in the panel data analysis if only low-income respondents were included.

While controlling for various variables, including aggregate time effects as well as eliminating time-invariant country-specific characteristic, the panel data method used in this paper does not offer a solution to the problem of omitted variables that change over time. For instance, the relationship between a smaller government and higher support for competition doesn't necessarily imply that a smaller government causes a higher support for competition, since it is possible that both the size of government and people's support for competition is caused by a third factor not included in the analysis. Furthermore, as mentioned earlier, lack of data made the only reasonable option not to include lagged values on the explanatory variables. There exists the possibility of reverse causation. To return to the abovementioned example, it is clearly possible that a greater support for competition causes a smaller government, and not the other way around. Or the causality may go both ways.[28] While this may be the case in some of the

[28] If there is in fact a causal relationship from larger government to a lower support for competition, this would be in line with the theoretical discussion suggesting that in societies with greater government allocation of resources, people might think of competition as a destructive force occurring mainly between interest groups or individuals trying to gain a larger share of existing subsidies, while in less government-dominated societies,

statistically significant relationships, it could probably be argued that at least a few of the findings may tentatively be interpreted as causal. When considering the negative relationship between the legal system and protection of property rights area and the percentage of people expressing very negative views of competition found in the panel data analysis, the former could probably be assumed to cause the latter. It is hard to see how an increase in the often small group viewing competition as completely undesirable would impair the legal system and the protection of property rights. It seems equally hard to think of any omitted variable that change over time that is affecting both the legal system area of economic freedom and the size of the group of people expressing very negative views of competition.

The finding that less regulation is associated with a smaller percentage of people leaning towards or completely embracing the view that competition is desirable could possibly also be interpreted as causal, since it doesn't seem very plausible that a smaller percentage of people leaning towards or completely embracing the view that competition is good would cause less regulation. But again, it is possible that both variables might be caused by some other omitted time-varying factor, although it might be hard to think of any such variable.

Furthermore, the (tentative) finding of the sensitivity analysis that freer trade is associated with lower support for competition among low-income households in particular could possibly be interpreted as causal, with the effect going from free trade to lower support for competition. It is hard to see how low support for competition might possibly lead to freer trade. But, again, this is a cross-sectional analysis and the R-squared is low (as expected when examining individual-level data), and again it is possible that some omitted factor causes both freer trade and lower support for competition.

If the causal interpretations are correct and if upholding an impartial legal system and protecting property rights leads to a substantially smaller percentage of people holding unambiguously negative beliefs about competition, then this might be one way in which policymakers can reduce anti-capitalist sentiments among (some groups) of the population and possibly further undermine the electoral support for populist parties. No other included variable, including inequality, seems to have any significant impact on the prevalence of this particular view of competition when using the five separate areas of economic freedom as the main explanatory variables of interest.[29] This suggests that failure in ensuring fair and predictable rules of the

people may think of competition as mostly occurring between companies in the marketplace and thus as a force for good.

[29] Except for one of the time dummy variables.

economic system matters more for the spread of a strong competition aversion than, for instance, unequal outcomes.[30] It would be interesting to see if this result holds in future research.

The other effects of the separate areas may seem too small to be relevant for policymakers, even if causality could actually be established. However, the sensitivity analysis tentatively suggest that if governments intend to increase support for competition among individuals at the bottom of the income latter (in particular), they should probably protect them against, or compensate them for, the possible negatives of free trade (if simply reducing free trade may not seem like a particularly desirable option).

It should be pointed out that people in different cultures might interpret the competition question in different ways. For instance, it might be that people in individualist cultures think of competition as occurring primarily between individuals but that people in collectivist cultures tend to think of competition between groups (Hayward & Kemmelmeier 2007, p. 391). If this is the case, then the dependent variables are in fact measuring quite different things in different cultures, which could then help explain why some of the theoretical discussion may seem misguided in light of the results.

Furthermore, as suggested by the interaction effect included in the sensitivity analysis, it is possible that different groups may respond in different ways to an increase in economic freedom. A more careful analysis at the individual-level, perhaps including additional interaction effects, would be a good idea for further exploration of these issues.

Another possibility is that people accept different moral standards depending on the specific ‘‘social sphere’’ of society. For instance, the same individual may simultaneously believe that selfishness and pure utility-maximization (and a purely competitive attitude) is fully acceptable and even desirable when selling his/her house to a stranger in the marketplace or applying for a job, but not when he/she is interacting with co-workers on the job or when taking care of friends and family (see Rothstein 2011, pp. 18-23). Thus, it is possible that competition might be widely accepted in some spheres of life but not in others. This seems consistent with the research reviewed earlier, suggesting that people may generally act selfishly in some types of situations but care about fairness in others (Fehr, Naef & Schmidt 2006, p. 1912). It might be that economic freedom affects people’s support for competition, but only in specific contexts

[30] However, as can be seen in column 6 of Table 1, the coefficient on inequality is significant when using the summary economic freedom index as the main explanatory variable of interest. This significance disappears when using the five separate areas.

(such as in the marketplace). Thus, a question about people's general views of competition might not suffice, and a more careful context-dependent analysis might be warranted.[31]

Finally, the use of a summary index as well as the five areas of economic freedom may be quite blunt, and it is possible that it would be more appropriate to choose the most theoretically relevant variables from the forty-two components behind the five areas (and the summary index) of economic freedom. Nevertheless, the results from the panel data analysis suggest that different areas of economic freedom may help predicting people's views of competition. And while the low R-squared values in Table 2 should of course be kept in mind, the results of the sensitivity analysis further suggest that some dimensions of economic freedom may play a role in determining people's competition endorsement even after controlling for individual characteristics. However, for the statistically significant relationships found in this paper, a more careful causal analysis is needed. Further research, for instance using more detailed data and instrumental variables, might be warranted.[32]

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[31] For instance, it's possible that individuals responding (let's say) 5 or 6 to the competition question would respond 10 in some contexts and 1 in others.

[32] Initially, the intention was to use a dummy variable indicating if there is any McDonald's restaurant operating in the country in the specific year as an instrument for economic freedom. But, as pointed out by the author's supervisor, enough countries must open their first McDonald's restaurants during the period in question in order for this idea to be meaningful. Since this was not the case, the idea was dropped.

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9 APPENDIX

9.1 INDIVIDUAL-LEVEL CONTROL VARIABLES

Below is a description of the individual-level control variables included in the sensitivity analysis. Many, but not all, of the variables are included by Hayward & Kemmelmeier (2007) when studying individual-level predictors of people's views of competition. Just as the data on the dependent variable, all of these variables are included in, or constructed from, the 2004-2008 wave of the World Values Survey (2009) data set.

- *Female.* This variable takes on the value of 1 if the respondent is a female, and 0 otherwise.

- *Age***.** This variable denotes the age of the respondent.

- *Unemployed.* This variable takes on the value of 1 if the respondent considers himself/herself unemployed, and 0 otherwise.

- *Protestant.* Following the discussion in Hayward & Kemmelmeier (2007, p. 367-369, 384) about the idea that Protestant culture is supposed to be associated with support for competition and free markets, a protestant dummy is included. This dummy variable takes on the value of 1 if the respondent considers herself/himself to be a Protestant, and 0 otherwise.

- *Scale of Income.* Following Hayward & Kemmelmeier (2007, p. 383), higher income is predicted to be related to greater endorsement of competition. Thus, an income variable is added. This variable measures in which income decile, from 1 (lowest decile) to 10 (highest decile), that the respondent includes her/his household.

- *Education Level.* This variable measures the highest educational level attained (or expected to be completed) by the respondent, from 1 (''Inadequately completed elementary education'') to 8 (''University-level education, with degree'').

- *Health.* A variable measuring the respondent's subjective state of health. This is the original variable included in the World Values Survey (2009) data set, but it has been recoded so that

a higher value implies better subjective health and thus ranges from 1 (Very poor) to 5 (Very good).

- *Happiness.* This variable measures how happy the respondent considers himself/herself, from 1 (Not at all happy) to 4 (Very happy). As the previous variable, this is the original World Values Survey (2009) variable but recoded so that a higher value implies greater happiness.

- *Trust.* Takes on the value of 1 if the respondent believes that ‘‘most people can be trusted’’.

9.2 DESCRIPTIVE STATISTICS AND INCLUDED COUNTRIES

Table A1

Panel data analysis descriptive statistics

Variable	Source	Mean	Std. dev.	Min	Max
Mean Views of Competition	World Values Survey & European Values Study Group (2013)	7.3	0.59	6	9
Competition is Mostly Good	World Values Survey & European Values Study Group (2013)	80.61	7.4	62.8	95
Competition is Good	World Values Survey & European Values Study Group (2013)	25.6	12.41	4.7	67.3
Competition is Bad	World Values Survey & European Values Study Group (2013)	4.14	3.15	0.2	15
Trust	World Values Survey & European Values Study Group (2013)	30.7	15.9	2.8	74.2
Net Gini	Solt (2009)	34.2	9.45	20.97	64.8
Log GDP per capita (PPP)	Heston, Summers & Aten (2012)	9.42	0.9	6.7	10.85
Education	Barro & Lee’s (2010)	9.06	2.11	3.44	12.9
Size of Government	Fraser Institute (2012)	5.44	1.66	1.46	8.33
Legal System & Property Rights	Fraser Institute (2012)	6.83	1.67	2.93	9.62
Sound Money	Fraser Institute (2012)	7.5	2.54	0	9.84
Freedom to Trade	Fraser Institute (2012)	7.53	1.48	2.19	9.66
Regulation	Fraser Institute (2012)	6.31	1.23	2.19	8.62
Summary Economic Freedom	Fraser Institute (2012)	6.72	1.16	3.55	8.65

Table A2

Sensitivity analysis descriptive statistics

Variable	Source	Mean	Std. dev.	Min	Max
Views of Competition	World Values Survey (2009)	7.32	2.5	1	10
Age	World Values Survey (2009)	41.15	16.37	15	98
Education Level	World Values Survey (2009)	4.4	2.34	1	8
Income Scale	World Values Survey (2009)	4.57	2.3	1	10
Female	World Values Survey (2009)	0.53	0.5	0	1
Unemployed	World Values Survey (2009)	0.1	0.3	0	1
Protestant	World Values Survey (2009)	0.2	0.4	0	1
Happiness	World Values Survey (2009)	3.09	0.73	1	4
Health	World Values Survey (2009)	3.85	0.85	1	5
Trust	World Values Survey (2009)	0.23	0.42	0	1
Log GDP per capita (PPP)	Heston, Summers & Aten (2012)	9	1.09	6.3	10.85
Net Gini	Solt (2009)	38.19	9.32	23.2	63.5
Size of Government	Fraser Institute (2012)	6.6	1	3.73	9.08
Legal System & Property Rights	Fraser Institute (2012)	6	1.31	3.3	9.07
Sound Money	Fraser Institute (2012)	8.2	1.12	5.3	9.77
Freedom to Trade	Fraser Institute (2012)	7.35	0.93	5.26	9.52
Regulation	Fraser Institute (2012)	6.8	0.86	4.5	8.86
Summary Economic Freedom	Fraser Institute (2012)	7	0.65	5.74	9.03

Table A3

List of included countries

Albania[F]	Hungary[F]	Serbia[S]
Argentina[F]	Hong Kong[S]	Slovakia[F]
Australia[F, S]	India[F, S]	Slovenia[F, S]
Austria[F]	Iran[S]	South Africa[F, S]
Bangladesh[F]	Ireland[F]	South Korea[F, S]
Belgium[F]	Indonesia[S]	Spain[F, S]
Brazil[F, S]	Italy[F, S]	Sweden[F, S]
Bulgaria[F, S]	Japan[F, S]	Switzerland[F, S]
Canada[F, S]	Latvia[F]	Taiwan[F, S]
Chile[F, S]	Lithuania[F]	Turkey[F, S]
China[F, S]	Malaysia[S]	Trinidad and Tobago[S]
Colombia[S]	Mali[S]	Ukraine[F, S]
Croatia[F]	Mexico[F, S]	United Kingdom[F, S]
Cyprys[S]	Moldova[S]	United States[F, S]
Czech Republic[F]	Morocco[F, S]	Uruguay[F, S]
Denmark[F]	Netherlands[F, S]	Venezuela[F]
Egypt[S]	New Zealand[F]	Vietnam[S]
Estonia[F]	Norway[F, S]	Zambia[S]
Ethiopia[S]	Peru[F, S]	
Finland[F, S]	Philippines[F]	
France[F, S]	Poland[F, S]	
Georgia[S]	Portugal[F]	
Germany[F, S]	Romania[F, S]	
Ghana[S]	Rwanda[S]	
Guatemala[S]	Russia[F, S]	

Notes: [F] = included in the fixed effects panel data analysis. [S] = included in the sensitivity analysis.