The Economic Origins of Authoritarian Values: Evidence from Local Trade Shocks in the United Kingdom[1]

Cameron Ballard-Rosa
University of North Carolina
cambr@email.unc.edu

Mashail Malik
Stanford University
malikm@stanford.edu

Stephanie Rickard
London School of Economics
S.Rickard@lse.ac.uk

Kenneth Scheve
Stanford University
scheve@stanford.edu

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Abstract

What explains the backlash against the liberal international order? Are its causes economic or cultural? We argue that while cultural values are central to understanding the backlash, those values are, in part, endogenous and shaped by long-run economic change. Using an original survey of the British population, we show that individuals living in regions where the local labor market was more substantially affected by imports from China have significantly more authoritarian values and that this relationship is driven by the effect of economic change on authoritarian aggression. This result is consistent with a frustration-aggression mechanism by which large economic shocks hinder individuals' expected attainment of their goals. This study provides a theoretical mechanism that helps to account for the opinions and behaviors of Leave voters in the 2016 UK referendum who in seeking the authoritarian values of order and conformity desired to reduce immigration and take back control of policymaking.

1 Introduction

The liberal international economic order is threatened by a rising backlash against globalization across much of the developed world. The successful votes for Brexit and Donald Trump in 2016, as well as the strong performance of the far-right National Front in the 2017 French presidential elections and the March 2018 election results in Italy all represent, at least in part, a revolt against globalization (ORourke, 2019).

A major question for scholars and policymakers is whether the causes of the backlash are primarily economic or cultural. At stake in this question is not only how we understand this important phenomenon but what kind of policy interventions are most likely to be effective in responding to the backlash. If the origins are primarily economic, there are a host of potential policies that could be designed to address the insecurities faced by today's workers. If the story is primarily about a reaction to secular changes in modern culture, it is less clear what interventions would make a difference.

This article argues that cultural values can be in part consequences of economic change. This suggests that simply thinking of cultural and economic explanations—whether they are competing or complementary—as disjoint accounts invites misinterpretation of the role that these forces play in explaining the backlash against globalization. For scholars and observers who have emphasized the importance of economic conflict, the endogeneity of values to economic pressure suggests an important mechanism that is often ignored in these accounts. Economic change may influence behavior by, as is usually suggested, affecting the economic policies that individuals support or by affecting their economic evaluations of politicians, but it also may shape the values that they hold and in turn the types of leaders and policies that they favor.

For scholars and observers who have emphasized the importance of values, the endogeneity of values to economic threats does not mean that values are not important. To the contrary, it is impossible to understand the backlash against globalization without their consideration. But it does suggest that in addition to the forces that socialize individuals into value orientations that are fixed from an early age, contemporary threats also influence the values that individuals hold

and in turn how they behave. This distinction suggests that even for political phenomena for which it is abundantly clear that values are motivating behavior, understanding the underlying conflict may, nonetheless, be important for explaining behavior and constructing effective policy interventions.

One set of individual values that has received renewed attention in understanding the backlash against the liberal international order is a bundle of characteristics often referred to as "authoritarian values," understood as an individual preference for order and conformity and belief that these value outcomes should be achieved by force if necessary. This definition draws directly from Altemeyer (1981) but builds on a long literature before that and resonates with many subsequent treatments of authoritarianism.

Our particular interest in authoritarianism is motivated, in part, by its role in the surprise outcome of the 2016 UK referendum on European Union membership. Fifty-two percent of UK voters chose to leave the EU in one of the most conspicuous expressions of anti-globalization sentiment seen in recent decades. Authoritarian values are one of the best predictors of how people voted in the Brexit referendum. The role of authoritarian values in the Brexit vote is illustrated by Figure 1, which presents a smoothed locally-weighted average—drawn from a nationally-representative sample of adults in the United Kingdom that was fielded by the authors—of the proportion of respondents voting Leave against a measure of authoritarian preferences which we describe in detail below. As can be seen in the figure, there is a remarkably strong bivariate association between individuals with greater authoritarian tendencies and the likelihood of voting in favor of the United Kingdom leaving the European Union: while individuals at the lowest observed values of authoritarianism have under a 20% likelihood of voting for Brexit, respondents at the highest values have over a 90% likelihood of doing so, with the figure demonstrating a clearly positive slope.

Authoritarian values correlate with anti-globalization and protectionist sentiments more generally. In the United States, Jedinger and Burger (2020) show that right-wing authoritarian values correspond with protectionist attitudes and, in fact, authoritarianism is the strongest pre-

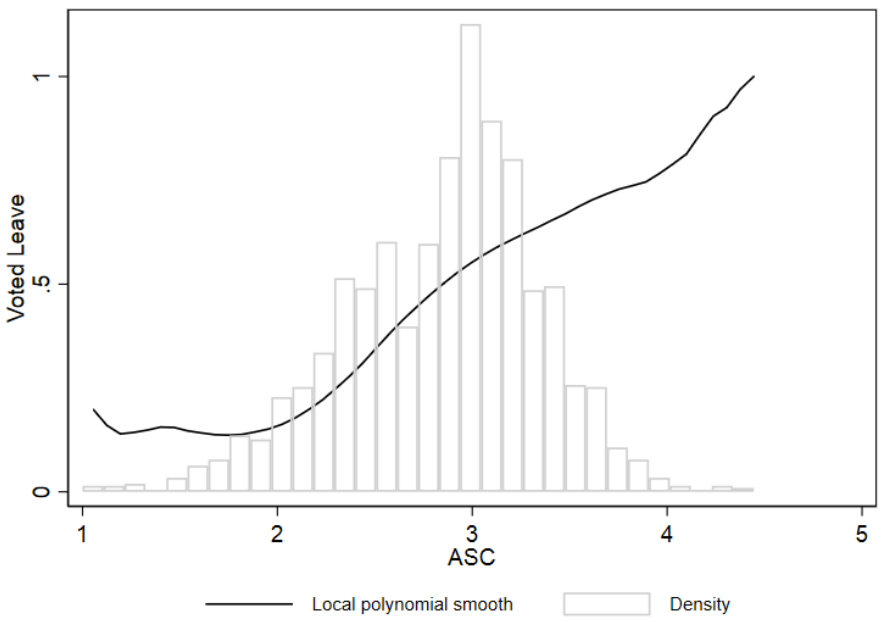


Figure 1: Smoothed locally-weighted average of the proportion of respondents voting Leave in the Brexit referendum by authoritarian values as measured by the ASC scale. Grey bars represent the empirical distribution of the ASC measure.

dictor of economic protectionism in their models. Using data from the American National Election Studies from 2000 to 2008, Johnston (2013) finds that authoritarian values are the most consistent indicator of individuals' support for import restrictions across all years and models. In Germany, Jedinger and Burger (2020) find that authoritarian values correlate with support for restrictions on foreign trade, controlling for a wide range of other factors.

To interpret these correlations, however, we need to ask what is driving authoritarian values. From the publication of Adorno et al. (1950)'s seminal *The Authoritarian Personality*, most treatments have viewed authoritarianism as a fixed characteristic formed in childhood and early adult socialization. In this article, we build on the early work of Fromm (1941), Lipset (1959), and Rokeach (1960) and argue that contemporaneous economic threats increase the adoption of authoritarian values – i.e., authoritarianism is not a fixed disposition, and is at least partly shaped by economic conditions.

We focus on one potential source of economic threat: the impact of Chinese imports on local labor market outcomes in the United Kingdom. We pursue this line of inquiry for two

reasons: first, given our interest in better explaining the backlash against globalization, there is inherent conceptual interest in understanding whether international economic competition is indeed associated with individual values that in turn help shape the backlash. Second, the focus on Chinese import shocks lends itself to a credible research design for estimating the causal effect of increased import competition from China on authoritarian values. Our research design follows Autor et al. (2013) and a growing number of studies (Feigenbaum and Hall, 2015; Dippel et al., 2015; Autor et al., 2016; Pierce and Schott, 2016; Jensen et al., 2017; Colantone and Stanig, 2018a) that use the impact of China's internal economic reforms on imports to the developed world as an exogenous economic shock to local labor markets.

Our focus on trade is not, however, because we think globalization has necessarily been the most important economic shock facing citizens in the UK or other developed democracies. Technological change, financial crises, and changing equity norms have also been sources of economic stress that likely rival or even surpass the effects of trade competition, suggesting that any relationship we uncover between economic threats and individual values may be, if anything, a lower bound on the size of such effects from other sources.[1] One important distinction that we make here is that we have in mind economic shocks that have a sustained long-term effect on local communities and especially local labor demand, like China's integration with the world economy, as opposed to less permanent business cycle changes (see also Carreras et al. (2019)). As Margalit (2019) documents in an extensive review of research on political responses to economic shocks, both can affect behavior but for the value change process that we investigate here, the focus is on long-run economic decline.

Using an original 2017 survey representative of the British population and a measure of Chinese imports to capture localized economic shock, we estimate the effect of economic threat on authoritarian values. We build off recent psychometric work that argues, following Altemeyer (1981)'s original conceptualization, that authoritarianism is actually comprised of three separate sub-dimensions: authoritarian aggression, submission, and conventionalism (Duckitt et al., 2010;

[1]Long-run economic change, especially if concentrated in geographic communities, also may affect political behavior through its impact on local property values (Adler and Ansell, 2019; Scheve and Slaughter, 2001).

Dunwoody and Funke, 2016). We adopt Dunwoody and Funke (2016)'s Aggression-Submission-Conventionalism (ASC) scale which is explicitly designed to measure these three components. We find that individuals living in regions where the local labor market was more substantially affected by imports from China have significantly more authoritarian values as measured by the ASC scale. Our estimates are robust to the inclusion of a wide variety of demographic variables and controls for immigration patterns. We also use Chinese imports into the United States to instrument for Chinese imports to the United Kingdom and again find that individuals that experienced greater negative shocks to their local labor markets had more authoritarian values. We consider the possibility that this relationship is due either to individual-level sorting prior to the rise of Chinese imports or following it. Controlling for initial regional manufacturing, and using aggregated data on population change and individual-level data identifying moving histories, we find little evidence consistent with these alternative interpretations. Moreover, we present data from the British Social Attitudes Survey that suggest there was little difference in related measures of authoritarian values between high and low shock regions before China's integration with the world economy.

We also estimate the impact of Chinese imports on each of the three components of the ASC scale: aggression, submission, and conventionalism. We find a strong effect for the authoritarian aggression measure but not submission or conventionalism. This pattern of results is consistent with the idea that the primary effect of the China shock in the UK was to thwart individuals' achievement of their expected goals as providers and consumers and this interference increased aggression through a frustration-aggression mechanism.

Our study makes three important contributions. First, we contribute to the literature on the determinants of the backlash against globalization (Norris and Inglehart, 2019; Rodrik, 2017; Iversen et al., 2018). Several studies empirically link negative economic shocks with opposition to globalization and the large body of research on embedded liberalism assumes that precisely such a connection exists. Of particular relevance to our work, Colantone and Stanig (2018a) find evidence that individuals more exposed to China's integration in the world economy were more likely to vote Leave in the UK's 2016 referendum on EU membership. They argue this relationship

emerges because of a combination of negative retrospective evaluations of incumbent politicians, skepticism about international economic integration, and antipathy towards immigrants.[2] This account is descriptive but does not explain why a trade-induced economic shock originating in China would lead to these sets of preferences. What mechanism connects Chinese imports with frustration over immigration and the desire to have more sovereignty over economic policymaking? Why would voters exposed to the China shock support a campaign that said it would sign more trade agreements not fewer?[3]

Our article provides a unified theoretical mechanism that accounts for these preferences by demonstrating the effect of the China trade shock on the adoption of more authoritarian values. These values in turn help account for the opinions and behaviors of Leave voters who in seeking order and conformity desired to reduce immigration and "take back control" of policymaking (Owen and Walter, 2017).[4] Moreover, our connection of contemporaneous economic threats with authoritarian values applies more generally for understanding how economic pressures—whatever their origin—can drive populist movements.

Second, our study contributes to the debate over the relative explanatory power of economic interests and cultural values in driving policy opinions about international economic integration. Even accounts that recognize economic interest and values may be complementary typically treat these explanatory frameworks as separate from each other. Our study suggests that this debate may be misguided. As we demonstrate, economic change can shape peoples' values and value change may be an important mechanism linking economic change with opposition to economic

[2]Similarly, Colantone and Stanig (2018b, 3) find that citizens in European regions more exposed to Chinese import competition were more likely to support rightwing nationalist and autarkic parties due to "insufficient compensation of losers, and to an overall loss of credibility of embedded liberalism" which led voters to support more protectionist and nationalist candidates.

[3]One of the arguments put forth by a group called "Economists for Brexit" was that the EU was a protectionist bloc that maintained high trade barriers. They argued that Brexit would enable Britain to cut trade barriers, sign more liberalizing trade agreements, and reap large gains by trading at world market prices. For more discussion, see, e.g., Owen and Walter (2017).

[4]Our article also provides complementary empirical evidence in that Colantone and Stanig measure trade shocks at a regional level that does not correspond directly to local labor markets, whereas our article measures the China shock at the local labor market level as in the original Autor et al. (2013) study. Primary analyses in Colantone and Stanig (2018a) are performed at the "NUTS-2" regional level, which is much larger than our regional measure constructed at the level of the "Travel to Work Area" (TTWA), the British government's official statistical measure of local labor markets. See below for more detail.

integration (Gidron and Hall, 2017; Carreras et al., 2019; Hays et al., 2019).

Finally, our results provide novel evidence linking economic threat to authoritarian values. Previous empirical work showing that economic change fosters authoritarian values has primarily been based on aggregate correlations across countries or across time within countries (Sales, 1973; Doty et al., 1991; Perrin, 2005; Norris and Inglehart, 2019) or individual-level correlations between economic characteristics and authoritarian values (Sniderman et al., 2002; Feldman, 2003; Stenner, 2005). Our study provides credible causal estimates that Chinese imports had a positive effect on authoritarian values and that this effect was due to the impact of Chinese imports on authoritarian aggression but not conventionalism or submission. This result suggests that in addition to socialization, contemporary economic threats can affect levels of authoritarian values as theorized in early work by Fromm (1941), Lipset (1959), and Rokeach (1960).

2 Economic Threat and Authoritarian Values

This article addresses whether and how negative economic shocks influence the adoption of more authoritarian values, which have been suggested as potential determinants for a number of anti-globalist and populist political movements. In this section, we first examine the importance of answering these questions in the context of the existing literature. We then present a theoretical framework for explaining the mechanisms by which economic shocks might affect authoritarian values.

2.1 Authoritarian Values and Political Behavior

Authoritarian values are defined here as an individual preference for order and conformity joined with the belief that these outcomes should be achieved by the application or threat of violence if necessary (Altemeyer, 1981). Much of the literature studying authoritarianism has focused on measuring these values and demonstrating that they are associated with political behavior and attitudes. This research has strongly suggested that authoritarian values are associated with support for extreme political parties, attitudes toward racial and ethnic minority groups, and

economic protectionism (Hetherington and Weiler, 2009; Lubbers and Scheepers, 2000; Pettigrew, 2016; Jedinger and Burger, 2019).

The interpretation of this association, however, depends on the origins of authoritarianism. The most straightforward approach is to view authoritarianism as a fixed value disposition of individuals that is the product of childhood and early-adulthood socialization. This is the view taken by one of the most important and influential early contributions to this literature—*The Authoritarian Personality*—by Theodor Adorno and colleagues (Adorno et al., 1950). They argue that authoritarian personalities are developed as a result of early childhood experiences with strict parenting. In this view, parents who threaten and dominate children foster in them a repressed hostility that is later projected on outgroups. Subsequent work later jettisoned most of the Freudian elements of Adorno et al.'s account of authoritarianism but retained the view that it was a fixed value disposition acquired early in life.

If these types of approaches are the right way to think about the origins of authoritarianism, it suggests an important conclusion for interpreting the association between authoritarian values and political behavior and attitudes. Because these values are pre-determined, it may be compelling to think about these fixed dispositions as explaining behavior and opinion. While some of the work that treats authoritarianism as the product of early socialization has emphasized the potential importance of economic, security, and social threats in this process, it is the presence of these threats early in life that matters for acquiring an authoritarian disposition. Therefore, while economic, security, and social factors may be important, it is their impact on the values formed well before the political behaviors and opinions to be explained that matter.

An alternative approach to understanding the origins of authoritarian values emphasizes the importance of contemporary economic, security, and social threats on political behavior and opinion. In one of the earliest analyses of authoritarianism, Fromm (1941) claimed that a chief factor in the development of authoritarian values is perceived insecurity. In his account, authoritarian tendencies arise as a coping mechanism to deal with the threat and uncertainty associated with rapidly changing modern capitalistic societies. Rokeach (1960) built on this perspective, emphasizing how intolerant and dogmatic views are borne out of anxiety caused by external threats

and uncertain environments. Similarly, Lipset (1959) argued that one reason authoritarianism is concentrated among poorer individuals is because they experience higher levels of economic anxiety.

This understanding of the origins of authoritarian values suggests a rather different interpretation of the correlation between authoritarianism and political behavior and opinion. If authoritarian values are in part endogenous to economic, security, and social threats, then such correlations cannot be simply interpreted as evidence that values explain these behaviors and opinions – the perceived contemporary threat is fundamental to explaining the outcome.

It should be clear that these approaches to the determinants of authoritarianism may be complementary. In our view, it seems self-evident that values are in part determined through childhood and early-adult socialization.[5] The question that seems less clear, especially given the use of authoritarianism as an explanatory variable, is whether the origins of authoritarian values include *contemporary* economic, security, and social threats. If these are even part of the story, it has substantial implications for how we understand the role of authoritarian values and environmental threats in accounting for an array of political and social attitudes and behaviors.

Evidence that contemporary threats generally and economic threats specifically foster authoritarian values has primarily been based on aggregate correlations across countries or across time within countries or individual-level correlations between economic characteristics and authoritarian values. Sales (1973) found that several archival indicators of authoritarianism (such as the size of police budgets, power themes in comic books, and the length of prison sentences for sex offenders) were significantly higher during the elevated societal threat periods of the 1930s and the late 1960s compared to the years immediately prior. Doty et al. (1991) performed a similar study using different time periods and found comparable results. Perrin (2005) studied authoritarian sentiment in letters to editors before and after 9/11 and found increases in both authoritarianism and anti-authoritarianism and thus greater value polarization. Feldman (2003) and Stenner (2005) show that individual-level variation in exposure to threat is correlated with the activation of au-

[5]Norris and Inglehart (2019) demonstrates evidence for higher levels of authoritarian values among older cohorts who came of age during periods of heightened economic and social distress.

thoritarian values among those pre-disposed to be authoritarian. In contrast, Hetherington and Suhay (2011) argue that low authoritarians are more affected by perceptions of security threats and therefore threat decreases the differential effect of authoritarianism on behavior. It is worth noting that these works tend to think of authoritarian values as a fixed characteristic of individuals and interpret their results as evidence that threats activate pre-determined values as opposed to evidence that the values themselves are influenced by contemporary threats.

A number of experimental studies have attempted to manipulate the saliency of threats to assess their influence on authoritarian values and/or political behavior (Duckitt and Fisher, 2003; Lavine et al., 2005; Richey, 2012). These experiments generally focus on physical threats such as terrorism rather than economic factors. Further, they manipulate saliency rather than the actual threat. Taken together, there is little in the way of credible causal evidence that contemporary threats cause increased authoritarianism and certainly none for economic threats specifically. The question of the origins and assignment of authoritarian values remains an open one (Lavine et al., 2005).

2.2 Economic Change and Authoritarianism

The foregoing discussion advances the claims that understanding whether authoritarianism is sensitive to economic change is consequential for understanding mass political behavior, including in our case the backlash against globalization. The remainder of this section provides a theoretical framework for why there might be such a relationship.

Altemeyer (1981)'s three-component definition of authoritarianism provides a natural starting point for identifying how economic shocks might influence the adoption of these values. Altemeyer argued that there were three components to authoritarianism: aggression, submission, and conventionalism. Negative economic shocks may have varied effects on these three facets of authoritarianism, as we outline below.

First, a shock may be experienced as a problem that needs fixing and induce individuals to want to submit to a strong leader who is going to solve the problem. This suggests how a negative

economic shock may affect the submission component of authoritarianism. Alberto Fujimori's 1990 campaign for President of Peru and subsequent early rule provides a familiar example of this phenomenon. In the context of a deep economic crisis, Fujimori ran on an ambiguous economic platform that promised an end to hyperinflation and high unemployment without the painful shock therapy advocated by the leading establishment candidate in the election. His background was that of an engineer and mathematician, non-politician, and non-European child of immigrants and his campaign capitalized on these characteristics by portraying him as a problem-solver who could be trusted by the people even if it was unclear what his solutions would be. Facing established candidate parties on the left which seemed to have no hope of solutions and parties on the right who were promising shock therapy, voters overwhelming opted to place their faith in Fujimori. Obviously, whether the economic crisis led to authoritarian submission in this case cannot be established in a narrative but this account of Fujimori's campaign illustrates one possible mechanism through which negative economic shocks might increase the adoption of authoritarian values.

Second, a shock may force comparisons between an unsatisfactory present and an idealized past and push individuals to value convention and how things used to be. An exemplar of this phenomenon can be found in the rhetoric of the National Front and Marine Le Pen in France. An important comparison informs the National Front's economic analysis—the unsatisfactory economic performance of the last several decades compared to a somewhat mythical thirty years of high growth following World War II. The National Front's critique of the EU, globalization, and much more is closely tied to a desire to return France, its economy and its culture, to those post-war years. It is an open question whether negative economic events push individuals to value convention more or that it is simply among those with these values that the National Front's analysis is more likely to resonate. That said, it illustrates well the idea that economic change may make convention and tradition more attractive and lead to greater authoritarianism.

Third, an economic shock can hinder individuals' expected attainment of their goals as economic providers and consumers and this interference increases generalized aggression through a frustration-aggression mechanism (Dollard et al., 1939; Berkowitz, 1989). One of the key men highlighted in Lane (1962)'s classic qualitative analysis of the political beliefs of the American

"common man" is Ferrera. As described by Lane, Ferrera was a star high school athlete who attended college for two years and who had high expectations for himself (Lane, 1962, pp. 104-108, 181-182). Interviewed in his late thirties, Ferrera had drifted from one job to the next, had recently been unemployed, was currently a shoe salesman, and had not found success in any of his career choices. Lane emphasizes Ferrera's profound sense of disappointment "in himself, in his status in the eyes of the world" (Lane, 1962, p. 107). Based on the use of a ten-item authoritarianism scale similar to the "F-scale," Ferrera is coded as one of the most authoritarian men in Lane's sample (Lane, 1962, p. 185) and the discussion reveals a man who exemplifies authoritarian values and the political ideologies associated with such values. While Lane has his own interpretation of the connection between Ferrera's disappointments and his political beliefs and attitudes, it is a connection that resonates with the frustration-aggression hypothesis. It is not so much low wages or poverty or unemployment that lead to authoritarian aggression but the process of expecting certain roles and status in the family and community through one's job and role as a provider and those expectations being blocked that translates to authoritarian aggression.

We argue that each of these mechanisms are logically plausible and may complement one another in describing how authoritarian values respond to economic threats. The empirical question then is whether there is evidence that economic shocks cause more authoritarian values and if so which of these mechanisms provides the most plausible account.

3 Research Design

The empirical goal of this article is to estimate the effect of one type of economic threat on individual authoritarian values. A body of recent work demonstrates that across a number of developed economies rising Chinese import competition has been associated with a host of negative consequences for local labor markets, including reduction in manufacturing employment, lower wages, and worse health outcomes. Given this work, our research strategy is to focus on the impact of China's integration with the world economy on authoritarian values in Great Britain. Our general approach is to follow a now commonly-employed identification strategy originally

developed by Autor et al. (2013) for estimating the effect of Chinese import shocks on labor market outcomes in the United States. In addition to obviously being applied to Great Britain, our analysis differs from theirs in that the dependent variable is authoritarian values and is measured at the individual level by employing an original survey.

We select Great Britain as our case for two reasons. First, one of the most conspicuous expressions of anti-globalization sentiment occurred in the United Kingdom in 2016 when fifty-two percent of voters chose to leave the European Union. Authoritarian values seem to have played a role in the referendum. Figure 1 in the introduction and Table A-5 in the Appendix show that authoritarian values are highly predictive of voting leave in the Brexit referendum.[6] Given the importance of Brexit to international economic and political relations, it is essential to understand whether the relationship between authoritarianism and political behavior should be seen as the result of long standing, socialized values or that an important part of the story is the endogenous adoption of authoritarian values in reaction to economic threat.

Second, Britain's exposure to the world economy and outstanding data provide an opportunity for a convincing research design for estimating the relationship between economic shocks from trade with China and authoritarian values. We believe our findings from the UK are likely to generalize to other advanced democracies. Because of its membership in the European Union (EU) during the period under investigation, and the EU's common external tariff, the UK is equally open to foreign imports as other EU member-states; British citizens are unlikely to encounter abnormal shares of imports relative to what other Europeans experienced. Furthermore, there is no reason to think that UK citizens' values are, on average, more or less changeable than those of citizens of other rich, economically developed countries. Nevertheless, empirically assessing the generalizability of the results of this study is an important task for future research.

3.1 Data

Our empirical approach requires individual-level survey data that measure authoritarianism. Although there are existing surveys that contain certain measures of authoritarian values, we fielded

[6]Based on our original national survey described in more detail below.

an original survey so that we could select our preferred multidimensional measures of individual characteristics and most importantly identify the geographic location of each respondent in a way that would allow us to assign him or her to local labor markets as defined by the UK's Office for National Statistics. This assignment is critical for determining the extent to which each individual in our survey faced a labor market that had been substantially impacted by Chinese imports.

Our nationally-representative survey of 1,913 UK adults was implemented by YouGov in July 2017 using matched sampling.[7] As reported in the Appendix, the demographic characteristics of our sample matched closely the overall distribution of such characteristics in the UK population. It is, however, not possible to collect the data necessary to measure local import shocks for Northern Ireland (see Appendix for discussion). Consequently, the 57 respondents from Northern Ireland are excluded from our analyses.

The main dependent variable in our analysis is a combined index of measures designed to capture authoritarian *aggression, submission*, and *conventionalism (ASC)*. While past scholarship on authoritarianism is replete with multiple suggestions of potential measurement approaches, we follow what we regard as current best practices suggested by recent research in the psychometric literature emphasizing the importance of separating out each of the three subdimensions of authoritarianism identified by Altemeyer (1981). Specifically, we follow the design proposed in Dunwoody and Funke (2016), who develop three sets of six questions for each sub-dimension of authoritarianism. Example questions for the aggression dimension included statements like "It is necessary to use force against people who are a threat to authority" and "Strong punishments are necessary to send a message;" questions for the submission dimension included "Our leaders know what is best for us" and "We should believe what our leaders tell us;" questions for the conventionalism dimension included "People should respect social norms" and "Traditions are the foundation of a healthy society and should be respected." The order of the statements was randomized, and the entire battery of questions is provided in the Appendix. For each statement, there was a five-point scale from "strongly disagree" to "strongly agree;" we take the arithmetic

[7]The survey was reviewed by the Institional Review Boards at Stanford University and the University of North Carolina.

mean of each subset to generate measures of *average aggression*, *average submission*, and *average conventionalism* and subsequently take the average of these three components to generate our baseline outcome *ASC*.[8]

In order to implement Autor et al. (2013)'s empirical strategy in the British context, it is first necessary to identify local labor markets that correspond to the commuting zones that they use for the United States. The UK's Office for National Statistics employs a similar methodology for defining Travel to Work Areas (TTWAs) based on actual commuting patterns (see Appendix for further description). We employ 1991 TTWAs and match each respondent's 2016 residence to a 1991 TTWA; the use of 1991 TTWAs is due to the fact that this is the baseline year that we use for measuring changes in Chinese imports by industry.[9] The matching process involved asking respondents to report their outward postcodes and then matching each postcode to a TTWA (or multiple TTWAs) using the boundary files for each provided by the Office for National Statistics (see Appendix for further description).

We then constructed measures of local labor market exposure to import competition equal to the change in Chinese import exposure per worker in a TTWA with imports weighted in the TTWA by its share of national employment in a given industry (Autor et al., 2013). More precisely, we define

$$\Delta IPW_{uit} = \sum_j \frac{L_{ijt}}{L_{ujt}} \frac{\Delta M_{ucjt}}{L_{it}}$$

where L refers to the size of a workforce, M refers to imports, u refers to United Kingdom, c refers to China, i indexes TTWA regions, t indexes year, and j indexes 4-digit UK 1992 SIC industries. In essence, ΔIPW captures regional-specific exposure to rising Chinese imports in particular sectors, weighted by the importance of employment in that sector in a particular region. For example, if the shoe industry saw a large surge in imports from China, regions of the UK in which

[8]The overall distribution of these data is described in Figure A-2. We also examine each of these sub-indices individually below. Descriptive statistics for each sub-component, and the correlation matrix across the sub-components, are presented in Appendix Tables A-13 and A-14.

[9]Note that, when we instead contruct our shock measure over time periods beginning in the year 2000, we likewise employ 2001 TTWAs to maintain consistency. As reported in Appendix Table A-9, our primary results of interest are not affected by this alternative coding choice.

a greater fraction of employment is found in the shoe sector would record greater Chinese import competition, as captured by higher values of ΔIPW. The employment data by industry and TTWA come from the *ONS Business Register and Employment Survey* (see Appendix for more details). The import data by sector come from the U.N. Comtrade database.[10] For our baseline specifications, we calculate change in import exposure for the time period 1991-2007 which matches the full period used in Autor et al. (2013).[11] Visual inspection of the distribution of the shock data indicated that it was log-normally distributed; therefore, for our primary specifications we take the natural log of these data and use *ln* Δ *IPW (1991-2007)* as our main independent variable.[12]

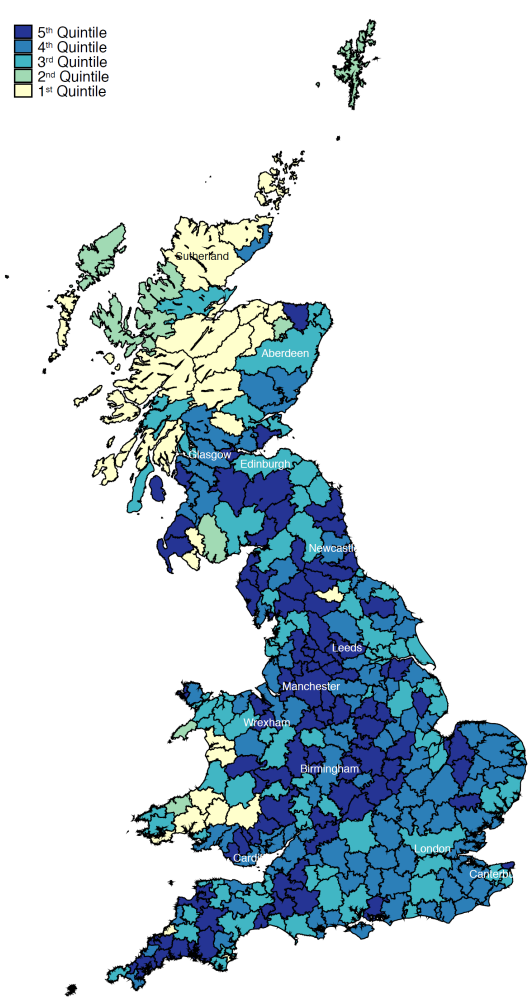
Figure 2 in Panel (a) maps the values of Δ *IPW (1991-2007)* by quintiles across Great Britain. The geographic distribution of the China trade shock matches expectations with higher shock TTWAs in cities in northwest England such as Manchester and lower shock TTWAs in the southeast. The figure does suggest some geographic clustering. Panel (b) provides a picture of one of our strategies for handling how such clustering might affect our empirical estimates by plotting the residuals from a linear regression of the China trade shock on initial manufacturing employment in 1991. This suggests that—controlling for the extent of manufacturing—there are high and low shock TTWAs within many regions across the UK.

As Autor et al. (2013) argue, the primary determinant of the surge in Chinese imports into western economies was internal reform to the Chinese economy. These reforms were taken for domestic economic and political reasons, exogenous to local economic and political conditions in western countries. That said, it is possible that trade policies in the EU, which could be influenced by domestic economic and political conditions in Great Britain, affect the extent of

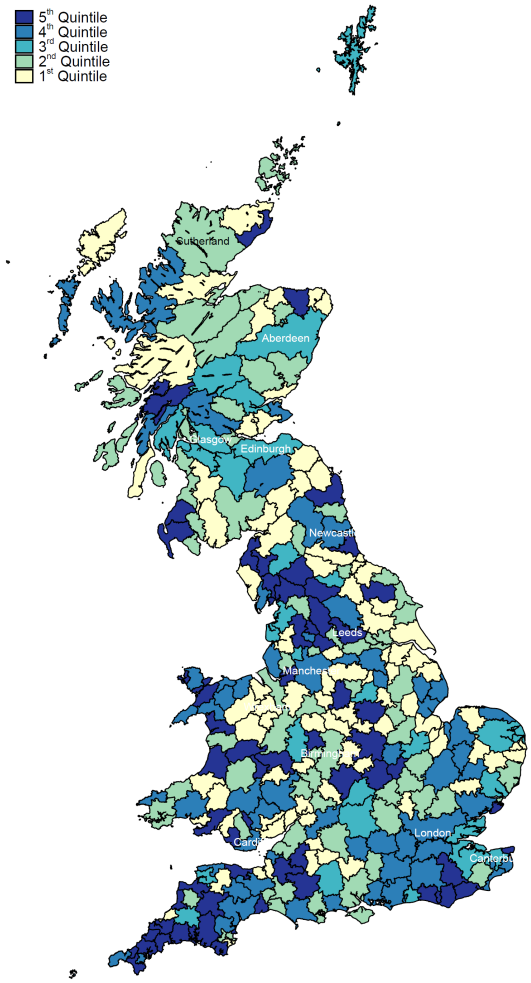
[10] Accessible at `https://comtrade.un.org/data/`.

[11] In the Appendix we report results for import shocks constructed over two other time periods (1991-2015, 2000-2007) to address the possibility that differential effects of Chinese import competition could have arisen only following the Great Recession of 2008-2011, as well as to address the possibility that import competition with China could have become particularly pronounced following Chinese accession to the WTO in 2000. As reported in Table A-9, our primary findings are not affected by consideration of alternative time frames.

[12] The full distribution of this measure is provided in Figure A-3. As reported in Table A-8, our main findings of interest are unchanged if we instead use a simple dummy for above-average levels of *IPW*, or employ the untransformed measure directly.



(a) *Change in Chinese Import Penetration 1991-2007*



(b) *Change in Chinese Import Penetration 1991-2007, Controlling for Initial Manufacturing*

Figure 2: Trade Shock Exposure Across Travel to Work Areas in the United Kingdom

Chinese imports in some sectors and, therefore, the shock to local economies. We think this concern is likely less important in the context of our article than in the original Autor et al. (2013) study because our dependent variable is individual authoritarianism and trade policy for the UK is made at the EU level. Nonetheless, we follow their research design and construct an instrumental variable analogous to the one they propose for their US analysis. In the Autor et al. (2013) paper, they instrument for their import penetration measure with an equivalent measure based on Chinese imports to other wealthy economies. We construct the following instrument based on Chinese imports to the United States:[13]

$$\Delta IPW_{ait} \quad = \quad \sum_{j} \frac{L_{ijt}}{L_{ujt}} \frac{\Delta M_{acjt}}{L_{it}}$$

where a refers to United States (America), c refers to China, i indexes TTWA regions, t indexes year, and j indexes 4-digit UK 1992 SIC industries. Δ *IPW (US, 1991-2007)* is equal to the change in Chinese imports to the United States per worker over this time period, weighted by each region's share of national employment by sector.[14]

In addition to *ln* Δ *IPW (1991-2007)*, we constructed a number of control variables that measure respondent socio-demographic and political characteristics and exposure to immigration. *Female* is equal to 1 if the respondent self-identifies as female and 0 otherwise. *Age* is a continuous count of respondent age in years.[15] *Married* is equal to 1 if the individual is currently married and 0 otherwise. *Higher Certification* and *University Degree* are dichotomous indicator variables indicating whether or not the respondent has earned a higher certification or professional qualification (such as teaching or nursing) or a university degree, respectively.[16] The excluded category

[13]We do not use a larger set of comparable "other" countries because the likely other comparable cases, for example France, are in the EU customs union with the UK and therefore have common trade policies.

[14]In addition to using Chinese imports to other countries in the construction of their instrumental variable, Autor et al. also lag the regional and industry employment weights by ten years. Here, we continue to use the employment data for 1991 due to data availability. Autor et al. were concerned about the possibility that beginning period employment may have already adjusted in anticipation of China's subsequent integration with the world economy and that this could induce an endogenous relationship between their dependent variables—primarily characteristics of the labor market such as levels of manufacturing employment—and Chinese import penetration. This seems much less of a concern for our dependent variable.

[15]We find very similar results if we include a quadratic term for age, or instead construct a series of dummies for different age ranges.

[16]Individuals were coded as a 1 for *Higher Certification* if they had completed any of the following: GCE A level

therefore is individuals who have achieved the GCE O-level—approximately equivalent to a high school diploma in the US—or less. To measure exposure to immigration, we measure the levels and changes in the non-UK born population in the local authority district in which the respondent lived. Local authority districts (LAD) are sub-national units that reflect local governmental boundaries. *% Non-UK Born* is equal to the percent of the population in the local authority district not born in the UK in 2015. Δ *% Non-UK Born* is equal to the percentage point change in this quantity from 2001 to 2015.[17]

3.2 Econometric Model

We model authoritarian values as a function of exposure to trade shocks from China's integration into the world economy, individual socio-demographic characteristics, and exposure to immigration. Our baseline model is:

$$ASC_r = \beta_0 + \beta_1 * ln\Delta IPW_i + \mathbf{X_r}\psi + \mathbf{Z_k}\phi + \epsilon_i$$

where r indexes individual respondents, i indexes TTWA regions, and k indexes LAD regions. We initially estimate this equation by ordinary least squares and report standard errors clustered on TTWA regions.[18] These estimates for identifying the effect of trade shocks on authoritarian values rely on the usual assumptions for a shift-share or Bartik instrument. In this case, the national level shift in trade is due to domestically driven economic reform in China. It is important to keep in mind that the identification assumptions would be violated if the initial shares of labor concentration across industries are correlated with some other factor influencing authoritarian values. We implement a number of conditioning strategies such as controlling for initial levels of

or Higher Certificate, Scottish Higher Certificate, Nursing qualification, or Teaching qualification (not degree). Individuals were coded as a 1 for *University Degree* if they had completed any of the following: University diploma, University or CNAA first degree, University or CNAA higher degree, or other technical, professional or higher degree.

[17]The source for these data are the UK Census (Office of Population Censuses and Surveys 1997; Office for National Statistics 2011; Office for National Statistics, National Records of Scotland 2016).

[18]All reported regression results employ population weights, although we find nearly identical results when using unweighted regressions. See Appendix for more information about the sample and population weights.

manufacturing to further strengthen the plausibility of this assumption.

As discussed above, we also estimate this equation using *ln* Δ *IPW (US, 1991-2007)* to instrument for *ln* Δ *IPW (1991-2007)* to address the possibility that the shift is in part endogenously determined by demand effects. The theory supporting the relevance of the instrument is that reforms in China led to a surge in its imports in many wealthy countries around the world and the US measure captures this general effect. For the instrument to be valid, we must also assume that changes in Chinese imports to the United States only have an effect on British authoritarianism through their impact on Chinese imports into Great Britain. This could be violated if, for example, British citizens paid attention to and responded to changes in the US economy directly. Given the low levels of information that citizens have about political and economic trends in other countries, this seems unlikely. It is important to emphasize that this instrument addresses the possibility of the national-level shift being endogenous but continues to rely on the same assumptions as the OLS estimates about the exogeneity of the initial shares of labor concentration across industries.

It should be clear that our empirical strategy relies on regressing contemporary levels of authoritarian values on changes in exposure to Chinese imports. Measuring levels of authoritarian values rather than changes is necessary to have a compelling measure of these values and one collected in our original survey that allows us to assign respondents geographically to local labor markets. But it is important to keep in mind that the research design does not allow us, as in Autor et al. (2013), to control for time-constant factors by studying changes in the outcome variable or including labor market (TTWA) specific fixed effects. As we present our results in the following sections, we will also consider evidence suggesting the absence of pre-existing differences of alternative indicators of authoritarian values across local labor markets as well as a variety of conditioning strategies that help bolster the assumptions of our analysis.

4 Estimates of the Effect of Chinese Import Shocks on Authoritarian Values

Table 1 reports our OLS estimates for the *ln* Δ *IPW (1991-2007)* measure of local Chinese import shocks. Across all specifications, the estimates for *ln* Δ *IPW (1991-2007)* are positive and statistically significant. Larger import shocks to the local labor market in which an individual lives are positively correlated with greater authoritarian values, and the magnitude of this relationship is substantively important. For example, using the estimate in column 1 of Table 1, a two standard deviation increase in *ln* Δ *IPW (1991-2007)* is associated with approximately one-third standard deviation increase in *ASC*. We believe that this is an effect of substantial political importance, especially when considered in light of the relationship between authoritarianism and voting for Brexit. Substituting in this one-third of a standard deviation increase in *ASC* into model 2 from Table A-5 predicting voting Leave suggests an increase of approximately four percentage points in support for Brexit – enough to have swung the outcome of a tightly fought election like the referendum on leaving the EU. We also emphasize that the shock affects the demand for workers generally in the local labor market, not just those employed directly in exposed manufacturing sectors and therefore the values of both those in and out of the impacted industries. Section 5 presents evidence supporting this interpretation. Estimates for the socio-demographic and political variables are generally consistent with correlations reported in previous research: older, less-educated and married respondents express greater authoritarianism on average.[19]

Given that our theoretical framework emphasizes how threat leads individuals to seek greater order and adopt authoritarian values, it is important to control for other types of threat that may have coincided with economic change due to globalization. Most saliently, Britain received significant numbers of immigrants from Europe and the rest of the world over this period: total net migration to the UK increased by 654 percent from 1991 to 2015. Net migration rose from 44,000 in 1991 to 332,000 in 2015 (ONS 2016). Previous work has argued that immigrants,

[19]Prior work on authoritarianism has often argued that such values may only be malleable during an individual's "formative" youth. In Appendix E we report results of an interaction of *ln* Δ *IPW (1991-2007)* with respondent age that suggest, if anything, that the effect of the economic shock is largest for middle-aged respondents.

especially those from different language, ethnic, or racial groups, are often perceived as social, political, and in some contexts economic threats that lead order-seeking individuals to adopt more authoritarian values. We investigate this possibility by adding *% Non-UK Born* and Δ *% Non-UK Born* measuring the level and changes in the foreign born population in a local area district to our baseline specification. As reported in Table 1, the estimates for these coefficients are small and statistically insignificant; adding these measures has no impact on the magnitude of our estimates for *ln* Δ *IPW (1991-2007)*. We emphasize this latter point but also note that our analysis is not designed to determine the possible effect of immigration on authoritarian values and caution against focusing on our null results for the immigration coefficients.

There are several alternative covariates that we do not include in our baseline specifications for fears of introducing post-treatment bias. However, we demonstrate here the robustness of our general results to their inclusion. In Appendix Tables A-6 and A-7, we introduce measures for *Personal Income*,[20] local *Inequality*, *Right Ideology*,[21] as well as dummies for whether respondents identified as *Working Class* or *Middle Class*. The results reported in Tables A-6 and A-7 indicate being on the right of the ideological spectrum is positively correlated with authoritarian values but including ideology has little impact on our estimates for *ln* Δ *IPW (1991-2007)*. This specification only makes sense if one views political ideology as predetermined. It seems more likely that it is, in part, a consequence of changing interests and values like authoritarianism. Somewhat surprisingly, once a control for ideology is included, we find that female respondents score slightly higher on authoritarian values.[22] Most importantly, when introducing these additional controls either singly or jointly, we still continue to find a strongly significant relationship between *ln* Δ *IPW (1991-2007)* and *ASC*.[23]

[20] These are coded by dividing the sample population into income terciles to generate measures of *Lower income* for those respondents who report personal annual income less than £10,000, and *Upper income* for respondents who report personal annual income greater than £20,000.

[21] *Right Ideology* is on an 11-point left-right scale ranging from 0 to 10. The exact wording of the questions was "In politics people sometimes talk of 'left' and 'right.' Where would you place yourself on this scale, where 0 means the left and 10 means the right?".

[22] While local inequality and self-identification as middle class are correlated with ASC when introduced individually, these results do not survive inclusion in the full set of additional robustness covariates.

[23] An additional alternative account for the success of the Brexit campaign revolves around the vote as a fundamentally "anti-elite" act of defiance. While plausible as an explanation for individual behavior, we do not believe that this phenomenon is likely to be driving our main results. As reported in Appendix Table A-10, we do not find

Table 1: Chinese Import Shocks and Authoritarian Values in the United Kingdom, OLS Estimates, 1991-2007.

VARIABLES	(1) ASC	(2) ASC	(3) ASC
ln Δ IPW (1991-2007)	0.082***	0.068***	0.067***
	(0.025)	(0.021)	(0.023)
Female		0.027	0.027
		(0.029)	(0.028)
Age		0.005***	0.005***
		(0.001)	(0.001)
Higher Cert.		-0.106***	-0.106***
		(0.039)	(0.039)
University		-0.235***	-0.233***
		(0.032)	(0.031)
Married		0.104***	0.103***
		(0.023)	(0.024)
% non-UK born			-0.001
			(0.001)
Δ % non-UK born			0.002
			(0.002)
Observations	1,856	1,793	1,793
R-squared	0.01	0.13	0.13
TTWAs	241	239	239

*** p<0.01, ** p<0.05, * p<0.1

The table reports the results of OLS regressions of the variable *ASC* on *ln Δ IPW (1991-2007)* and various control variables. The table reports OLS coefficient estimates and robust standard errors clustered by TTWA in parentheses.

Our OLS estimates suggest a strong positive partial correlation between local import shocks and authoritarian values. As discussed above, one concern about giving these estimates a causal interpretation is that the magnitude of Chinese imports are a function of both changes in the Chinese economy and demand factors in the UK. These demand factors in turn may be related to or even driven by differences in authoritarian values, although the direction of these potential biases is unclear. For example, places with greater authoritarianism might successfully lobby for more trade protection which would lead to lower imports or such places might be less likely to adopt new technologies which allow firms in relatively wealthy countries like the UK to compete with Chinese firms which would lead to higher imports in these regions.

Our IV estimates reported in Table 2 address this problem by instrumenting for Chinese imports by industry into the UK with Chinese imports by industry into the United States. The first stage results are reported in columns 1, 3 and 5 and indicate our instrument is highly correlated with our potentially endogenous regressor with an F-statistic for a test of weak excluded instruments of over 1300 in all cases. The IV estimates for our key coefficient of interest, *ln* Δ *IPW (1991-2007)*, remain positive and statistically significant, with hardly any variation in effect magnitude across the estimation approaches.

5 Interpretation

5.1 Dissaggregating ASC into sub-inidices

To this point, we have provided evidence that regional shocks from expanded import competition with China are associated with higher authoritarian values on average. Yet, drawing on recent psychometric work, our discussion above emphasized that several theoretical accounts of authoritarianism have suggested that there are three important sub-dimensions of this bundle of values: authoritarian aggression, submission, and conventionalism. As noted previously, there are reasons to suspect that any of these three dimensions could be at play in a linkage between economic

that our import competition measure is systematically correlated with a question on whether public officials "care about people like me" and our main estimates are robust to including this measure in our baseline specifications.

Table 2: Chinese Import Shocks and Authoritarian Values in the United Kingdom, IV Estimates, 1991-2007.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Δ IPW	ASC	Δ IPW	ASC	Δ IPW	ASC
ln Δ IPW (US, 1991-2007)	0.993***		0.988***		0.981***	
	(0.027)		(0.027)		(0.026)	
ln Δ IPW (1991-2007)		0.081***		0.069***		0.067***
		(0.026)		(0.023)		(0.024)
Female			0.002	0.027	0.006	0.027
			(0.010)	(0.029)	(0.010)	(0.028)
Age			-0.000	0.005***	-0.000	0.005***
			(0.000)	(0.001)	(0.000)	(0.001)
Higher Cert.			0.003	-0.106***	0.003	-0.106***
			(0.015)	(0.039)	(0.015)	(0.039)
University			-0.016	-0.235***	-0.010	-0.233***
			(0.012)	(0.032)	(0.012)	(0.031)
Married			0.005	0.104***	0.004	0.103***
			(0.010)	(0.023)	(0.010)	(0.024)
% non-UK born					-0.005***	-0.001
					(0.001)	(0.001)
Δ % non-UK born					0.001	0.002
					(0.001)	(0.002)
Observations	1,856	1,856	1,793	1,793	1,793	1,793
R-squared	0.88	0.01	0.86	0.13	0.89	0.13
Weak ID F stat	1328	1328	1334	1334	1423	1423

*** p<0.01, ** p<0.05, * p<0.1

The table reports the first and second stage results for IV regressions of the variable *ASC* on *ln Δ IPW (1991-2007)* and various control variables. The table reports coefficient estimates and robust standard errors clustered by TTWA in parentheses.

shocks and authoritarianism. If worsening labor markets decrease respondent economic capacity, thereby reducing their ability to achieve economic goals, this could trigger a sense of frustration that has often been linked in prior work with heightened aggression as a response. Alternately, if economic troubles encourage individuals to submit to authorities who can provide solutions during tough times, we might expect Chinese import shocks to be associated with rising submission to authorities. Finally, if downturns in the economy drive individuals to lament for "the way things were," we would expect to find that greater trade competition should increase respondent preferences for conventionalism.

Although any or all of these mechanisms might be at play, which is actually at work is fundamentally an empirical question. To assess which of these mechanisms is driving our observed association between import shocks and authoritarian values, we re-estimate our baseline specifications—using both OLS and IV—on each of the sub-indices used to generate our average *ASC* measure. As shown in Table 3, we recover strongly significant evidence for a linkage between negative economic shocks and authoritarian aggression – columns 1 and 2 show that *ln* Δ *IPW (1991-2007)* is a highly significant predictor of greater average aggression scores. In contrast to the strong results for aggression, we find no significant association between trade shocks and authoritarian submission, as reported in columns 3 and 4. Finally, while our shock measure is weakly associated with authoritarian conventionalism when estimated using OLS in column 5, this effect becomes no longer significant under instrumental variables estimation in column 6. We also note that, while our findings for aggression are strongly robust to alternative functional forms for our independent variable, we do not find support for a relationship between Δ *IPW* and conventionalism using alternative specifications.

We take these results to suggest that our observed relationship between trade shocks and authoritarianism is driven almost entirely by higher rates of authoritarian aggression among respondents in areas more exposed to Chinese import competition. We argue that a frustration-aggression mechanism is the most likely mechanism for this effect. This mechanism requires that Chinese imports had a negative effect on labor market outcomes—again for all potential workers in a locality not just those in impacted industries—in a way that had the potential to block indi-

Table 3: Chinese Import Shocks and the Components of Authoritarianism in the United Kingdom, OLS & IV Estimates, 1991-2007.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Aggr. OLS	Aggr. IV	Subm. OLS	Subm. IV	Conv. OLS	Conv. IV
ln Δ IPW (1991-2007)	0.104***	0.106***	0.036	0.041	0.060*	0.054
	(0.030)	(0.031)	(0.027)	(0.030)	(0.034)	(0.035)
Female	-0.013	-0.013	0.024	0.024	0.070**	0.070**
	(0.041)	(0.041)	(0.035)	(0.035)	(0.034)	(0.034)
Age	0.006***	0.006***	-0.000	-0.000	0.011***	0.011***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Higher Cert.	-0.207***	-0.207***	-0.023	-0.023	-0.088*	-0.088*
	(0.055)	(0.055)	(0.057)	(0.057)	(0.052)	(0.051)
University	-0.356***	-0.356***	-0.113**	-0.112**	-0.229***	-0.230***
	(0.049)	(0.048)	(0.047)	(0.047)	(0.033)	(0.033)
Married	0.113***	0.113***	0.106***	0.106***	0.089**	0.089**
	(0.035)	(0.035)	(0.031)	(0.031)	(0.039)	(0.039)
% non-UK born	-0.004**	-0.004**	-0.001	-0.001	0.003	0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Δ % non-UK born	0.005**	0.005**	0.002	0.002	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Observations	1,793	1,793	1,793	1,793	1,793	1,793
R-squared	0.111	0.111	0.016	0.016	0.129	0.129
TTWAs	239	239	239	239	239	239

*** p<0.01, ** p<0.05, * p<0.1

The table reports the results of OLS and IV regressions of the variables *Avg Aggression*, *Avg Submission*, and *Avg Conventionalism* on *ln Δ IPW (1991-2007)* and various control variables. The table reports coefficient estimates and robust standard errors clustered by TTWA in parentheses.

viduals' anticipated outcomes as economic providers and consumers. While Autor et al. (2013)'s work has demonstrated substantial deleterious effects of Chinese import competition on commuting zones in the US, we evaluate in the Appendix the effect of the "China shock" on labor market outcomes in our data for the UK. We find strong evidence that Chinese imports had a negative effect on both manufacturing employment and average wages. Thus, we recover significant evidence that the "China shock" led to deteriorating local labor market outcomes in the UK in a way that could initiate the frustration-aggression mechanism.

5.2 Challenges to Interpretation: Sorting

Yet, even finding that Chinese imports did in fact have consequences for local labor markets, can we be sure that the high level of authoritarian values in these regions that we document is due to value change induced by deteriorating labor market performance? What if, rather than localized labor market shocks leading to increased authoritarianism in respondents, instead individuals sorted themselves geographically by authoritarian traits following labor market dislocations? This might be particularly concerning if, for example, authoritarian individuals were less likely to relocate to different regions following economic downturns, whereas less authoritarian individuals might be more willing to move to follow new employment. Over time, such a process could hypothetically lead to more authoritarian types being "sorted" into regions that faced greater downturns due to trade shocks, but this would not be due to the adoption of authoritarian values in response to economic threat, as we argue. Similarly, if authoritarian values are correlated with, say, skill type, and if lower-skill individuals are more likely to have clustered in regions with greater manufacturing employment prior to being exposed to Chinese imports, we might again observe patterns similar to those we report that are not the result of changing individual authoritarian values.

We consider multiple approaches to address these concerns about ex ante and ex post sorting. In order to address worries that the pre-treatment distribution of authoritarian values may have already been different across places which would eventually be more impacted by the China trade shock, we conducted two sets of analyses. While we do not have our preferred measure

of authoritarian values recorded in a survey before the shock, we first investigate whether there is evidence suggesting pre-treatment differences using alternative measures of authoritarian values from the British Social Attitudes (BSA) survey.

The BSA is an annual survey conducted by NatCen. Because we did not design the BSA surveys ourselves, we are restricted to their measures of values that we think most closely capture authoritarian values as defined in this study, and focus on six such questions. Respondents were asked how much they agree or disagree with the following statements: "Young people today don't have enough respect for traditional British values" (*Traditional Values*); "People who break the law should be given stiffer sentences" (*Stiff Sentence*); "For some crimes, the death penalty is the most appropriate sentence" (*Death Penalty*); "Schools should teach children to obey authority" (*Obey Authority*); "The law should always be obeyed, even if a particular law is wrong" (*Obey Law*); and "Censorship of films and magazines is necessary to uphold moral standards" (*Censorship*). For each, answers were scored from 1-5 where higher values indicate more authoritarian values.

Although the BSA began in 1983, the earliest survey that includes this battery of questions and the necessary geographic locators occurred in 1993. In 1993 and 1994, the BSA sampled respondents from the Postcode Address File and recorded their outward postcodes; using respondents' outward postcodes, we can identify BSA survey respondents' local labor market (TTWA). The number of local labor markets covered in a single year is relatively small because the BSA only selectively sampled people in certain areas of the country during these years, and so we pool observations from 1993 and 1994 to maximize the number of local labor markets.

Table 4 reports difference-in-means tests for each variable comparing average authoritarian values for the local labor markets whose China trade shock values were in the top quartile to those in the bottom quartile. The concern for analysis would be if the top quartile values were significantly larger than the bottom quartile values before the China shock. Across all measures, the differences are small in the context of a five-point scale and none is statistically significant. There is thus no evidence in these data of pre-treatment regional differences in authoritarian values that might explain the results of our analyses. The main caveats to this analysis are that these measures, while reasonable proxies, are not the same as our preferred battery of measures and the

number of local labor markets covered in the survey with low and high shocks is not as many as we would like.

	(1) *Traditional Values*	(2) *Stiff Sentence*	(3) *Death Penalty*	(4) *Obey Authority*	(5) *Obey Law*	(6) *Censorship*
Top Quartile IPW (1991-2007) (Mean)	3.84	4.21	3.96	4.24	3.22	3.65
Bottom Quartile IPW (1991-2007) (Mean)	3.79	4.14	3.82	4.21	3.18	3.64
Difference	0.05	0.07	0.15	0.03	0.04	0.01
P-value (2-sided)	0.644	0.512	0.342	0.646	0.669	0.914
Observations	41	41	41	41	41	41

Table 4: Evidence of the Absence of Pre-China-Shock Differences in Authoritarian Values

Returning to our survey data, we next focus on the idea that pre-treatment differences would be most likely a function of the regional concentration of manufacturing. We add several measures of start-of-period manufacturing employment across regions in the UK to our baseline specifications; if this ex ante sorting is driving our findings of higher authoritarian values in regions exposed to Chinese imports, then direct inclusion of manufacturing employment prior to the China shock should remove any effect of $ln\Delta IPW$.[24] To preserve space, we report these estimates in the Appendix. Column 1 of Table A-11 reports our results after including a measure of the (logged) number of persons employed in manufacturing in 1991, by LAD region; inclusion of this pre-treatment regional manufacturing measure, however, is not itself significant and has no appreciable impact on the magnitude or significance of our primary independent variable. This holds true if we instead introduce dummies for low or high-manufacturing employment regions in column 2,[25] or a measure of the change in manufacturing employment over time in column 3. Given the stability of the effect of $ln\Delta IPW$ on authoritarian values across these specifications, we believe it is unlikely that our primary effect of interest is the result of pre-treatment regional sorting by individuals.

We employ two additional strategies to address concerns over ex post regional sorting, drawing on data on reported and actual respondent mobility. For individuals that have been part of the YouGov respondent pool for many years, we generate a measure of whether that respondent has moved to a different postcode over the course of their time in the panel. If the observed association between import shocks and higher authoritarianism were the result of, say, less authoritarian respondents moving to more dynamic (and less trade competing) regions of the country, while more authoritarian respondents were "stuck" in areas with declining economies, we would expect to find that the effect of *ln Δ IPW (1991-2007)* on authoritarianism was less evident among movers than non-movers – more precisely, the coefficient on the interaction between respondent mobility and *ln Δ IPW (1991-2007)* should be negative. Column 1 of Table A-12

[24] Panel (b) of Figure 2 provides visual evidence of the advantages of controlling for initial manufacturing in making the distribution of the trade shock more randomly distributed across the UK.

[25] "Low" manufacturing regions were those that fell in the bottom tercile of percentage employment in manufacturing, while "high" regions were those that fell in the upper tercile.

reports results from OLS regression of *ASC* on *ln* Δ *IPW (1991-2007)* and its interaction with a dummy for whether a respondent has *changed postcode* according to Yougov data. As can be seen, we do not find that mobility itself is significantly associated with authoritarian values, nor do we find that the effect of trade shocks is significantly different after conditioning on respondent mobility. We take this as initial evidence that our primary finding seems less likely to be the result of regional sorting by respondents; however, we note that this approach has drawbacks insofar as the earliest entry of respondents in our sample to YouGov's pool occurs in 2009, and that sorting by respondents could have occurred prior to joining the pool. To address this concern, we separately asked respondents as part of our survey whether they had moved homes in the past 20 years, and if they answered affirmatively, whether any of these moves were to or from "places outside your current area." We combine this information to generate a dummy for whether respondents report having *moved in last 20 years*; inclusion of this more long-term measure of mobility along with its interaction with our trade shock measure in column 2 produces very similar findings.[26] We believe these findings help alleviate the concern that our established relationship between import competition and authoritarianism is driven by "sorting" by types of individuals into different regions, and is more consistent with our theoretical account of individual authoritarian values changing in response to localized economic threats.

6 Conclusion

This article provides novel evidence linking economic change to authoritarian values. Economic threat is measured using Chinese imports. The dramatic growth in Chinese imports occurred primarily because of China's internal reforms and consequently provides an exogenous shock to local labor markets. We exploit this shock to estimate the effect of economic change on individuals' authoritarian values. Using an original survey fielded in the United Kingdom, we find that individuals living in regions where the local labor market was more substantially affected by imports from China have significantly more authoritarian values. The primary effect of the China shock in

[26]In Appendix G, we also demonstrate that there is no evidence of systematic depopulation of regions more exposed to the China shock, as might be suggested by the ex post sorting argument.

the UK was to thwart individuals' achievement of their expected goals as providers and consumers and this interference increased aggression. In turn, these values engendered anti-globalization sentiment, which ultimately led a majority of voters in the United Kingdom to vote to leave the European Union in a 2016 referendum on EU membership. Leave voters who in seeking order and conformity desired to reduce immigration and take back control of policymaking.

Our evidence shows that economic factors, like import shocks, can shape individual values. This finding sheds new light on the determinants of policy preferences and political behavior. Previous research seeking to explain variation in the backlash against globalization or a variety of policy opinions typically focuses on either economic interests or non-economic values, like authoritarianism. Many studies pit these two explanations against each other and work to determine which has the larger effect. Our study suggests that such efforts are at best incomplete and very well may suggest incorrect accounts of what explains opinion and behavior. One has to ask: what accounts for the values that we observe? In the case of authoritarianism, an important determinant is contemporaneous economic change.

We argue that authoritarian values are a mechanism linking negative economic shocks with the anti-globalization backlash. People adopt authoritarian values in response to negative economic shocks and, in turn, these values influence their political behavior. Our study, echoing the arguments of an earlier generation of scholars including Fromm (1941), Lipset (1959), and Rokeach (1960) suggests that economic change is an important source of the growth in authoritarian values. There is substantial potential for this trend to continue. To the extent that increasing numbers of individuals lose their jobs, fear losing their jobs, or otherwise feel left behind because of competition from foreign imports, offshoring, technological change, and automation, there is the potential that they will adopt authoritarian values to cope with rising anxiety from these transformations.

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Online Appendix for "The Economic Origins of Authoritarian Values: Evidence from Local Trade Shocks in the United Kingdom"

A Sample

The survey was conducted in July 2017 by YouGov. The respondents were matched to a sampling frame based on gender and age. The frame was constructed by stratified sampling from the 2015 Eurobarometer. The matched cases were then raked to known quantities for age by gender and vote choice in 2015 by region, and estimates for social grade and attention to politics. Weights were applied to remove remaining imbalances after the matching procedure; the weights were trimmed to a maximum value of 7. Table A-1 shows the distributions of the sociodemographics in the population, the weighted sample, and the raw sample.

- Interview period: July 2017
- Sample size: 1,913
- Source of data on population socio-demographics: 2015 Eurobarometer, 2013 ONS (Labour Force Survey)
- Weights range from 0.001 to 7.001, with a mean of 1 and a standard deviation of 0.57.

Table A-1: Distribution of Socio-demographics in the Survey Sample and the Population.

Group	Population	Weighted Sample	Raw Sample
Gender: Male	49.1	49.4	45.7
Gender: Female	50.9	50.6	54.3
Age: 18-34	31.6	28.2	25.4
Age: 35-54	33.0	33.5	33.7
Age: 55+	35.4	36.8	38.9
Graduates:	38.0	40.7	45.3
A Levels:	21.0	19.4	19.5
Other Qualifications:	31.0	29.4	25.5
No Qualifications:	9.0	8.5	6.5

The table shows the distributions of socio-demographics in the population, the weighted sample, and the raw sample. See text for data sources on the population socio-demographics.

B ASC Component Questions

Dunwoody & Funke (2016) propose a battery of 18 questions to capture three distinct subdimensions of authoritarianism that they call "aggression, submission, and conventionalism." Each dimension is measured by taking the average level of support across six questions, three of which are protrait and three of which are contrait and are therefore reverse coded. The exact set of questions for each dimension is provided below:

Authoritarian Aggression

- Strong force is necessary against threatening groups.
- It is necessary to use force against people who are a threat to authority.
- Police should avoid using violence against suspects.*
- People should avoid using violence against others even when ordered to do so by the proper authorities.*
- Using force against people is wrong even if done so by those in authority.*
- Strong punishments are necessary in order to send a message.

Authoritarian Submission

- We should believe what our leaders tell us.
- Our leaders know what is best for us.
- People should be critical of statements made by those in positions of authority.*
- People in positions of authority generally tell the truth.
- People should be skeptical of all statements made by those in positions of authority.*
- Questioning the motives of those in power is healthy for society.*

Authoritarian Conventionalism

- People emphasize tradition too much.*
- Traditions are the foundation of a healthy society and should be respected.
- It would be better for society if more people followed social norms.
- Traditions interfere with progress.*
- People should challenge social traditions in order to advance society.*
- People should respect social norms.

* = reverse coding.

C Contextual Data Sources

The main contextual data in this study are measures of trade shocks to local labor markets. We adopt the definition of a local labor market in the UK used by the Office for National Statistics (ONS). The ONS defines Travel to Work Areas (TTWAs) as self-contained, sub-regional labour markets where most people both live and work (Coombes and Bond 2007). TTWAs are analogous to the Commuter Zones (CZs) in the United States which are used in Autor et al.'s (2013) analysis of the impact of Chinese trade shocks on local labor market outcomes in the United States. TTWAs are constructed for the ONS by economic geographers based on a statistical analysis of census commuting data. The basic criteria used to construct TTWAs is that: at least 70 per cent of those who live in the area also work there and 70 per cent of those who work in the area also live there; and the working population as measured by the Census must be at least 20,000. In areas of low population density these criteria were amended so that the minimum working population of the TTWA was 3,500 and the self-containment criteria increased to at least 75 per cent (Source: Guide to Regional and Local Labour Market Statistics `http://webarchive.nationalarchives.gov.uk/20110218135832/http:/statistics.gov.uk/downloads/theme_labour/Guide_regional_local_lms.pdf`). TTWA boundaries are non-overlapping and internally contiguous covering all of Great Britain. In 1991, there were 297 TTWAs in Great Britain. Note that TTWAs have subsequently been updated but the key initial employment levels by industry and local labor market that we need are for 1991 and so we use 1991 TTWAs.

As discussed in the main text, our measure of local labor market exposure to Chinese import competition, following Autor et al. (2013), is the change in Chinese import exposure per worker in a TTWA, where imports are apportioned to the TTWA according to its share of national employment in each industry. Information on industry employment by TTWAs is derived from the ONSs Business Register and Employment Survey (BRES).

The Business Register and Employment Survey (BRES) publishes employment estimates at detailed geographical and industrial levels. BRES collects comprehensive employment information from businesses in England, Scotland, and Wales, representing the majority of Great Britain's economy. Due to the survey's large sample size (approximately 80,000 businesses), BRES is able to produce good quality estimates for detailed breakdowns by industry and geography. Because it is a survey of business, the quality of the industry data is high and the BRES data are recommended in preference to industry data from household surveys. Detailed BRES data are published on the National Online Manpower Information Service (NOMIS) website. Access to the NOMIS data is restricted to holders of Chancellor of the Exchequers Notices. The main aim of these restrictions is to protect the identity of individual businesses, which have made statistical returns, from being disclosed or otherwise deduced. Our results were produced using detailed disclosive data obtained under a Notice. As a result, the publically available BRES data, which are rounded and excluded to ensure non-disclosure, will not produce exactly the results reported here. The BRES data published on NOMIS exclude Northern Ireland. Northern Ireland is smaller than England, Scotland, and Wales, and as a result the issues of identifiable data and potential disclosure are far greater (Source: Email communication ONS staff March 8, 2017). For this reason, the Northern Ireland Statistics and Research Agency does not allow their microdata to be published on NOMIS. Neither would they provide us access to their detailed employment data. Therefore, we exclude Northern Ireland from our sample. Using the BRES data, we compile employment data by TTWAs at the 4-digit UK 1992 SIC code. The Standard Industrial Classification (SIC) codes classify business establishments by the type of economic activity in which they are engaged. The 4-digit UK 1992 SIC codes are identical to NACE Rev 1. There are 503 unique 4-digit SIC classes spanning 17 sections (i.e., sectors).

We measure average wages and income inequality using data from the UK's Annual Survey of Hours and Earnings (ASHE), which is the most detailed and comprehensive source of earnings information in Great Britain. ASHE is based on a 1% sample of employee jobs, drawn from HM Revenue and Customs Pay As You Earn (PAYE) records. We construct measures of average wages and income inequality using data on weekly earnings for full-time employees. Full-time employees are defined as those who work more than 30 paid hours per week or those in teaching professions working 25 paid hours or more per week. The earnings information relates to gross pay before tax, national insurance or other deductions, and excludes payments in kind. Using these earning measures, for average wages, we use the 50th percentile. For our inequality variable, we calculate the ratio of the 80th percentile to the 20th percentile. We construct these earnings measures for respondents' local authority districts (LAD). Local authority districts reflect local government boundaries. Although LADs do not necessarily correspond with self-contained local labor markets, they do reflect respondents' neighbourhoods. In greater London, for example, there are 33 local authority districts. Revisions have been made in local authorities areas over time (Coombes and Bond 2007). We carefully account for these changes using boundary files provided by the Office for National Statistics (`http://geoportal.statistics.gov.uk/`) and supplemental files from the UK Census (`https://census.ukdataservice.ac.uk/get-data/boundary-data`) to ensure

that respondents are matched to the correct neighbourhood.

Immigration data come from the UK Census (Office of Population Censuses and Surveys 1997; Office for National Statistics 2011; Office for National Statistics, National Records of Scotland 2016). These data report the country of birth for residents by local authority district. We calculate the percent of the local authority district's residents born outside of the United Kingdom. The percentage of non-UK born persons varies greatly across Great Britain. In 2011, the largest share of immigrants (42.4%) was in the central London borough of Newham; the smallest (1.04%) was in the Welsh borough Blaenau Gwent.

Net migration is the number of immigrants minus the number of emigrants. The Office for National Statistics produces estimates of international migration based on the International Passenger Survey, a survey of passengers arriving and departing the UK. Someone arriving to the UK intending to stay for 12 months or more is an immigrant and someone departing the UK for 12 months or more is an emigrant.

D Matching Contextual Data to Survey Data

Our contextual data is collected at the level of Travel to Work Areas (TTWA) and Local Authority Districts (LAD). To match these to our individual survey respondents, we asked each respondent to report their outward postcode. In the United Kingdom, there are 2,983 live postcode districts identified by the outward postcode and, therefore, we have fairly precise geographic information for each respondent. For both TTWAs and LADs, the matching is accomplished using geographic coordinates for full post codes and boundary files for the TTWAs and TTWAs/LADs provided by the Office for National Statistics (http://geoportal.statistics.gov.uk/). For most outward postcodes, a unique TTWA or LAD could be assigned. If the outward postcode is located in more than one TTWA or LAD, we use a weighted average based on the proportion of the outward postcode in each TTWA or LAD.

E Heterogeneity of Trade Shock Effect by Age

While we have demonstrated a robust association between living in regions more exposed to trade competition and higher authoritarian predisposition among our survey respondents, it is important to note that much prior work on authoritarian values has largely conceived of these views as essentially static once formed in childhood and early adulthood. Given the length of time considered in our trade shock measure (from 1991 to 2007), it might also be possible that the regional differences we detect are the result of an economic threat present during the formative years of a subset of our youngest respondents – if such values are malleable only before some age threshold of development, our effects should arise only among those of our respondents who would have been in this period of their life during our period of rising import competition and its ensuing economic effects. Approximately a quarter of our respondents were aged 35 or younger at the time our survey was administered; such individuals would have been in their teenage years during the mid-2000s when much of the economic threat from rising imports was manifesting itself. If our results arise only due to changes among this more "malleable" subset of our respondents, we should find that the effect of trade shocks on *ASC* should be most pronounced among the young; inclusion of an interaction between $ln\ \Delta$ *IPW (1991-2007)* and age should therefore be negative and

significant. In Figure A-1, we report the marginal effect of our trade shock on authoritarian values, conditional on age of respondent.[27] As can be seen, in contrast to the expectations discussed above, if anything we find that the relationship between regional import competition and authoritarian predilections becomes more pronounced for older respondents; among the youngest respondents, while the effect is positive, it does not reach conventional levels of statistical significance. This is not to dispute that such values are likely influenced by experiences in one's early life, and that such influences may be particularly durable across the lifecycle; instead, we merely demonstrate here that our effects are not limited only to those respondents who would have faced the economic consequences of trade shocks during such formative years.

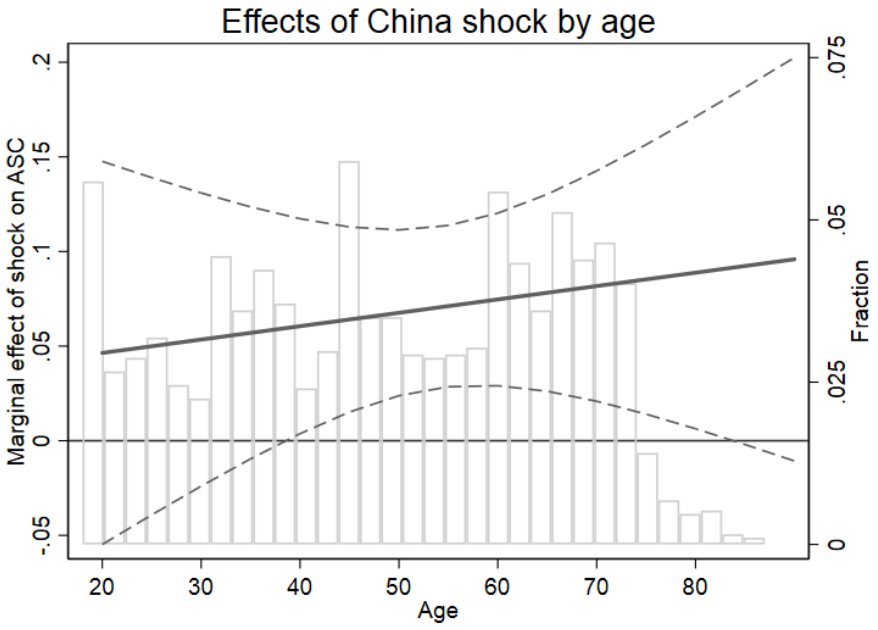

Figure A-1: Marginal effect of *ln* Δ *IPW (1991-2007)* on *ASC*, conditional on age. Grey bars indicate empirical distribution of our age measure in the data.

F Labor market Consequences of Import Competition

Above, we have argued that economic threats are likely to lead individuals to adopt authoritarian values, and have demonstrated that respondents from regions of the UK that faced greater import competition from Chinese goods score systematically higher on our authoritarianism index. In investigating the three subdimensions of our main outcome, we discovered that this relationship appears driven by higher rates of authoritarian aggression in particular among respondents in more heavily exposed places. The key frustration-aggression mechanism which we argue generates this effect requires that Chinese imports had a negative effect on labor market outcomes in a way that had the potential to block individuals' anticipated outcomes as economic providers and

[27] Full regression results detailed in Table A-2.

VARIABLES	(1) ASC	(2) ASC
ln Δ IPW (91-07)	0.032	0.011
	(0.077)	(0.075)
Age (in yrs)	0.010	
	(0.010)	
Age (in yrs) * ln Δ IPW	0.001	
	(0.001)	
Age 31-50		0.670
		(0.559)
Age 51-70		0.674
		(0.550)
Age >70		0.504
		(0.733)
Age 31-50 * ln Δ IPW		0.078
		(0.081)
Age 51-70 * ln Δ IPW		0.066
		(0.079)
Age >70 * ln Δ IPW		0.029
		(0.106)
Demographic controls	✓	✓
Regional controls	✓	✓
Observations	1,793	1,793
R-squared	0.130	0.130
TTWAs	239	239

Robust standard errors clustered by TTWA in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A-2: *Effects of China shock, by age*

consumers. While Autor et al. (2013)'s work has demonstrated substantial deleterious effects of Chinese import competition on commuting zones in the US, we evaluate in this section the effect of the "China shock" on labor market outcomes in our data for the UK.

To substantiate the labor market effects of Chinese imports, we first consider the impact of *ln* Δ *IPW (1991-2007)* on manufacturing employment. Given advantages in manufacturing production that have driven it to become the "world's workplace," Chinese imports into the UK unsurprisingly come predominantly from manufacturing industries.[28] Given standard models of trade competition, the most natural place to look for labor market impacts of rising imports would therefore be in the share of the labor force employed in manufacturing. We construct the variable Δ *% Manufacturing Employment* equal to the percentage change of employment in the manufacturing sector by local authority district (LAD).[29] Data on manufacturing employment come from the Business Register and Employment Survey (BRES), which is the UK's official source of employee and employment estimates by detailed geography and industry (ONS 2017). As our primary independent variable *ln* Δ *IPW (1991-2007)* spans the period 1991-2007, we construct changes in manufacturing employment to match the time period of our trade shocks.[30] Column 1 of Table A-3 reports results of OLS estimation of the effect of Chinese imports on manufacturing employment for the period 1991-2007; column 2 reports results instead employing our instrumental variable. As can be seen, in accordance with the findings of Autor et al. (2013) and others, using either estimation approach we identify a significant impact of Δ *IPW (1991-2007)* on Δ *% Manufacturing Employment*, with manufacturing employment declining in regions more affected by import competition. If we estimate the size of this effect based on the coefficients reported in column 2, this suggests that a two standard deviation increase in *ln* Δ *IPW (1991-2007)* decreases manufacturing employment by a full standard deviation, or approximately 4.8 percentage points.

Prior work in the US context has suggested that the labor market consequences of Chinese import competition are not limited only to the manufacturing sector; while this sector may bear the initial brunt of trade shocks, the local labor market is also expected to suffer as falling wages and rising unemployment within previously major employers begins to ripple throughout the broader economy. To demonstrate this more general labor market effect, we turn next to average wages in a given locality. Our wage data come from the Annual Survey of Hours and Earnings (ONS, 2017) and are described more completely in the Appendix. The wage data refer to weekly gross pay before tax, national insurance or other deductions, and excludes payments in kind (Statistical Bulletin, Annual Survey of Hours and Earnings 26 October 2016). The variable *Median Wages* (in real GBP) for a given year is the 50th percentile value of gross pay in the LAD in which the respondent lives. Again, to match the timing of our import shocks, we estimate the impact of *ln* Δ *IPW (1991-2007)* on *Median Wages* in 2007;[31] column 3 reports OLS results and column 4 reports IV results. In both, we demonstrate significant negative consequences for overall wage

[28] Colantone and Stanig (2018a) provide detailed evidence of this point.

[29] Theoretically, analysis at the TTWA level tracks more directly onto Autor et al. (2013)'s approach using commuting zones, and our Δ *IPW (1991-2007)* measures are constructed at this level. However, geographic data on employment and wages in the UK are predominantly available by LAD, and so we match TTWAs to LADs in order to implement the analysis.

[30] In unreported further results, we find very similar effects when instead considering alternate time periods for our measure of the China trade shock and labor market outcomes.

[31] In unreported further results, we recover very similar findings when using alternate time periods for our shock and wage data.

Table A-3: Labor Market Consequences of Chinese Import Shock, by LAD 2011, OLS & IV Estimates.

VARIABLES	(1) Δ %Manuf. 91-07	(2) Δ %Manuf. 91-07	(3) Med. wage '07	(4) Med. wage '07
ln Δ IPW (1991-2007)	-3.857***	-4.078***	-28.770***	-22.957***
	(0.275)	(0.289)	(5.892)	(6.174)
Estimation	OLS	IV	OLS	IV
Observations	380	380	369	369
R-squared	0.342	0.341	0.061	0.059

*** p<0.01, ** p<0.05, * p<0.1

The table reports the results of OLS and IV regressions of the variables Δ *% Manufacturing Employment* and *Median Wages* on *ln* Δ *IPW (1991-2007).* The table reports coefficient estimates and robust standard errors in parentheses.

levels in localities more heavily exposed to Chinese imports, as should be expected if the downturn in regional manufacturing has negative spillover effects on the local economy more generally and consistent with prior work on the labor market consequences of Chinese import competition. Thus, looking either at manufacturing employment or average wages, we recover significant evidence that the "China shock" led to deteriorating local labor market outcomes in the UK in a way that could initiate the frustration-aggression mechanism.

G Import Shocks and Regional Population

Beyond looking for differential effects among our sample depending on move history, our second approach to evaluate whether our results may be driven by differential mobility trends is to consider the relationship between our shock measure and various regional-level measures of population. At a basic level, the sorting explanation for our findings should suggest that, as low-authoritarian individuals leave areas faced with economic downturn as a result of import competition, we should expect that regions facing greater shocks should experience a loss of population over time. However, it is certainly not the case that regions exposed to greater import competition demonstrate strong evidence of depopulation, as would be suggested by this account. In Table A-4, we recover no significant relationship between *ln* Δ *IPW (1991-2007)* and several measures of population size. More precisely, column 1 reports results from an IV regression of (logged) *Total Population* in 2007 on *ln* Δ *IPW (1991-2007)*, while column 2 reports regression results for *Change in Total Population* from 1991-2007. While the coefficient is negative in each, in no case do we find that regions exposed to more severe Chinese import competition were systematically more likely to lose population (or, alternately, grow more slowly), as would be expected if non-authoritarian types were relocating to less exposed areas.

Moving beyond population statistics generally, we collected UK Census data that identify, by LAD, the number of individuals that moved away from a particular region in 2011.[32] Again,

[32]Note that 2011 was the most recent Census, and thus are the most recent migration data that we have obtained.

Table A-4: Regional Mobility and Chinese Import Shock, by LAD 2011, IV Estimates.

VARIABLES	(1) Log pop.	(2) Δ Log pop.	(3) Out migrants (#)	(4) Out migrants (% pop.)
ln Δ IPW (1991-2007)	-0.019	-0.009	-504.600**	-0.002***
	(0.055)	(0.006)	(206.162)	(0.001)
Observations	380	380	380	380
R-squared	0.001	0.010	0.014	0.038

*** p<0.01, ** p<0.05, * p<0.1

The table reports the results of IV regressions of the variables *Total Population*, *Change in Total Population*, *Out Migrants, Number*, and *Out Migrants, % Population* on *ln Δ IPW (1991-2007)*. The table reports coefficient estimates and robust standard errors in parentheses.

if regions struck by trade shocks were more likely to see non-authoritarian individuals move away in search of new employment, we would expect to find that out-migration should be positively correlated with our China shock measure. However, as can be seen in columns 3 and 4 of Table A-4, when we regress out-migration on *ln Δ IPW (1991-2007)*, we recover a significant *negative* association; this holds true whether we take the raw number of out-migrants (in column 3), or instead scale the number of out-migrants by the population of the LAD in 2007 (in column 4). These findings are quite difficult to square with an account arguing that import shocks lead non-authoritarians to migrate away from regions facing economic downturn; instead, this is more consistent with some accounts of migration in the US that emphasize that economic movement towards new jobs largely occurs during economic expansions, whereas out-migration tends to largely cease during recessions since moving is costly. In additional results reported in the Appendix,[33] we continue to find that outmigration is negatively correlated with regional Chinese import competition even after disaggregating migrants across 7 different levels of skill type, suggesting that the average effect on outmigration reported in Table A-4 is not masking heterogeneous effects by skill type that might still drive ex post sorting.

[33]See Table A-15.

H Additional Output

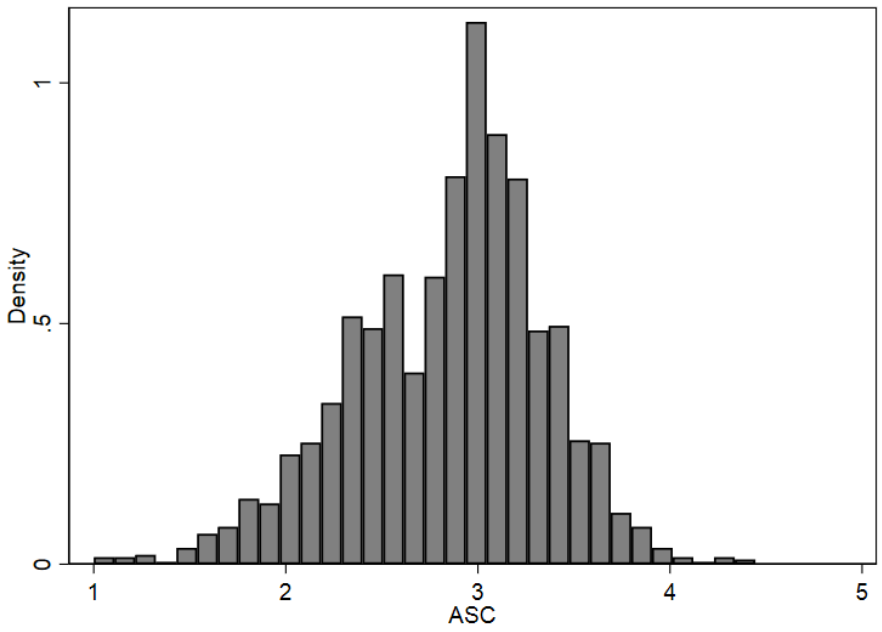

Figure A-2: *Distribution of average authoritarianism measure (ASC).*

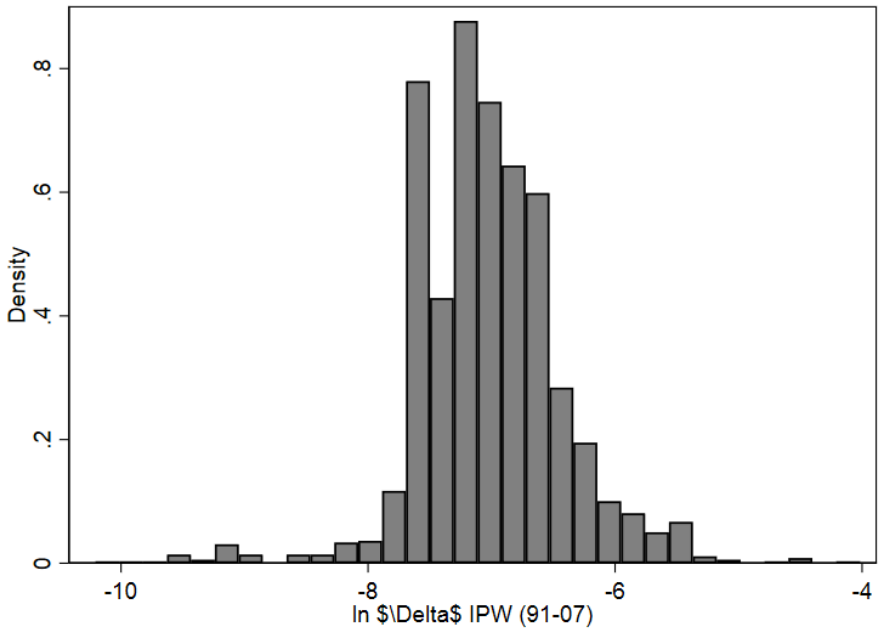

Figure A-3: *Distribution of (natural log of) import competition measure.*

Table A-5: *Authoritarianism and Brexit Vote*

VARIABLES	(1) Vote Leave	(2) Vote Leave
ASC	0.355***	0.264***
	(0.027)	(0.028)
Female		0.012
		(0.024)
Age		0.004***
		(0.001)
Higher Cert.		-0.151***
		(0.044)
University		-0.232***
		(0.036)
Married		-0.018
		(0.028)
% non-UK born		-0.002
		(0.001)
Δ % non-UK born		0.005***
		(0.002)
Observations	1,579	1,533
R-squared	0.131	0.202
TTWAs	237	235

*** p<0.01, ** p<0.05, * p<0.1

The table reports the results of OLS regressions of voting Leave in the Brexit campaign on *ASC* and various control variables. The table reports OLS coefficient estimates and robust standard errors clustered by TTWA in parentheses.

VARIABLES	(1) ASC OLS	(2) ASC OLS	(3) ASC OLS	(4) ASC OLS	(5) ASC OLS
ln Δ IPW	0.067***	0.065***	0.061***	0.064***	0.058***
	(0.023)	(0.024)	(0.020)	(0.022)	(0.022)
Female	0.049	0.032	0.057**	0.025	0.071***
	(0.031)	(0.029)	(0.022)	(0.028)	(0.023)
Age	0.005***	0.006***	0.003***	0.005***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Higher Cert.	-0.111***	-0.100**	-0.086**	-0.120***	-0.092***
	(0.039)	(0.039)	(0.034)	(0.039)	(0.035)
University	-0.256***	-0.228***	-0.165***	-0.250***	-0.184***
	(0.031)	(0.032)	(0.024)	(0.031)	(0.024)
Married	0.093***	0.107***	0.067***	0.099***	0.063**
	(0.025)	(0.024)	(0.025)	(0.023)	(0.025)
% non-UK born	-0.001	-0.001	-0.002	-0.001	-0.002
	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Δ % non-UK born	0.002	0.002	0.001	0.002	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lower income	-0.062				-0.044
	(0.044)				(0.034)
Upper income	0.046				0.024
	(0.034)				(0.029)
Inequality		0.038*			0.032
		(0.023)			(0.022)
Right Ideology			0.108***		0.106***
			(0.007)		(0.007)
Middle Class				0.122**	0.069
				(0.058)	(0.046)
Working Class				0.076	0.062
				(0.054)	(0.044)
Observations	1,793	1,743	1,793	1,793	1,743
R-squared	0.136	0.133	0.322	0.134	0.327
TTWAs	239	229	239	239	229

Robust standard errors clustered by TTWA in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A-6: *Robustness: Alternate Covariate Profiles (OLS)*

VARIABLES	(1) ASC IV	(2) ASC IV	(3) ASC IV	(4) ASC IV	(5) ASC IV
ln Δ IPW (1991-2007)	0.078***	0.077***	0.071***	0.075***	0.068***
	(0.029)	(0.029)	(0.024)	(0.027)	(0.026)
Female	0.061*	0.040	0.067**	0.031	0.086***
	(0.036)	(0.034)	(0.026)	(0.033)	(0.027)
Age	0.006***	0.007***	0.003***	0.006***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Higher Cert.	-0.135***	-0.121**	-0.106**	-0.146***	-0.112***
	(0.048)	(0.049)	(0.043)	(0.049)	(0.043)
University	-0.311***	-0.275***	-0.199***	-0.302***	-0.224***
	(0.037)	(0.038)	(0.028)	(0.037)	(0.029)
Married	0.111***	0.128***	0.082***	0.117***	0.077**
	(0.031)	(0.030)	(0.030)	(0.029)	(0.030)
% non-UK born	-0.002	-0.001	-0.002	-0.001	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Δ % non-UK born	0.003	0.003	0.001	0.003	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Lower income	-0.074				-0.053
	(0.054)				(0.042)
Upper income	0.059				0.032
	(0.042)				(0.036)
Inequality		0.047*			0.040
		(0.028)			(0.026)
Right Ideology			0.130***		0.127***
			(0.008)		(0.008)
Middle Class				0.157**	0.081
				(0.067)	(0.057)
Working Class				0.103	0.076
				(0.064)	(0.054)
Observations	1,783	1,734	1,783	1,783	1,734
R-squared	0.137	0.133	0.321	0.135	0.327
TTWAs	242	234	242	242	234

Robust standard errors clustered by TTWA in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A-7: *Robustness: Alternate Covariate Profiles (IV)*

VARIABLES	(1) ASC OLS	(2) ASC IV	(3) ASC OLS	(4) ASC IV
High Δ IPW (1991-2007)	0.085***	0.115***		
	(0.032)	(0.044)		
Δ IPW (1991-2007)			0.035**	0.032**
			(0.015)	(0.014)
Female	0.034	0.034	0.034	0.034
	(0.034)	(0.033)	(0.034)	(0.034)
Age	0.006***	0.006***	0.006***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
Higher Cert.	-0.126***	-0.125***	-0.127***	-0.127***
	(0.048)	(0.048)	(0.049)	(0.048)
University	-0.285***	-0.284***	-0.283***	-0.284***
	(0.037)	(0.037)	(0.038)	(0.037)
Married	0.125***	0.125***	0.124***	0.124***
	(0.030)	(0.030)	(0.030)	(0.030)
% non-UK born	-0.001	-0.000	-0.002	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)
Δ % non-UK born	0.002	0.002	0.003	0.003
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	1,783	1,783	1,783	1,783
R-squared	0.129	0.128	0.127	0.127
TTWAs	242	242	242	242

Robust standard errors clustered by TTWA in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A-8: *Robustness: Alternate Codings of IPW*

VARIABLES	(1) ASC OLS	(2) ASC IV	(3) ASC OLS	(4) ASC IV
ln Δ IPW (1991-2015)	0.077***	0.078***		
	(0.027)	(0.028)		
ln Δ IPW (2000-2007)			0.060**	0.153***
			(0.025)	(0.051)
Demographic controls	✓	✓	✓	✓
Regional controls	✓	✓	✓	✓
Observations	1,783	1,783	1,778	1,763
R-squared	0.129	0.129	0.126	0.119
TTWAs	242	242	241	235

Robust standard errors clustered by TTWA in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A-9: *Robustness: Alternate Time Periods for IPW*

VARIABLES	(1) ASC OLS	(2) ASC IV
ln Δ IPW (91-07)	0.070***	0.069***
	(0.022)	(0.023)
Public off. don't care	0.085***	0.085***
	(0.014)	(0.014)
Female	0.031	0.031
	(0.029)	(0.029)
Age	0.006***	0.006***
	(0.001)	(0.001)
Higher Cert.	-0.127***	-0.127***
	(0.036)	(0.036)
University	-0.248***	-0.248***
	(0.029)	(0.029)
Married	0.098***	0.098***
	(0.024)	(0.024)
% non-UK born	-0.001	-0.001
	(0.002)	(0.002)
Δ % non-UK born	0.003	0.003
	(0.002)	(0.002)
Observations	1,793	1,793
R-squared	0.155	0.155
TTWAs	239	239
Weak ID F stat		1418

Robust standard errors clustered by TTWA in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A-10: *Faith in Public Officials*

Table A-11: Chinese Import Shocks, Manufacturing Employment, and Authoritarianism in the United Kingdom, OLS Estimates, 1991-2007.

VARIABLES	(1) ASC	(2) ASC	(3) ASC
ln Δ IPW (1991-2007)	0.056**	0.059**	0.056**
	(0.026)	(0.025)	(0.026)
Manuf. employees (log, 1991)	0.018		
	(0.020)		
Low manuf. (%, 1991)		-0.007	
		(0.034)	
High manuf. (%, 1991)		0.014	
		(0.030)	
Δ % Manuf. emp. (1991-2015)			-0.002
			(0.003)
Female	0.028	0.028	0.028
	(0.029)	(0.029)	(0.029)
Age	0.005***	0.005***	0.005***
	(0.001)	(0.001)	(0.001)
Higher Cert.	-0.106***	-0.106***	-0.107***
	(0.039)	(0.039)	(0.039)
University	-0.232***	-0.232***	-0.233***
	(0.031)	(0.031)	(0.031)
Married	0.104***	0.103***	0.103***
	(0.024)	(0.024)	(0.024)
% non-UK born	-0.001	-0.001	-0.001
	(0.001)	(0.002)	(0.001)
Δ % non-UK born	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)
Observations	1,793	1,793	1,791
R-squared	0.130	0.130	0.130
TTWAs	239	239	239

*** p<0.01, ** p<0.05, * p<0.1

The table reports the results of OLS regressions of the variable *ASC* on *ln Δ IPW (1991-2007)* and several measures of regional manufacturing employment at the start of our period, as well as various control variables. The table reports coefficient estimates and robust standard errors clustered by TTWA in parentheses.

Table A-12: Chinese Import Shocks, Individual Mobility, and Authoritarianism in the United Kingdom, OLS Estimates, 1991-2007.

VARIABLES	(1) ASC	(2) ASC
ln Δ IPW (1991-2007)	0.061**	0.055*
	(0.024)	(0.031)
Changed postcode	0.081	
	(0.470)	
Changed PC X IPW	0.021	
	(0.068)	
Moved last 20 yrs		0.139
		(0.312)
Moved X IPW		0.026
		(0.044)
Female	0.026	0.027
	(0.028)	(0.029)
Age	0.005***	0.005***
	(0.001)	(0.001)
Higher Cert.	-0.105***	-0.106***
	(0.039)	(0.039)
University	-0.231***	-0.226***
	(0.032)	(0.030)
Married	0.103***	0.100***
	(0.023)	(0.023)
% non-UK born	-0.001	-0.001
	(0.001)	(0.001)
Δ % non-UK born	0.002	0.002
	(0.002)	(0.002)
Observations	1,793	1,793
R-squared	0.132	0.132
TTWAs	239	239

*** p<0.01, ** p<0.05, * p<0.1

The table reports the results of OLS regressions of the variable *ASC* on *ln Δ IPW (1991-2007)* and two separate measures of respondent geographic mobility, as well as various control variables. The table reports coefficient estimates and robust standard errors clustered by TTWA in parentheses.

	Count	Mean	Variance	Min	Max
Avg. Aggression	1913	3.16	0.56	1	5
Avg. Submission	1913	2.24	0.36	1	4.3
Avg. Conventionalism	1913	3.12	0.47	1	5

Table A-13: *Summary Statistics for ACS Components*

	Avg. Aggression	Avg. Submission	Avg. Conventionalism
Avg. Aggression	1.000		
Avg. Submission	0.222	1.000	
Avg. Conventionalism	0.485	0.217	1.000

Table A-14: *Correlation Matrix for ACS Components*

	(1) High manage.	(2) Low manage.	(3) Intermed.	(4) Small empl.	(5) Technical	(6) Semi-rout.	(7) Routine	(8) Unemp.	(9) Students
ln Δ IPW (1991-2007)	-0.531***	-0.725***	-0.300***	-0.150***	-0.121***	-0.217***	-0.092**	-0.080**	-0.064
	(0.145)	(0.177)	(0.086)	(0.047)	(0.036)	(0.057)	(0.042)	(0.033)	(0.225)
Observations	380	380	380	380	380	380	380	380	380
R-squared	0.047	0.061	0.048	0.042	0.046	0.047	0.017	0.016	0.001

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A-15: *Robustness: Regional Out-migration by Skill Type (IV)*