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The green side of protectionism: Environmental concerns and three facets of trade policy preferences

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ABSTRACT

A large literature in international political economy views individuals' trade policy preferences as a function of the income effects of economic openness. We argue that the expected environmental consequences of free trade play a noteworthy role for protectionist attitudes that has not been noted so far. We use unique Swiss survey data that contain measures of individuals' environmental concerns and different aspects of trade policy preferences to examine whether those who are more concerned about the environment also hold more protectionist trade policy preferences. Our results support this expectation. Individuals who are more concerned about the environment tend to think that globalization has more negative than positive effects, more strongly support jobs-related protectionism, and place more emphasis on aspects that go beyond price and quality when evaluating foreign products. Our results suggest that also the expected environmental consequences of free trade matter for trade policy preferences and not just the potential effects on the domestic wage distribution.

KEYWORDS

International trade; trade policy preferences; environment; protectionism; environmental concerns; individual data.

1. INTRODUCTION

Why do some individuals prefer more protectionist trade policies while others favor free trade? Scholarship in international political economy has

devoted great effort to answering this question. This literature views individuals' trade policy preferences largely as a function of the income effects of economic openness (Hays, 2009; Kaltenthaler *et al.*, 2004; Mayda and Rodrik, 2005; Scheve and Slaughter, 2001). Theory suggests that individuals with higher levels of education will expect increasing wages as a consequence of intensified economic exchange and, therefore, prefer free trade. In contrast, low-skilled individuals will oppose trade liberalization because they fear that free trade will put their wages under pressure, decrease job security and reduce social spending. Several empirical studies, indeed, find higher levels of education to be associated with less protectionist attitudes (Hainmueller and Hiscox, 2006; Hoffmann, 2009; Kaltenthaler *et al.*, 2004; Scheve and Slaughter, 2001).

We argue that the expected environmental consequences of free trade play a noteworthy and under-appreciated role for protectionist attitudes in industrialized countries that previous research has overlooked so far. Ever since the Uruguay Round (1986–94) and the Earth Summit in Rio (1992) the trade–environment issue has attracted strong attention both in international trade and environmental policy arenas. The environmental consequences of intensified international economic exchange have, in fact, become a key element in trade policy decisions, particularly in advanced industrialized democracies (Ferrantino, 1997). One prominent example is US Presidential Executive Order 13141, which requires that environmental consequences of trade agreements must be assessed and considered in trade policy decisions. Concerns about environmental problems associated with the production of foreign goods have also motivated countries to resort to restrictions on market access. These restrictions, in turn, have triggered international trade disputes. One of the most prominent examples is the Tuna/Dolphin trade dispute between the US and Mexico in the early 1990s. The US restricted imports of canned tuna from Mexico because American consumers considered the nets used for fishing tuna to be harmful for dolphins. Mexico then took the dispute to the World Trade Organization, which ruled that trade restrictions may not be used to achieve environmental goals in other countries.

The environmental aspects of economic exchange continue to matter in international trade policy decisions. Many international trade agreements nowadays include provisions on environmental issues that require trading partners to improve their environmental standards.¹ Similarly, the European Union (EU) has systematically addressed environmental issues in its internal economic integration process and in negotiating trade arrangements with other countries. Several authors have sought to explain the 'greening of world trade' (Anderson and Blackhurst, 1992) and the 'growing use of trade measures to achieve objectives set for environmental policies' (Whalley, 1991: 180). One of the key arguments in this literature is

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that some countries seek to impose their (higher) environmental standards on other countries when negotiating trade agreements in order to appease voters who fear negative environmental effects of free trade (Bechtel and Tosun, 2009; Drezner, 2005; Hultberg and Barbiery, 2004). Indeed, opinion polls suggest that many citizens worry about negative environmental effects of intensified international economic exchange and advocate the inclusion of environmental provisions in trade agreements. For example, during the negotiation stage of the North American Free Trade Agreement (NAFTA), about 60 per cent of US citizens feared that 'the environment will suffer, as businesses move to Mexico to avoid the stricter environmental standards in the US'.² This suggests that environmental considerations play an important role in the formation of individuals' trade policy preferences.

The existing literature on the determinants of individuals' trade policy preferences has not yet explored the potential importance of environmental concerns. Previous work has focused almost exclusively on the expected income effects of trade openness to explain protectionist attitudes (Hays, 2009; Kaltenthaler *et al.*, 2004; Mayda and Rodrik, 2005; Scheve and Slaughter, 2001). However, as noted by Thomas Oatley (2010: 92) in his influential textbook on International Political Economy:

The society-centered approach tells us nothing about why groups that focus on the environment or on human rights spend resources attempting to influence trade policy. Nor does it provide any basis with which to make sense of such group's trade policy preferences. In the past, such a weakness could perhaps be neglected because noneconomic groups played only a small role in trade politics. The contemporary backlash against globalization suggests, however, that these groups must increasingly be incorporated into society-centered models of trade politics.

The lack of micro-level studies on the 'green' determinants of protectionist attitudes appears all the more surprising since governments have increasingly linked environmental standards and international trade policies, for example, in international bargaining on trade liberalization, in trade agreements that result from such negotiations, and, once these agreements are in place, in trade disputes and their settlement. However, we do not yet know whether this behavior by governments simply reflects that citizens in industrialized countries take environmental issues into account when forming trade policy preferences. To gain a better understanding of whether governments respond to citizens' views on international trade and the environment, we need to explore whether environmental attitudes, indeed, matter for voters' trade policy preferences. We contribute to filling this research gap.

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We argue that environmental concerns help us to understand how individuals evaluate the costs and benefits of intensified international trade. The more an individual cares about the environment, the higher the perceived environmental costs of economic openness. This leads us to expect that environmental concerns correlate positively with protectionist sentiment. We evaluate this hypothesis using unique survey data from Switzerland. These data provide much more nuanced information about both individuals' environmental concerns and preferences over different facets of economic openness (globalization sentiment, jobs-related protectionism and product-related protectionism) than the prominent alternative sources of data, notably the World Values Survey and the International Survey Study Program.

Our empirical results show that environmental concerns play a significant and substantial role in how individuals think about economic openness. Overall, environmental concerns correlate positively with protectionist attitudes. This relationship varies in size, but not in direction, across different facets of economic openness. We distinguish general attitudes toward globalization, jobs-related protectionism and product-related trade policy preferences and find that environmental concerns matter significantly for how individuals, particularly those on the political left, evaluate foreign products. Environmental concerns play a smaller, though still significant, role for preferences toward jobs-related protectionism and for general attitudes towards globalization among ideologically moderate citizens. Overall, the correlations between environmental concerns and attitudes towards economic openness and its facets compare in size with the relationships between these variables and factors that capture the expected income effects of intensified international economic exchange. We conclude that the perceived environmental consequences of trade liberalization matter at least as much for how individuals think about economic globalization and trade policy as the expected redistributive income effects.

2. PREVIOUS RESEARCH ON ATTITUDES TOWARDS GLOBALIZATION

Globalization has many different facets. Up until now, research efforts have concentrated primarily on protectionist attitudes and anti-immigrant sentiment. Our contribution centers on trade-related attitudes. Therefore, we review only the literature on the determinants of trade policy preferences. Several studies examine the determinants of attitudes towards free trade in general, i.e. whether individuals favor or oppose trade liberalization. This research has extensively explored the micro-level implications of standard trade theories, in particular the factor endowments (Stolper-Samuelson) and the specific-factors (Ricardo-Viner) model. The factor endowments

model predicts that economic openness will benefit those factors with which the economy is relatively well endowed, while hurting scarce factors. Highly skilled individuals in advanced economies should, therefore, benefit from increased economic openness while low-skilled workers will experience income losses. The question then arises whether, at the micro-level, individuals who are better educated are, indeed, more pro-trade than less skilled individuals. This would lend support to the argument that preferences concerning trade policy are a function of the (expected) redistributive income effects of economic openness. The specific factors model argues that, if factors can move between sectors only at non-zero costs, trade policy preferences should vary also by industry of employment.

Evidence from several studies supports these hypotheses. Gabel (1998) examines the determinants of attitudes toward European Union membership and finds that individuals form economic policy preferences that reflect their occupation-based economic interests in a common European market. In particular, those expecting to lose from a common market in terms of relative income are more likely to oppose membership in the European Union. Using data from the 1992 National Election Survey, Scheve and Slaughter (2001) analyze protectionist sentiment in the US and focus on skill levels and sector of employment as key explanatory factors. Both variables turn out to play a significant role in explaining protectionist attitudes. The study also finds that identification with the Democratic Party has a positive effect on the probability of an individual being protectionist (Scheve and Slaughter, 2001: 287).

Kaltenthaler *et al.* (2004) examine determinants of attitudes towards trade liberalization in Australia, Germany, Norway, Spain, Switzerland and the United States, using World Values Survey data from 1995 to 1997. They find that education as a measure of an individual's skill level significantly increases support for free trade. Moreover, in some countries (Germany, Spain, Switzerland, United States) local or national geographic orientation, measured as the self-identified attachment of the respective respondent to a geographic entity (city, province, country), adds to protectionist sentiment.

Similarly, Mayda and Rodrik (2005) use multi-country survey data from the 1995 International Survey Study Program (ISSP) and the World Values Survey (third wave, collected from 1995 to 1997) to examine the determinants of protectionist attitudes. They find support for the factor endowments model. Individuals who are better educated are more likely to support free trade. Mayda and Rodrik (2005) also include several political variables in their estimations. The results suggest that political orientation (left–right orientation) is significantly correlated with attitudes towards free trade: respondents on the right are more pro-trade. The authors point out that 'some of our most interesting results pertain to the role of values,

identity, and attachments in shaping individual attitudes on trade policy' (ibid.: 1414).

Recent research has evaluated the validity of micro-level implications derived from standard economic trade models in more detail. Hainmueller and Hiscox (2006) question the way in which previous research has evaluated the Stolper–Samuelson model at the individual level. While past studies used the level of education as a measure of an individual's skill level, this variable also captures ideational and cultural differences, i.e. the ways in which individuals think about the consequences of economic openness that are very different from the distributional logic underlying macro-economic theories of trade. Hainmueller and Hiscox run separate analyses for those that are part of the active labor force and retired people. The results show that the effect of education on trade policy preferences is almost the same for individuals who are part of the active labor force and individuals who are not. This result casts doubt on the argument that individual trade policy preferences are driven mainly by concerns about specific distributional consequences of economic openness.

Hays *et al.* (2005) provide an empirical evaluation of the embedded liberalism hypothesis, which holds that governments gain domestic support for trade liberalization by providing insurance and compensation to those who fear to lose from increased economic openness (Rodrik, 1998). The micro-level evidence suggests that spending programs, indeed, reduce opposition to liberalization decisions.³ Hiscox (2006) conducts a survey experiment in which individuals were randomly assigned to an anti-trade frame, highlighting potential job losses due to intensified trade, and to a pro-trade frame that linked trade with lower consumer prices. The anti-trade frame increased protectionist attitudes by about 17 per cent on average. Baker (2005) presents cross-country evidence suggesting that individuals' consumption bundles with respect to exportables or imported goods correlate with trade policy preferences. Those consuming mostly exportables tend to be more protectionist than heavy consumers of imported goods.

We tie in with and contribute to this literature in two ways. First, and following up on recent work that highlights the effects of non-economic factors on trade preferences in industrialized countries (Kaltenthaler *et al.*, 2004; Mayda and Rodrik, 2005), we argue that environmental concerns also play an important role when trying to explain individuals' trade policy preferences. To our knowledge, our study for the first time develops and empirically evaluates this argument. Second, we examine whether and to what extent the effects of environmental concerns and standard predictors of attitudes toward economic openness vary once we disaggregate attitudes towards economic globalization into different facets (job- and product-related trade policy preferences).

3. ENVIRONMENTAL CONCERNS AND TRADE POLICY PREFERENCES

We argue that environmentally concerned individuals in advanced industrialized countries fear the negative environmental consequences of international economic exchange. Therefore, environmental concerns play an important role for how they feel about trade policy. The microfoundational psychology of how environmental concerns shape attitudes toward trade builds on the work on postmodern values and value change (Inglehart, 1997; Inglehart and Flanagan, 1987). It suggests that narrow economic considerations as implied by trade theories become less important in industrialized economies while post-materialist values and goals play an increasing role. Along with stronger demands for self-expression, personal freedom and more democratic decision-making, individuals start prioritizing environmental protection over other policy goals, in particular economic growth and trade liberalization.

Intense public debates about the alleged detrimental environmental effects of trade liberalization illustrate that many citizens in advanced industrialized countries worry about negative environmental consequences of intensified free trade. Several theories and empirical research identify potentially negative as well as positive effects of trade on both environmental quality and environmental regulation. The first effect emanates from the fact that trade tends to produce an expansion of economic activity and more production imposes a greater burden on the environment (the so-called scale effect). Second, trade may also affect the environment as it typically involves a shift in the composition of industrial production. Whether this effect harms or benefits the environment depends on the patterns of specialization between trading partners. A third effect, which should always be positive, rests on technology transfer and technological progress that will enable an economy to produce in a more environmentally friendly way.

Another argument holds that economic openness produces so-called 'regulatory chill' or even 'race to the bottom' effects. Cross-national differences in environmental standards may, when combined with economic openness, lead to the relocation of 'dirty' production to jurisdictions with lax environmental policies (pollution-haven hypothesis). Assuming non-trivial environmental protection costs, low to moderate costs of relocating production and competition between political units for foreign direct investment, producers may be able to credibly threaten to relocate if their home country tightens its environmental rules. This causes a status quo bias in environmental policy ('regulatory chill') and could even weaken existing environmental regulation. In the extreme version of this scenario we would observe a race to the bottom in which countries' environmental

standards become ever less effective and eventually vanish (Bhagwati, 2002; Wallach and Sforza, 1999).

The empirical literature offers very little evidence that supports the race to the bottom or the pollution-haven hypothesis (Dean *et al.*, 2009; Javorcik and Wei, 2004; Keller and Levinson, 2002; List and Co, 2000; List *et al.*, 2004). However, regulatory chill effects appear to occur in some cases (Bernauer and Caduff, 2004). Some studies have argued and documented that free trade may actually have positive environmental effects. One of the most prominent theoretical accounts of the trade–environment relationship is the trading-up argument by David Vogel (1995). This argument holds that trade involves not only exports and imports of goods and services, but also international transfers of ‘green’ preferences and policies. When voters increasingly worry about the environmental consequences of free trade, policymakers in countries with high environmental standards carefully evaluate the potential environmental ramifications of trade policy decisions and include environmental provisions in trade agreements to appease voters who fear negative environmental effects arising from increased economic openness (Bechtel and Tosun, 2009). Several studies have empirically identified positive relationships between trade and environmental quality (Antweiler *et al.*, 2001; Bernauer and Koubi, 2009; Copeland and Taylor, 2003; Dean, 2002; Frankel and Rose, 2005; Prakash and Potoski, 2006). Prakash and Potoski (2006), for example, find that trade stimulates the adoption of corporate environmental management systems. Copeland and Taylor (2003) document that trade openness correlates positively with SO₂ air pollution, but at the same time enhances technological progress, which can be used to reduce the pollution intensity of industrial production, so that ultimately the environmental gains due to improved technology outweighing trade-related increases in pollution.

We do not expect the general public to be aware of these scholarly findings. We argue, however, that citizens think about the environmental consequences of international economic exchange when forming opinions about trade policy issues and that they tend to worry about negative effects of free trade on the environment. The experience with various international negotiations over trade agreements suggests that such environmental concerns may, indeed, play a role in how citizens think about trade policy decisions. The negotiations on the NAFTA in 1993, in which differences in environmental policies between the US and Mexico provoked considerable opposition to NAFTA, constitutes an instructive example. Evidence from two Gallup polls conducted in fall 1993 shows that about 60 per cent of US citizens agreed with the statement that ‘the environment will suffer, as businesses move to Mexico to avoid the stricter environmental standards in the US’.⁴ In other trade negotiations, for instance those on the US–Chile or the US–Singapore trade agreements, the potentially

negative environmental consequences loomed large in the public debate as well. Empirically, many citizens advocate trade agreements that incorporate environmental provisions. For example, polling data show that more than 90 per cent of the respondents in the US support the inclusion of environmental provisions in trade agreements.⁵

Against this background we argue that individuals' environmental concerns matter for their trade policy preferences in industrialized countries. Individuals consider and weigh environmental consequences of trade policies when forming opinions on economic openness. Trade policy preferences then crucially depend on how much an individual values the environment. The more that individuals are concerned about the environment, the higher the weight of the possibly negative environmental effects of intensified economic exchange in their evaluation of free trade. We, therefore, expect that, empirically, an increase in environmental concerns is associated with more negative attitudes toward economic openness and more protectionist sentiment.

This empirical implication relates to how environmental concerns affect individuals' broad attitudes toward free trade. However, trade policy has many facets. Two dimensions that often figure prominently in the public debate concern the role of protectionist policy in saving domestic jobs (jobs-related protectionism) and the importance of product characteristics of foreign goods that go beyond price and quality (e.g. environmentally friendly production, consumer safety or working conditions under which goods are produced).

In theory, the idea that environmental concerns play a notable role in how individuals think about trade, in general (e.g. whether it has more positive or negative effects), should extend to these facets. Individuals who care more about the environment should also care more about product characteristics that go beyond price and quality and, holding all else equal, they should also be more likely to support protectionist trade policy. However, even though theory suggests that an increase in environmental concerns correlates positively with both protectionist sentiment in general and jobs-related protectionist attitudes, we would expect environmental concerns to be more important for how individuals feel about the role of product characteristics than for how they think about jobs-related protectionism.

4. RESEARCH DESIGN

4.1. Data

To evaluate the empirical implication of our theoretical argument, we need high quality data on both environmental concerns and individuals' trade policy preferences. To that end we introduced several items on attitudes

towards globalization and trade in the Swiss Environmental Survey 2007, a representative survey of environmental behavior, concerns, pollution and perceptions of environmental risks.⁶ The response rate was 52 per cent (according to the Standards of the American Association of Public Opinion Research, AAPOR). Eighty-three per cent of the respondents participated in a paper and pencil follow-up interview (Franzen and Meyer, 2009). In other words, the sample of this survey is unusually large, and the data collection approach used (telephone interviews plus paper and pencil interview follow-up) is very likely to produce data of higher quality than data collection relying on telephone interviews alone.

Empirical testing with cross-sectional data for one country obviously imposes constraints on the extent to which we can generalize from our findings. While such a focus on a single country is very common in the trade policy and globalization literature, with most studies using data on the US, our study allows for a much tighter fit of theoretical concepts and empirical data than would be possible with existing datasets. Existing multi-country survey datasets fail to offer the variables we need to evaluate the hypothesis we are interested in.⁷

4.2. Key variables

Three items included in the follow-up paper and pencil questionnaire form the basis for our dependent variables (Table 1). These items provide us with data on individuals' attitudes towards three facets of economic openness. The first (economic openness) covers attitudes toward economic globalization, in general. Twenty-seven per cent of the respondents said that they expect more negative than positive consequences from increased economic openness. The second variable, jobs-related protection, measures individuals' opinions on whether trade should be restricted to protect workers in industries where jobs are at risk. Forty-two per cent of the respondents agree or strongly agree that the government should protect industries by restricting access of foreign products to the Swiss market in sectors where jobs are at risk. About the same proportion of respondents (44 per cent) disagree with a statement expressing a position of economic liberalism – this statement posits that only price and quality should determine access of foreign products to the Swiss market (our third dependent variable).

We have chosen three different measures of trade policy preferences – rather than one overall measure as in most other studies of this kind – since we expect that different facets of economic openness activate different reference frames (Hiscox, 2006). The first item captures overall attitudes towards economic openness, the second item focuses on jobs-related protectionism and the third item focuses on product-related

Table 1 Key variables and descriptive statistics

Dependent variables	Percentage		<i>n</i>	Description
Economic openness	26 agree		2420	'The opening of Switzerland toward international markets, often referred to as globalization, will yield more negative than positive consequences for our country.'
Job-related protection	42 agree		2612	'The Swiss government should restrict access of foreign products to the Swiss market in industrial sectors where jobs are in danger.'
Price and quality	44 disagree		2736	'I don't care if a commodity is produced in Switzerland or abroad as long as its quality and price are right.'
Independent variables	Mean	Std dev.	<i>n</i>	Description
Environmental concerns	33 (min.: 10; max.: 45)	5.9	3134	Additive index consisting of 9 items (5-point scale, see Diekmann and Preisendörfer, 2003). For question wording, see Appendix, Table A1.
Left-right ideology	4.9 (min.: 0; max.: 10)	2.0	2315	Scale 0 (left)–10 (right)
Education (in years)	13	2.8	3363	Highest educational degree converted into years of education in accordance with guidelines of the Swiss Statistical Office.
Age (in years)	49.9	17.1	3369	
Equivalence income	5255	3988	2908	Household income in Swiss Francs divided by \sqrt{n} (n = number of household members, children included).

aspects. While the second item activates an economic nationalism frame, the third item tends to activate a post-materialist frame.⁸

We follow previous research on the determinants of attitudes toward economic openness and dichotomize the dependent variables (Hainmueller and Hiscox, 2006: 475; Mayda and Rodrik, 2005: 139). While maintaining the direction of the scale for the first (economic openness) and second (jobs-related protection) dependent variable, we invert the scale of the third dependent variable (price and quality), so that higher values

on all three items indicate more protectionist attitudes. We then apply the standard dichotomization rule (1 = strongly agree and agree, 0 = else), which many previous studies on the correlates of trade policy preferences have used. We have re-estimated all models using the original dependent variables and an ordered probit model. Our substantive conclusions remain unchanged.

Our key independent variable is environmental concerns. Franzen and Meyer (2004; 2009) show that this concept involves three key dimensions, i.e. a cognitive, affective and conative (intentional) component. The cognitive component measures the intellectual understanding of environmental problems and risks and the affective component reflects an individual's emotional reaction (e.g. fear, anger, helplessness) to them. The conative (intentional) component captures an individual's willingness to take steps against environmental problems (Maloney and Ward, 1973; Maloney *et al.*, 1975). We follow the work by Diekmann and Preisendörfer (2003) and compute a nine-item index using three items each for the cognitive, affective and conative component. The Appendix (Table A1) provides detailed information about the nine items. We use a first set of items to measure affective responses to environmental problems and future living conditions. The second set of items covers respondents' opinions on the likely consequences of economic growth. A third set of items records everyday behavior with respect to environmental quality. The environmental concerns index is the sum of the values on all nine items.

4.3. Other variables

We account for differences in ideological orientation by including a respondent's left-right self-placement in our estimations (L-R ideology). This measure ranges from 0 (left) to 10 (right). Including an individual's ideological position in the model is justified by various studies that highlight the importance of general political orientation for trade policy preferences. To account for the possibility that the correlation between environmental concerns and trade policy preferences varies across left-right ideology, we also include an interaction with environmental concerns in the estimations. The multiplicative term allows the effect of environmental concerns to vary across ideology. This functional form is advisable, since previous work suggests that voters on the right and the left also differ in how much they value the environment and the reasons for why they support environmental protection (Bryan, 2007; Garrett, 1998; Hall and Soskice, 2001; Kriesi *et al.*, 2006).

We use several indicator variables to control for sector-specific differences in protectionist attitudes. Previous research has mostly used individuals' levels of education to evaluate whether trade policy preferences differ between low-skilled and highly skilled individuals

(Hainmueller and Hiscox, 2006; Hiscox, 2006; Scheve and Slaughter, 2001). The variable education measures the highest completed degree. The responses were converted into equivalent years of education according to the standards of the Swiss Statistical Office.

We also include other variables that have been used in previous studies on trade policy preferences: household income accounts for differences in financial vulnerability and labor market competition concerns (Hainmueller and Hiscox, 2006; Kaltenthaler *et al.*, 2004; Scheve and Slaughter, 2001); sector dummies (services, primary, construction, industrial)⁹ allow for industry-specific differences in trade policy preferences (Hoffmann, 2009; Scheve and Slaughter, 2001); and age, which typically is a predictor of both policy views and environmental concerns (Hainmueller and Hiscox, 2006; Hiscox, 2006). In addition, we include an individual's language region and a citizenship indicator to proxy for cultural differences that might correlate with both environmental concerns and trade policy preferences, which helps to safeguard against spurious results.

5. EMPIRICAL FINDINGS

We estimate two models for each of the three dependent variables. Table 2 shows the results. Model I excludes the variable L–R ideology and its interaction with environmental concerns. Model II includes both environmental concerns and left–right ideology together with the interaction term between these two variables. We first turn to the results for attitudes towards economic globalization in general. As shown in Table 2 (columns 1.I and 1.II), stronger environmental concerns are associated with an increase in the probability that an individual holds negative views about the consequences of economic globalization on average. The coefficient on the environmental concerns index is significant in the reduced model (Table 2, column 2.I) and in models 3.I and 3.II. This suggests that environmental concerns play a role in individuals' trade policy preferences. However, since we have to include a multiplicative term between environmental concern and left–right ideology in our models, this interpretation applies only if we consider a person located at the extreme left (0) while holding all other predictors constant. Since we have included a multiplicative term between environmental concerns and left–right ideology, the marginal effect of environmental concerns also depends on an individual's general political orientation. Therefore, an empirical evaluation of the hypothesized relationships between environmental concerns and trade policy preference requires computing the conditional marginal effects and corresponding measures of uncertainty (Brambor *et al.*, 2006; Braumoeller, 2004; Kam and Franzese, 2007).¹⁰

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Table 2 Dimensions of trade policy preferences (probit models)

	1. Economic openness: more negative consequences		2. Protect industries if jobs in danger		3. Foreign goods: not only quality and price matter	
	I	II	I	II	I	II
Environmental attitudes	0.02** (3.44)	0.03+ (1.94)	0.01* (1.99)	0.00 (0.07)	0.03** (6.15)	0.06** (4.69)
Environmental attitudes × L-R ideology		-0.00 (-0.29)		0.00 (0.96)		-0.01* (-2.42)
L-R ideology (0-10)		0.10 (1.11)		-0.03 (-0.41)		0.20** (2.58)
Service sector	ref.	ref.	ref.	ref.	ref.	ref.
Primary sector	0.52** (3.29)	0.51** (3.02)	0.19 (1.22)	0.14 (0.80)	0.64** (4.14)	0.68** (3.99)
Construction sector	0.13 (0.96)	0.18 (1.23)	0.22+ (1.76)	0.22 (1.56)	0.23+ (1.88)	0.31* (2.25)
Industry, production sector	-0.05 (-0.47)	-0.06 (-0.56)	-0.30** (-3.29)	-0.33** (-3.24)	-0.16+ (-1.78)	-0.13 (-1.37)
Years of education	-0.19 (-1.44)	-0.06 (-0.43)	-0.64** (-5.57)	-0.48** (-3.85)	0.22* (2.07)	0.23* (2.01)
Equivalence income, in thousands	-0.04* (-2.26)	-0.04* (-2.34)	-0.03* (-2.49)	-0.03* (-2.57)	-0.01 (-1.14)	-0.01 (-1.50)
Female	-0.08 (-1.17)	-0.03 (-0.36)	0.47** (7.93)	0.50** (7.73)	0.22** (3.70)	0.23** (3.56)
Swiss citizen	ref.	ref.	ref.	ref.	ref.	ref.
Foreigner	-0.15 (-1.39)	-0.18 (-1.42)	-0.19+ (-1.89)	-0.18 (-1.57)	-0.66** (-6.53)	-0.74** (-6.30)
Age in years	-0.02 (-0.80)	-0.04+ (-1.84)	0.02 (1.10)	0.02 (0.89)	-0.07** (-4.16)	-0.09** (-4.54)
German-speaking part	ref.	ref.	ref.	ref.	ref.	ref.
French-speaking part	0.18* (2.17)	0.16+ (1.67)	-0.02 (-0.23)	-0.09 (-1.08)	-0.38** (-4.79)	-0.41** (-4.76)
Italian-speaking part	0.29* (2.33)	0.16 (1.08)	0.13 (1.08)	0.11 (0.77)	-0.29* (-2.38)	-0.22 (-1.59)
Constant	-0.76** (-2.71)	-1.55** (-2.67)	0.18 (0.72)	0.07 (0.13)	-0.98** (-4.06)	-2.07** (-4.26)
Pseudo-R ²	0.03	0.04	0.07	0.07	0.06	0.07
Correctly predicted (%)	74.0	75.2	63.0	64.4	60.9	61.5
Number of observations	2045	1779	2192	1875	2282	1930

Notes: Cell entries are probit coefficients with z-values computed from robust standard errors in parentheses. Significance levels: + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$. Dependent variable: 1 = Strongly agree or agree; 0 = else.

Figure 1 shows the marginal effects conditional on left-right political orientation for each of the three facets of economic openness while holding all other variables constant. We simulate an increase in environmental concerns from one standard deviation below to one standard deviation

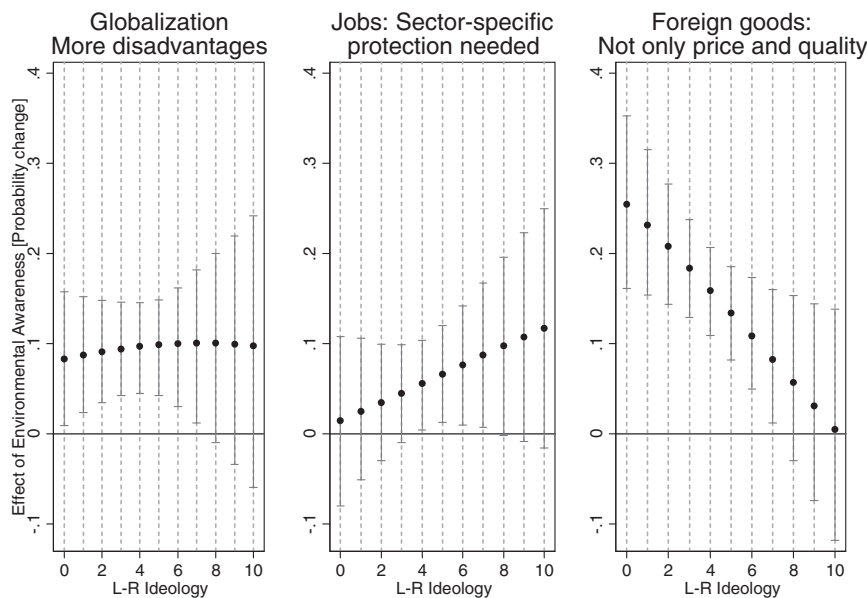


Figure 1 Marginal effects of environmental concerns on attitudes towards economic openness. The dots represent the effect of an increase in environmental concerns from one standard deviation below to one standard deviation above the variable’s mean on the probability of a respondent agreeing to the statement. Effects are simulated using Clarify (King *et al.*, 2000) based on probit estimates from models 1.II, 2.II and 3.II. Error bars indicate 95 per cent confidence intervals computed from heteroskedasticity-robust standard errors.

above the variable’s mean (mean = 33, standard deviation = 6) and call the associated change in the predicted probability the sd (standard deviation) difference. Displaying the results graphically greatly facilitates the interpretation and the reported confidence intervals allow us to directly judge statistical significance: if the reported 95 per cent confidence interval does not intersect with the horizontal zero line, the effect is significant at the 5 per cent level. Forestalling our detailed findings, the results suggest that an increase in environmental concerns is associated with an increase in protectionist attitudes. This lends support to our theoretical argument.

The left graph in Figure 1 indicates that an increase in environmental concerns from one standard deviation below to one standard deviation above that variable’s mean is on average associated with more negative views on economic globalization in general. The effect equals a 0.1 increase in probability on average and is estimated with less precision for individuals at the extremes of the left–right spectrum. As indicated by

the confidence intervals, the effect for respondents on the political left is indistinguishable from the effect for respondents on the right.

The marginal effects of environmental concerns on attitudes towards sector-specific trade barriers to protect jobs (second graph in the middle of Figure 1) are only moderately (and not significantly) different from those concerning general attitudes towards economic globalization. Environmental concerns matter significantly only for individuals in the middle of the left–right dimension. On average, an increase in the standard deviation difference (i.e. an increase in environmental concerns from one standard deviation below to one standard deviation above the variable's mean) increases the probability that an individual prefers sector-specific protectionism to prevent the loss of jobs. Although the point estimates slightly increase in size when we move from the left to the right, the effect is significant only for individuals who are located in the middle of the left–right dimension, which holds true for about 50 per cent of the respondents in our sample.

Compared to the second graph, the patterns shown in the third graph indicate that environmental concerns are associated with an increase in the probability of a respondent considering aspects that go beyond price and quality when evaluating foreign products. The sd difference ranges from 0.2 to 0.02. For individuals on the political left, the marginal effect is stronger. It decreases the more we move to the political right. For example, if the political orientation of a respondent changes from moderately left (3) to moderately right (7), which corresponds to an increase from one standard deviation below to one standard deviation above the average political left–right orientation in our sample, the sd difference decreases by about 0.1 on average (from 0.2 to 0.1). The associated confidence intervals do not overlap, which indicates that this difference across the left–right spectrum is highly significant.

In sum, our findings support the hypothesis that stronger concerns about the environment are associated with more negative attitudes towards economic openness. For individuals located in the middle of the political/ideological spectrum, this effect is significant across all three facets of economic globalization attitudes. We also find that individuals who hold stronger concerns about the environment and are positioned on the political left are more likely to support jobs-related protectionism and to take into account aspects other than price and quality to a greater extent when evaluating foreign products than individuals located on the right.

The results also suggest that individuals working in the primary sector are on average more likely to hold pessimistic views on economic globalization and evaluate foreign product characteristics that go beyond price and quality than individuals in the service sector. We do not find such a difference between respondents in the manufacturing as compared to the services sector. However, individuals employed in the manufacturing

sector are less likely to support industry-specific protection to save jobs than those working in the service sector. Interestingly, education does not significantly correlate with general attitudes toward economic openness. The point estimates for our education variable suggest that respondents with higher levels of education hold less protectionist attitudes on average, which is in line with findings from previous studies. We find the opposite relationship for our third dependent variable, i.e. respondents who are better educated are more likely to consider foreign product characteristics that go beyond price and quality. Finally, female respondents are significantly more likely to favor sector-specific protection if this policy aims at protecting jobs in that industry and pay attention to characteristics that go beyond the price and quality when considering foreign products.

Turning back to our key independent variable (environmental concerns), we note that, in absolute terms, its marginal effects appear small. This impression is misleading, however. The effects are comparable and for some models even larger in size than the effects of variables measuring the expected redistributive effects of economic openness in our models and those of previous studies (Hainmueller and Hiscox, 2006; Mayda and Rodrik, 2005; Scheve and Slaughter, 2001). The Appendix (Table A2) shows that the sd difference of education for general attitudes towards economic openness is actually smaller than that of environmental concerns, and compares in size to that of income. Education and income levels play a more substantial role than environmental concerns for sector-specific protectionism (Model 2), particularly in the case of individuals positioned on the political right. Finally, for our third dependent variable, which measures attitudes toward foreign goods, environmental concerns matter more strongly than education and income levels and this holds along the entire right–left spectrum.

The index measuring environmental concerns includes two items that relate to the economy. One might argue that this composition of the index confounds our results, because the dependent variables themselves measure attitudes towards economic issues. To address this concern we re-estimated all models with a reduced environmental concerns index, which excludes the two items that relate to the economy. The results, which can be found in the Appendix (Figure A1), remain unchanged. Also, we have re-estimated all models without dichotomizing our trade policy preference measures and using ordered probit models (reported in detail in the Appendix, Table A2). Our conclusions remain unaffected.

6. CONCLUSION

The dominant view in the international political economy literature holds that the expected income effects of trade liberalization determine

individuals' trade policy preferences and has focused on individuals' levels of education as the key predictor of attitudes toward international trade. However, since the late 1980s, policymakers have increasingly linked decisions about economic openness and environmental policy, particularly in advanced industrialized democracies. Some authors have theorized that the 'greening of world trade' results from democratic accountability inducing governments to address citizens' concerns about the environmental downsides of free trade. Indeed, public concerns about environmental problems associated with international economic exchange have resulted in the inclusion of environmental provisions in trade agreements, restrictions on market access for goods that were produced using environmentally harmful production technologies, and international trade disputes. However, we do not yet know empirically whether and how individuals' environmental concerns and their trade policy preferences are related.

In this paper we have tried to make a first step towards filling this gap in the literature. We argue that environmental concerns play a noteworthy role in how individuals evaluate international economic exchange. Our findings show that individuals with stronger environmental concerns tend to hold more pessimistic views of globalization and, in combination with moderate left-right ideology also support protectionist policies in the traditional economic sense more strongly (sector-specific protection to secure jobs). In addition, individuals who are more concerned about the environment are more likely to evaluate foreign products based on criteria that go beyond price and quality. Overall, we conclude that also the perceived environmental consequences of trade liberalization matter for how citizens evaluate economic globalization and different facts of trade policy.

We have used survey data from Switzerland because they provide essential measures of theoretically important variables that are unavailable in other existing national or multi-country datasets. We hope that similar data can be collected for other countries to explore whether our findings generalize. Future research could also explore the validity of the argument put forward in this study by evaluating more closely the conditions under which it should or should not hold. First, environmental concerns should matter less for trade policy preferences if we consider trade with neighboring countries (ensuring little pollution due to short transport routes) that enforce high levels of environmental protection. They should be crucial, however, when individuals consider trade with a geographically distant country that tolerates environmentally destructive production. Second, the correlation between environmental concerns and trade policy preferences may also be conditional on the existence of environmental agreements between trading partners, as this should reduce the expected environmental costs of trade. We leave these and other questions that help to shed more light on the green side of trade policy preferences to future research.

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NOTES

- 1 Examples are the North American Free Trade Agreement (NAFTA) and many bilateral free trade agreements, such as those of the US with Jordan, Chile, Singapore and South Korea. See also the EU's trade agreements with Argentina, Brazil, Paraguay and Uruguay (Vailland and Ons, 2002: 143).
- 2 See <http://americans-world.org/digest/global.issues/intertrade/environment.cfm> (accessed 21 June 2010).
- 3 See Hays (2009: ch. 2) for an excellent theoretical and empirical treatment of the macro relationships between economic openness and government spending.
- 4 See note 2.
- 5 Ibid.
- 6 The survey used stratified sampling. Telephone interviews were conducted with 3369 individuals in November 2006 and March 2007.
- 7 The National Election Study 1992 data, used by Scheve and Slaughter (2001), includes variables on respondents' opinion on how well parties and candidates handle environmental issues (VAR 900104, VAR 900391); whether respondents prefer changes in spending and taxes to finance environmental policies (VAR 900486); and whether reducing environmental pollution world-wide should be a foreign policy goal (VAR 912405). These variables do not adequately measure environmental attitudes. The ISSP 1995 data, used by Mayda and Rodrik (2005), include only one variable relating to environmental issues. Item Q.7b asks whether respondents think that for certain problems, like environment pollution, international bodies (e.g. UN, EU, WHO) should have the right to enforce solutions.
- 8 The wording of this third item on product-related protectionism (Table 1) leaves open the possibility that product characteristics other than environmental aspects matter beyond price and quality, which clearly constitutes a limitation of our analysis. However, the wording deliberately avoids any direct reference to specific justifications for restricting market access of products, e.g. because they are produced in an environmentally harmful way, as this would measure environmental attitudes on both the explanatory and dependent variable.
- 9 Almost 80 per cent of the employed respondents in our sample work in the services sector, 12 per cent in the industry and production sector, and only small minorities of 7 and 4 per cent in the construction and primary sector.
- 10 The models explain between 3 and 7 per cent of the variance in trade policy preferences. This number may appear small, but is perfectly comparable with the explanatory power of other widely cited studies. Mayda and Rodrik (2005: 1411, table 6) present results from regression models without country dummies that have a pseudo- R^2 of 7 per cent. For their full sample, Hainmueller and Hiscox (2006: table 1, model 1) report a pseudo- R^2 of 7 per cent. Similarly, O'Rourke and Sinnott (2001: table 4) present models with a pseudo- R^2 between 4 and 10 per cent.

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APPENDIX

This appendix contains additional information about the sampling procedure, our environmental concerns index and additional results that were removed from the paper to economize on space.

A1. Sampling procedure

The Swiss environmental survey is based on a two-stage random sample drawn from the resident population with a registered telephone number. The selected households received an information letter before they were contacted by phone. The study was announced as a general survey concerning 'Living Conditions in Switzerland' and not as an 'Environmental

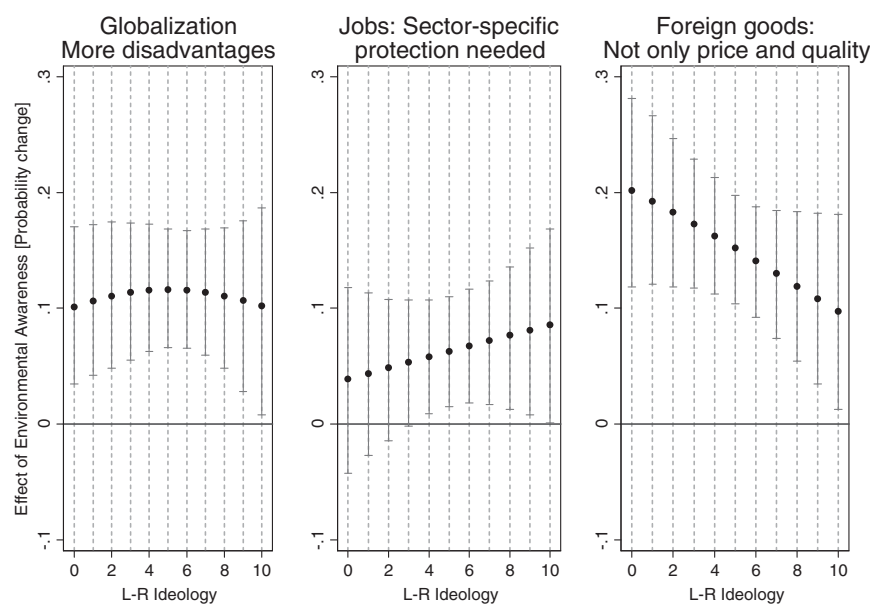


Figure A1 Marginal effects of environmental concerns on attitudes towards economic openness, using a reduced environmental concerns index. Analysis with a reduced index for environmental concerns, excluding two items related to economic issues, cf. last two items in Table A1. The dots represent the effect of an increase in environmental concerns from one standard deviation below to one standard deviation above the variables mean on the probability of a respondent agreeing to the statement. Effects are simulated using Clarify (King *et al.*, 2000) based on probit estimates from models 1.II, 2.II and 3.II. Error bars indicate 95 per cent confidence intervals computed from heteroskedasticity-robust standard errors.

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Survey' to prevent people who are more interested in environmental issues, and who are often more willing to participate in such a survey, from being overrepresented. The target person in the household was drawn randomly among its members over eighteen and was interviewed either in German, French or Italian. Non-Swiss residents of Switzerland (foreigners) were included as long as they were able to give an interview in one of the three survey languages.

Downloaded by [ETH Zurich], [Susanne Boehm] at 01:14 29 November 2011

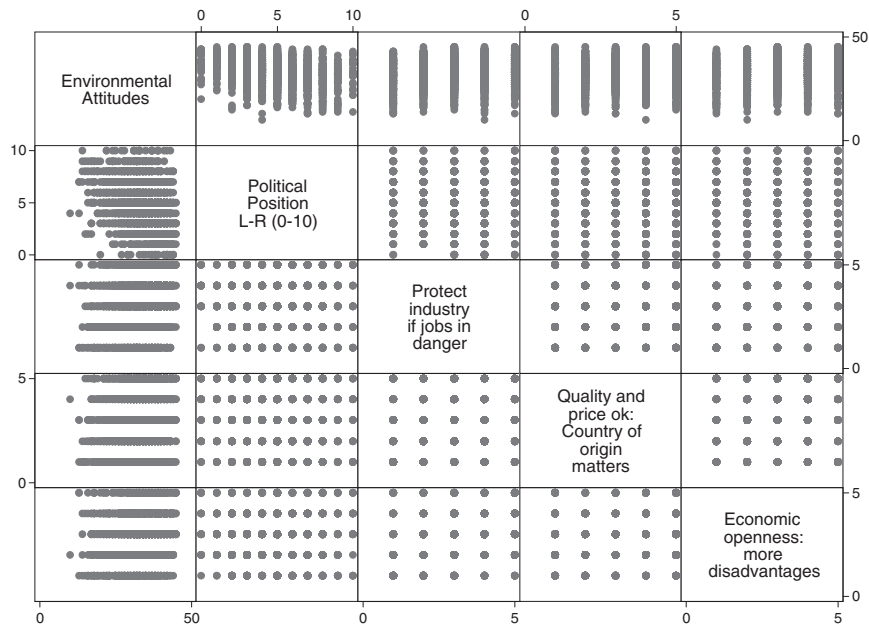


Figure A2 Joint distributions of environmental attitudes, left-right ideology and dependent variables.

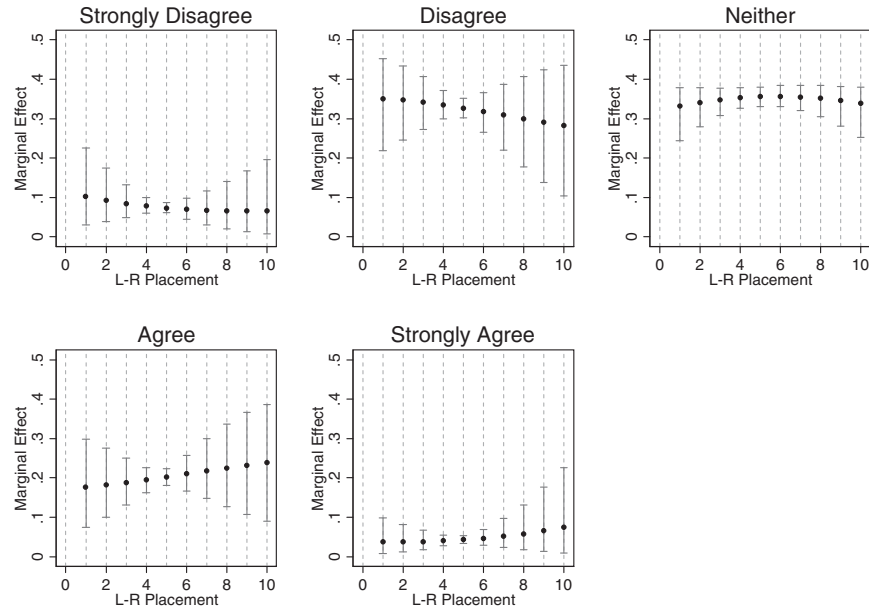


Figure A3 The marginal effect of environmental attitudes on individuals' assessments of globalization conditional on left-right ideology (results from ordered Probit models). Dots represent effects of a marginal change in environmental concerns on outcome probabilities (ordered probit model, five categories); 95 per cent confidence intervals shown.

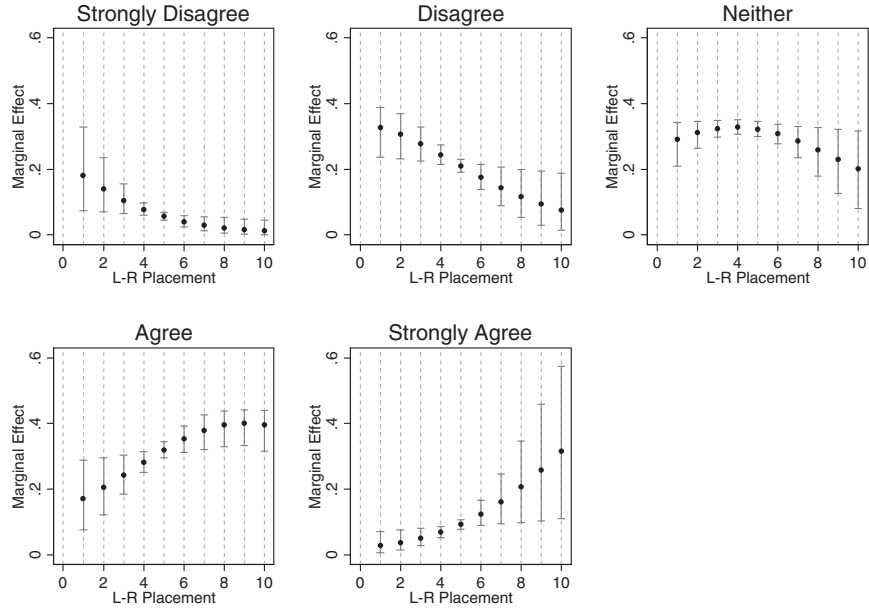


Figure A4 The marginal effect of environmental concerns on preferences for sector-specific protectionism conditional on left–right ideology (results from ordered Probit models). Dots represent effects of a marginal change in environmental concerns on outcome probabilities (ordered probit model, five categories); 95 per cent confidence intervals shown.

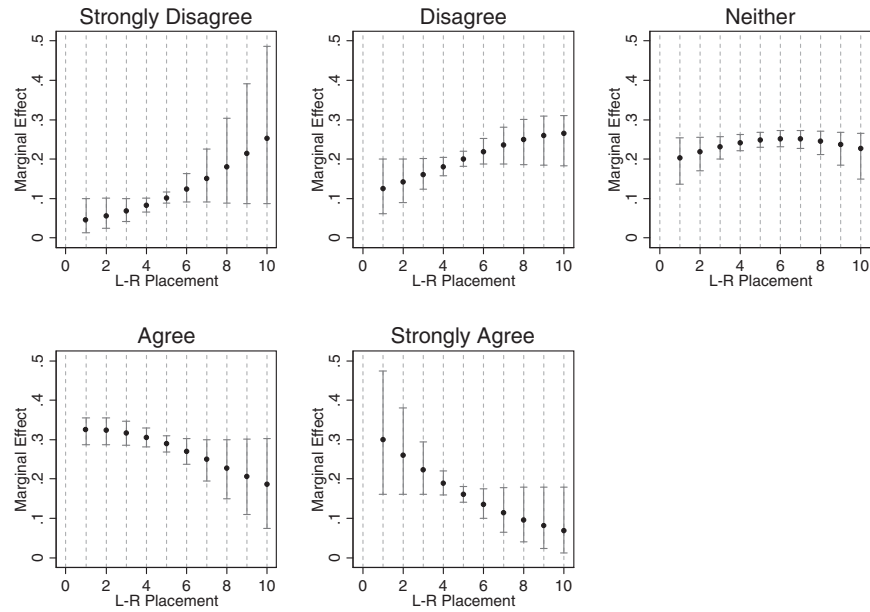


Figure A5 The marginal effect of environmental concerns on individuals assessments of foreign goods conditional on left–right ideology (results from ordered Probit models). Dots represent effects of a marginal change in environmental concerns on outcome probabilities (ordered probit model, five categories); 95 per cent confidence intervals shown.

Table A1 Items used in the environmental concerns index

Statement	Percentage (dis)agreeing/ strongly (dis)agreeing
<i>Affective component</i>	
If bothers me when I think about the environmental conditions under which our children and grandchildren will probably have to live. (agreement)	78
If we continue to walk on the same old path, we are heading toward an environmental catastrophe. (agreement)	66
If I read news or watch TV news reporting on environmental problems I often get outraged and angry. (agreement)	50
<i>Cognitive component</i>	
There are limits to growth that our industrialized world has already exceeded or will soon reach. (agreement)	65
Most people in our country still do not act in an environmentally conscious way. (agreement)	59
In my opinion, many environmentalists exaggerate claims about environmental threats. (disagreement)	43
<i>Conative component</i>	
Politicians still do too little to protect the environment. (agreement)	63
In order to protect the environment, we all should be willing to reduce our current standard of living. (agreement)	67
Actions to protect the environment should be implemented even if they cause job losses. (agreement)	40

Notes: Share of respondents expressing concerns for the environment on this item. Answer scales range from 1 to 5. The reliability of the additive index is 0.77 (Cronbach's alpha). Questions follow the suggestions by Diekmann and Preisendörfer (2003).

Table A2 Dimensions of trade policy preferences (ordered probit models)

	1. Economic openness: more negative consequences	2. Protect industries if jobs in danger (job-related protectionism)	3. Foreign goods: not only quality and price matter (product-related protectionism)
Environmental concerns	0.02* (1.87)	-0.01 (-0.85)	0.05*** (4.38)
Environmental concerns × L-R ideology (0-10)	0.00 (0.43)	0.00** (2.47)	-0.00* (-1.72)
L-R ideology (0-10)	0.01 (0.11)	-0.13* (-1.83)	0.13** (2.03)
Equivalence income, in thousands	-0.04*** (-3.79)	-0.03*** (-3.80)	-0.01 (-1.61)
Years of education	-0.49*** (-4.48)	-0.69*** (-6.90)	0.21** (2.15)
Swiss citizen	ref.	ref.	ref.
Foreigner	-0.21** (-2.14)	-0.18+ (-1.85)	-0.67*** (-7.00)
Female	0.06 (1.07)	0.51*** (9.46)	0.25*** (4.81)
Age in years (/10)	-0.06*** (-3.26)	0.01 (0.78)	-0.06*** (-3.72)
German-speaking part	ref.	ref.	ref.
French-speaking part	0.13* (1.68)	0.06 (0.81)	-0.28*** (-4.11)
Italian-speaking part	0.18 (1.58)	0.15 (1.20)	-0.19 (-1.64)
Service sector	ref.	ref.	ref.
Primary sector	0.42** (2.57)	0.13 (0.88)	0.72*** (4.59)
Construction sector	0.21* (1.79)	0.29** (2.51)	0.18* (1.76)
Industry, production sector	-0.05 (-0.65)	-0.18** (-2.27)	-0.07 (-0.85)
Cut 1	-1.60*** (-3.51)	-2.48*** (-5.94)	0.36 (0.89)
Cut 2	-0.40 (-0.89)	-1.52*** (-3.65)	1.11*** (2.77)
Cut 3	0.54 (1.19)	-0.67 (-1.60)	1.76*** (4.38)
Cut 4	1.57*** (3.44)	0.44 (1.06)	2.62*** (6.53)
Pseudo-R ²	0.03	0.05	0.03
Number of observations	1779	1875	1930

Notes: Cell entries are coefficients from ordered probit models with z-values (computed from robust standard errors) in parentheses. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Dependent variable: 1 = Strongly disagree, 2 = Disagree, 3 = Neither/nor, 4 = Agree, 5 = Strongly agree.

Table A3 Marginal effects of education, income and sector of employment on different aspects of trade policy preferences (probit models)

	1. Economic openness has negative consequences	2. Protect industries if jobs in danger	3. Foreign goods: not only quality and price matter
Years of education	-0.013 [-0.061, 0.039]	-0.105 [-0.159, -0.051]	0.053 [0.002, 0.105]
Equivalence income, in thousands	-0.107 [-0.198, -0.016]	-0.109 [-0.189, -0.025]	-0.039 [-0.089, 0.014]
Service sector	ref.	ref.	ref.
Primary sector	0.184 [0.059, 0.321]	0.056 [-0.068, 0.186]	0.257 [0.130, 0.366]
Construction sector	.061 [-0.031, 0.164]	.083 [-0.031, 0.196]	.121 [0.006, 0.222]
Industry, production sector	-0.017 [-0.075, 0.051]	-0.117 [-0.184, -0.047]	-0.051 [-0.126, 0.024]

Notes: For years of education and income: effect of an increase from one standard deviation below to one standard deviation above the variable's mean on the probability of agreeing or strongly agreeing with the statement. For business sector: switch from service to business sector. Results based on ordered Probit estimates; 95 per cent confidence intervals computed from robust standard errors in parentheses.