



Environmental tax reform and individual preferences: An empirical analysis on European micro data



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ARTICLE INFO

Article history:

Received 1 April 2013

Received in revised form 9 January 2014

Accepted 24 February 2014

Available online 31 March 2014

Keywords:

Decision making

Environment

Environmental tax reform

European Value Survey

Environmental attitude

ABSTRACT

Using micro data from European Value Survey (EVS) over 2008–2010, the paper investigates the individual and country variables that might affect the individual preferences towards the prevention of pollution, measured in terms of willingness to monetary contribute to it. Our focus is to interpret the differences in light of the Environmental Tax Reform (ETR), carried out only in some countries of our sample and based on reaching jointly environmental and political economy objectives. Analyses, carried out by means of ordered logit OLS, logit and partial generalised ordered logit, provide remarkable insights in understanding the sources of heterogenic individual attitudes towards the environment in Europe and the link with the tool of ETR, strongly promoted by the European Union.

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1. Introduction

As empirical studies employing survey data have demonstrated, several determinants, beyond individual socio economic characteristics, might affect the individual attitude to monetary contribute to tackle the environmental degradation. Regardless its limits (i.e. information bias), this approach provides useful insights to better understand the tendency towards a pro-environmental behaviour and the sources of heterogenic individual preferences.

Based on this literature, the paper investigates on the individual and country variables that might affect individual preferences in the 27 European Union (EU) Member States, interpreting differences in the light of the Environmental Tax Reforms (ETR), carried out only in some countries of our sample. From a methodological point of view, results, obtained by ordered logit OLS and logit models, are supported and made even clearer through the employment of the partial generalised ordered logit model, that, relaxing the parallel lines assumption, checks for possible variations of variables' effect by the level of the individual willingness to make financial sacrifices to prevent environmental pollution.

The ETR mainly consists in offsetting the introduction or the increase of environmental taxes, by reducing those on labour

or capital, through a revenue recycling system.¹ The shift from "goods" to "bads" aims at bringing about jointly environmental and political economy's objectives (Ashiabor et al., 2005; Bosquet, 2000; Ekins and Speck, 2011), boosting employment and favouring innovation (Baranzini, Goldemberg and Speck, 2000; EEA, 2011a, 2011b; Ekins et al., 2011; LansBovenberg and Van der Ploeg, 1998). The relevance of the ETR has been recognised by the EU, that in the "20 20 Strategy" (European Commission, 2010), strongly promote this fiscal tool to reach EU climate and energy policy targets. Several studies have accounted for the effects of ETR on competitiveness (Barker et al., 2007, 2009; FitzGerald, Keeney, and Scott, 2009), on equity (Barker and Kohler, 1998) and investigated its social acceptance (Clinch and Dunne, 2006a; Clinch, Dunne, and Dresner, 2006; Dresner et al., 2006), but, as far as we are currently aware, there are no studies analysing the correlation between the existence/inexistence of the ETR and individual preferences. Nevertheless, it seems reasonable to suppose that individual preferences towards the environment, measured in terms of willingness to monetary contribute to the prevention of environmental pollution,

¹ The "revenue recycling system" determines the difference between the ETR and simple environmental related taxes. Theoretically the "double dividend hypothesis" (Andersen, Speck, and Mautone, 2011; Bosello, Carraro, and Galeotti, 2001; Carraro, Galeotti, and Gallo, 1996; Ceriani and Franco, 2011; Pezzey and Park, 1998) would occur: "the cleaner environment is the first dividend while the increase in employment or GDP is the second dividend" (Clinch, Dunne, and Dresner, 2006, p. 961). Alternatively revenues can be allocated in advance to finance specific environmental programmes (e.g., environmental funds, environmental projects, R&D activities) (Dresner et al., 2006).

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might be correlated to the existence of fiscal arrangements embedded in the ETR, as its goal is to affect the individual behaviour, giving a signal of the prices of non-marketed natural resources and increasing the cost of polluting activities. The understanding of the determinants of individual preferences towards the environment and their correlation with the ETR offers relevant insights for the decision making process, seeking to introduce or improve the ETR, specially in the actual “context of austerity measures and budget consolidation, which reduces the possibility to undertake environmental policy measures on the expenditure side of the budget” (European Commission, 2011, p. 111).

We analyse micro data provided by the 2008–2010 waves of the European Values Survey (EVS), where people have been asked about their own willingness to give part of their income in order to prevent environmental pollution. Our hypothesis is that people living in countries in which the ETR has been set out, might show a lower willingness to monetary contribute at preventing environmental pollution, at the margin. Results indicate that individual preferences towards the environment are in fact affected by the presence of the fiscal reform and this has important policy implications.

The remainder of the paper is organised as follows. After briefly providing an overview of the existing literature on the use of survey data to investigate the determinants of individual attitudes towards the environment, data and methodology will be illustrated. The last two sections show results and discussion.

2. Determinants of the individual attitudes towards the environment: the existing literature

One way to investigate on individual preferences towards the environment is to consider as a measure, the willingness to make “financial sacrifices” (Olofsson and Ohman, 2006) consisting in giving part of the income for specific environmental-related purposes or in paying higher taxes. Surveys like “World Value Survey (WVS)” (Auci, Becchetti, and Rando, 2006; Torgler and Garcia-Valiñas, 2007; Dorsh, 2011; Duroy, 2005; Israel and Levinson, 2004), “European Value Survey” (EVS) (Kollmann, Reichl, and Schneider, 2012) and “International Social Survey Programme” (ISSP) (Franzen and Meyer, 2010; Olofsson and Ohman, 2006) “allow an assessment of individual support for the environment as well as international comparisons” (Franzen and Vog, 2012, p. 2). In fact, among others, the above mentioned surveys ask questions on the willingness to monetary contribute to the protection of the environment or the prevention of pollution, used, jointly or alternatively, as proxy of the total or marginal (Israel and Levinson, 2004; Dorsh, 2011) Willingness To Pay (WTP)² for the environment (Franzen and Vog, 2012).

Schematically, determinants potentially affecting the willingness to monetary contribute to the environment may be divided into two broad categories: individual and country specific.

Among the individual variables, income, age, gender and education are all frequently employed. Usually a positive correlation is found between education and willingness to contribute for the environment (Auci, Becchetti, and Rando, 2006; Torgler and Garcia-Valiñas, 2007; Franzen and Meyer, 2010) and higher income respondents show a higher willingness to support the environment (Israel and Levinson, 2004; Kollmann, Reichl, and Schneider, 2012).

However depending on data and the geographical scale, results on age and gender are in some case contradictory (Torgler and Garcia-Valiñas 2007; Olofsson and Ohman, 2006; Kollmann, Reichl, and Schneider, 2012).

Individual values and attitudes are broadly and differently measured. Variables related to the political sphere have a strong correlation with the environmental attitude and the intention to monetary contribute to the environment. Several variables have been employed in order to measure individual political values, such as interest in politics – “discussing politics and political orientation” (Torgler and Garcia-Valiñas, 2007); political affinity – “numbers of voters of green parties” – (Kollmann, Reichl, and Schneider, 2012); political ideology and party identification (Witzke and Urfei, 2001). Other individual variables measure the role of individual social capital in affecting the willingness to contribute for the environment, through “individual opinion on tax evasion” (Auci, Becchetti, and Rando, 2006), “trusts the national government” (Dorsh, 2011), “trust” and “membership in a voluntary organization” (Torgler and Garcia-Valiñas, 2007), to provide some examples. “Religion” is included as a significant proxy for civic values (Greeley, 1993), while among the individual values the “sense of belonging to a certain community” (global/local) and the perception of the environmental risk is also investigated. The willingness to monetary contribute to the environment is higher if people view themselves as world citizens (Dorsh, 2011), have a pessimistic view and high perception of environmental risks (Kollmann, Reichl, and Schneider, 2012).

In order to test the correlation between the context where the respondents live and their willingness to contribute to the environment, models usually include country variables. Beside index of the country’s wealth (i.e. GDP), other variables are employed, such as “countries’ income inequality” (Duroy, 2005; Franzen and Meyer, 2010), measure of domestic corruption, of quality of institutions and of tax pressure (Auci, Becchetti, and Rando, 2006). In addition, variables related to the status of the environment are also accounted: Environmental Sustainability Index 2001 (Franzen and Meyer, 2010), measures of domestic pollution (CO₂pc, in Auci, Becchetti, and Rando, 2006), of noise and waste (Witzke and Urfei, 2001), the level of environmental protection through the Environmental Protection Index (EPI) (Dorsh, 2011).

Studies using surveys show some limitations and contradictory finding, mostly due to the database itself. Franzen and Vog (2012) point out that the willingness to pay, as an important part of individual concern “is comparatively higher in the WVS and EVS than in the ISSP, likely due to a slight variation in the answering scales of the surveys (four-point vs. five-point scales), differences in the sample of countries in each survey, and varying levels of acquiescence in each country” (Ibidem, p. 20). However, all these studies are determining a new branch of literature, which our paper aims at contributing, through the investigation of the numerous and variegated aspects correlated to the individual preferences and attitudes towards for the environment.

3. Data and descriptive analysis

Individual data of the EU-27³ countries have been collected from the European Value Survey database (EVS, 2011b), for the 2008–2010 waves.

² Differently from the Contingent Analysis (Carson et al., 2003), questions do not provide a precise measure of WTP for the environment, but only an approximation of the intention to contribute in monetary terms to the protection of the environment or reduction of pollution. Nevertheless, they may show the same strategic and information bias of contingent valuation, as the answer of the respondents may not be exactly correspondent with the actual intention.

³ More in detail, countries are: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom, the latter being formed by the data collected in England plus the ones collected in Northern Ireland.

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