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What shapes the "value-action" gap? The role of time perception reconsidered

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Abstract

While research on determinants and consequences of environmental attitudes and pro-environmental behaviours is quite broad, limited research efforts have been spent on the investigation of the discrepancy between the two: i.e. perceiving as environmentalist while not partaking substantially to specific environmental actions. For this reason, understanding how time perception shapes the misalignments, the so called "Value-Action gap", is the objective of the paper. We analyse both individual (related to job motivation) and social determinants (related to the imitation of pro-environmental behaviours). While the former group refers to the way time is actually perceived, by using variables depicting the way work pressure is felt, the latter group acknowledges the possibility that a social norm is embodied into people and, being imitable, it can help acting in accordance with social environmental attitudes. The empirical analysis exploits the World Bank 3rd Wave of the World Values Survey, covering the years 1995–1998 on 34 countries, and it confirms that time perception and imitation both contribute to the decrease of VAG, although to a different extent.

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1 Introduction

Sustainable consumption is nowadays central to reach one of the key objectives of the 2030 Sustainable Development Goals, along with sustainable production.

The attention to the environment is not recent being rooted in the '70 s, when international organizations started placing the environment at the centre of the economic and political debate. One of the cornerstones was the publication of the report by Meadows et al. (1972), who analysed the limits within which growth can be compatible with environmental protection. However, heterogeneities can be found both between and within countries in the reactions and behaviours with respect to environmental concerns.

Recent research efforts have studied how to better stimulate pro-environmental choices in consumers, as their actions are found to have a great potential in reducing environmental pressure (Dietz et al., 2009). However, it is not always the case for a pro-environmental behaviour to be matched with its correspondent underlying value and becoming an action, although there is evidence (e.g. various editions of the Eurobarometer, 2012, 2017) of positive environmental attitudes by consumers. Certain constraints may limit consumers' decision process, making them unable to act according to their environmental concern. Those constraints may pertain to the lack of objective economic and technological factors, e.g. no possibility to recycle due to the lack of infrastructure and services; but they may also refer to more subjective psychological and social factors that hamper the change of a rooted behaviour. This last set of constraints constitute the focus of this study to help explaining how the thinking and the acting in a pro-environmental way may follow divergent paths. Still, while research on the determinants and consequences of both environmental attitudes and behaviours is well developed, drivers of their alignment or divergence are much less investigated. The motivations for such inconsistency can be manyfold and a coherent theoretical framework furnishing a unified explanation is still lacking (Kollmuss & Agyeman, 2002). This work draws on this recent strand of research that digs deeper into the reasons why consumers do not act in accordance with their environmental beliefs about the environment, i.e. on the so called "Value Action Gap"—VAG.

Against standard economics assumption of fully rational consumers that act in a self-interested manner, environmental economics stresses the bounded-rationality nature of consumers when dealing with environmental choices and when responding to policy incentives towards certain pro-environmental behaviours and their tendency to diverge from pure self-interest.

Our contributions to the literature are mainly three: first, we focus in a novel way on the scarcely empirically investigated determinants of the discrepancies between attitudes and actions, i.e. the VAG. Following what Chai et al. (2015) underline, most of the initial contributions were mainly theoretical or focused just on a few consumption practices. Second, we emphasize and analyze more deeply two determinants that are both part of the "value" people give to their available time, hereby conceived as an opportunity cost: (i) the direct role of time perception, mediated by the personal job attitude and (ii) the indirect role that

contextual factors producing socially accepted norms may have in allowing individuals comparing their own attitudes and behaviours with those that are more widespread, indirectly saving time to gather information and to conform to a certain attitude and/or behavior that is prevalent in that context. Third, using a cross-country dataset over about 16,000 individual level data representatives of more than 30 countries (both developed and developing) coming from the third wave of the World Values Survey (WVS),[1] we thus provide results that can be generalizable over the years 1995–1998. This rich dataset provides variables on different range of attitudes such as those describing socio-demographic, psychological and even cultural traits. The focus in on the mid '90s, a period in which the ecological consciousness was taking shape, offers the opportunity to clarify how time and environment contextual perception were closely linked even in an historical period quite different from the one we are living in. Our empirical exercise, that includes the construction of a measure of discrepancy between environmental attitudes and behaviors, shows that VAG is affected by the perception of time that people experience, that we approximate in two ways: first, by looking at own's job attitude, drawing—as an element of originality of this paper—on the literature on the so called "work life balance". We focus on three different indexes that can account, respectively, for the preference given to leisure time, the degree of perfectionism in carrying own's job, the role of job in giving meaning to one's life. All these variables may mediate the perception of what we will call, according to existing literature, "time wealth". Secondly, we built two country level variables to account for the role of the social context in creating social pressure and conformity. Indeed, time may affect VAG in two directions: the availability of "objective" discretionary time is an important determinant both for environmental attitudes (EA) and pro-environmental behaviours (PEB) (e.g. Chai et al., 2015) but also, indirectly, own's perception of time available and the presence or lack of pressure perceived matters (e.g. Geiger et al., 2021). To change a rooted behaviour or attitude people need time to "reflect" on how to modify their personal habits and concerns. The role of the social context in indirectly guiding both EA and PEB, may facilitate the emergence of an imitation process, through which a pro-environmental social norm becomes rooted in the population. These determinants, while being explored in two distinct fields of research, represent two complementary perspectives on the role of time. Our results, both with respect to the role of job attitude and social context, highlight the importance of both direct and indirect opportunity costs of time in shaping VAG.

The paper is organized as follows: Sect. 2 describes our theoretical framework; Sect. 3 outlines the dataset and the variables; Sect. 4 comments results and robustness checks. Section 5 concludes.

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[1] We extracted World Values Survey Wave 3 (1995–1998) sample from the aggregated longitudinal (1981–2014) WVS data-file (Inglehart et al., 2014).

2 Environmental attitudes, behaviours and the "Value Action gap"

Research on environmental attitudes is quite broad both from a theoretical and empirical point of view. The role of EA has been investigated with respect to the determinants of those attitudes to account for both individual (including education and environmental knowledge) and national level (e.g. national income) factors (e.g. Franzen & Meyer, 2009), as well as making clear distinctions between intrinsic and extrinsic motivations (Cecere et al., 2014; Gilli et al., 2018). The effects that EA have on life satisfaction have been also analyzed (e.g. Binder & Blankenberg, 2017; Welsch and Kühling, 2010, 2018). In the same way, PEB have been mostly studied with respect to their drivers and effects. Blankenberg and Alhusen (2018) evidence that many interrelated factors affect individual's PEB, including individual (e.g. age and gender) and socio-demographic factors (e.g. education or income) as well as psychological factors. Additional determinants have been identified in (i) social norms that can potentially stimulate the imitation of those behaviours and (ii) time, as changing own PEB is difficult, unless consumers are endowed with enough discretionary time that allows avoiding a lock-in situation into non-environmental actions (Chai et al., 2015; Melo et al., 2018). A further strand of literature is the one related to the investigation of the impact of PEB on life satisfaction providing evidence that only most costly and visible PEB are those that contribute more to enhancing subjective well being (e.g. Schmitt et al., 2018).

More recently, some contributions have analysed the interplay between the first and the second strand of literature, and have treated EA as determinants of PEB (e.g. Casaló and Escario, 2018), although a coherent theoretical framework has not been built yet. What we observe is, however, that the factors for which EA and PEB do not converge have been scarcely investigated so far, with the rare exception of the research on the so called "value-action" gap (VAG) (e.g. Flynn et al., 2009)[2]. Such strand of literature, which we aim to contribute to with this paper, has mainly emerged within a sociological perspective applied to environmental issues, and it tries to explain the lack of convergence between attitudes and actions.

2.1 What drives VAG

According to existing literature, discussed in this section, beside individual factors (which we account for) three main groups of sources are relevant in explaining the VAG. The VAG is null, when consumers behave in accordance with their attitudes, while it is maximum when there is full misalignment between what consumers are willing to do for the environment (EA) and their pro-environmental behaviours (PEB).

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[2] This gap has also been labelled using different terminology such as "attitude behaviour gap" or "green gap" (Johnstone and Tan, 2015) but through the paper we continue using VAG.

First, the availability of objective contextual factors needed to change environmental behaviours, that is the presence of technological infrastructures allowing one to behave according to its own PEB, such as, for example, the presence of suitable services for the implementation of recycling waste. Even though important, those are not part of the framework of this paper, in which we hypothesize that those are invariant within countries (and mostly vary across countries). We instead focus on the two further determinants of VAG, (i) imitation of existing social norms, which is correlated to (ii) time (controlling for the main confounding factors based on the following literature).

Some early theories, such as the theory of planned behaviour proposed by Ajzen (1985), have tried to uncover the mechanisms at the basis of the divergence between attitudes and behaviours, claiming that attitudes first influence behavioural intentions, and, in a subsequent step, actual behaviour. Social norms and certain other "situational factors" influence intentions and help explaining such misalignment. A different view is proposed by the Attitude, Behaviour and Context Theory (e.g. Stern, 2000 and Ertz et al., 2016), according to which intentions do not mediate the linkage between PEB and EA, as EA have a direct impact on PEB interacting with the context.

Notwithstanding these competing views, what there is agreement upon, is that a VAG exists: people do not seem to translate their concerns about the negative consequences of global warming into practical actions to limit their energy use in their domestic consumption, lifestyles, or travel patterns, making the discrepancy' between stated beliefs (and values) and behaviors visible (Flynn et al., 2009).

Existing studies (although with different approaches, from sociological to behavioural economics) mostly acknowledge the complexity of the motivations inducing people to act (or not) environmentally (Blake, 1999; Flynn et al., 2009; Stern, 2000) and to follow or not their attitudes. However, we observe that it is still lacking a coherent theoretical framework to study such VAG (Kollmuss & Agyeman, 2002), as a limited number of studies (including empirical ones) explicitly look at this discrepancy.

Binder and Blankenberg (2017) is among those limited number of studies: they exploit UK household data finding that those who self-identify as being green, do not consistently exhibit green actions, measured according to the presence (or absence) of environmental practices with respect to eleven items.[3] This is one of the first empirical studies with an ad hoc analysis on VAG, even though the main analysis pertains life-satisfaction preventing us to resort to this contribution for a theoretical discussion on VAG's determinants.

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[3] The eleven items in their studies are: "Switch off lights in rooms that aren't being used"; "Put more clothes on when you feel cold rather than putting the heating on or turning it up"; "Decide not to buy something because you feel it has too much packaging"; "Buy recycled paper products such as toilet paper or tissues"; "Take your own shopping bag when shopping"; "Use public transport (e.g.bus, train) rather than travel by car"; "Walk or cycle for short journeys less than 2 or 3 miles"; "Car share with others who need to make a similar journey"; "Take fewer flights when possible"; "Leave your TV on standby for the night"; "Keep the tap running while you brush your teeth".

Although not directly looking at VAG, existing literature helps outlining which are the main determinants of such gap.

As evidenced in more general terms by Farrow et al. (2017), the role a society attributes to the environment can be an important factor in shifting from polluting behaviours to sustainable ones, thus helping to explain the increased environmental awareness (Planas, 2018) and contributing to reduce the gap.

Existing social norms lead consumers to build altruistic preferences that ultimately result in environmental behaviours (for a discussion Gsottbauer and Van den Bergh, 2011). Consumers are deeply embedded in a social context, and their behaviours are necessarily shaped by their interactions with others: existing literature suggests that social pressure and being embedded in a social context characterized by a certain degree of environmental awareness facilitates the emergence and adoption of PEB (e.g. Hynes & Wilson, 2016).

Within this context, imitation plays a crucial role, and it has been also found to be a driver of (un)sustainable consumption choices along with education, family size, having young kids, lifestyle, unemployment, and earnings (Ferrer-i-Carbonell and Van Den Bergh, 2004). Individuals need to "observe" what other people are doing for the environment to shorten their learning curve: Babutsidze and Chai (2018) provide detailed evidence of a positive imitation of peers in Australia. In particular, they discuss VAG in terms of a learning process, which may be hampered by the "locked in nature" of the current consumption patterns, due to existing (dirtier) technologies social norms, habits, lack of discretionary time, finding that pro-environmental behaviours may trigger greener consumption spillovers in neighbours.

A further crucial determinant in explaining VAG, along with social norms, is time. Indirectly, when a social norm is widespread, imitation process helps people in "saving" time that could have been spent in reducing information asymmetries and in aligning PEB with EA (e.g. Babutsidze & Cowan, 2014; Welsch & Kühling, 2009). And time, is by itself a core and direct determinant to explain VAG, as below literature summarizes. Diekmann and Preisendörfer (1992) explain the VAG using economic costs lenses, suggesting that EA are translated into PEB when they are perceived as less costly, both directly (money) and indirectly, in terms of opportunity costs (time needed). Johnstone and Tan (2015), through a qualitative study, confirm this view, pointing out that the most important factors explaining why consumers do not behave according to their attitudes are time and money.Ertz et al. (2016) further elaborates on this and proposes the concept of "busyness", first used by Stern (2000), to suggest that VAG reduces when the perception of the time needed to act environmentally is low enough.

Frederiks et al. (2015) instead explain the VAG in terms of cognitive biases and risk aversion: even in the presence of a high environmental attitude, one may not change behaviours and stick (path-dependently) to what has always done due to the unwillingness to dedicate time in collecting information on how to change behaviours.

Chai et al. (2015) are the first to empirically measure the role of time in explaining the VAG, underlining that people that are mentally constrained will not be able to act accordingly to their preferences. The lack of discretionary time constitutes a direct constraint on the possibility of fulfilling a pro-environmental behavior thus

increasing VAG but, at the same time, the absence of available discretionary time,[4] to think about how to change some behaviours, impedes the formation of environmental preferences. The role of working time and the balance with respect to leisure time is thus potentially of interest to explain VAG.

Indeed, a related line of research claims that the reduction of working hours not only affects well-being (Alesina et al., 2005) but also the environment (Shao & Rodríguez-Labajos, 2016), abating carbon emissions (Schor, 2005), reducing energy use (Nässen and Larsson, 2015) and improving environmental indicators (Knight et al., 2013).[5] Druckman et al. (2012), allow interpreting these findings suggesting that a good work-life balance would allow more time for leisure activities, which are associated to lower carbon emissions than non-leisure activities. Nevertheless, Melo et al. (2018) go deeper into the micro-level investigation of the role of work-life balance distinguishing between "objective" (paid vs non paid work) and "subjective" (satisfaction with the amount of leisure time) perceived work life balance: the latter pointing to negative effects on those pro-environmental behaviours that need time to be accomplished. More recently Geiger et al. (2021) stressed the importance of including additional determinants to approximate "time wealth" to explain sustainable consumption practices beside the simple dimension of "time spent out of work"; they discuss about the subjective perception of being "running out of time", when one is spending time at a (un)hurried pace. Our work reflects such distinction: it is the importance of the subjective perception of time rather than the amount of objective discretionary time to be crucial in shaping consumption choices (Kasser & Sheldon, 2009). It occurs when people feel the pressure of being in hurry (Geiger et al., 2021) increasing own perception of "busyness" (Stern, 2000), creating a mismatch between actual and desired working time worsening perceived well-being, as in the case of overemployment (Wooden et al., 2009).

2.2 Main research questions

Previously discussed literature suggested a key role of the social context that may facilitate the emergence of an imitation process, through which a pro-environmental social norm becomes rooted in the population, by means of a learning process of favorable (or not favorable) environmental actions to which people are exposed.

We thus follow the approach in Babutsidze and Chai (2018) and test for the role of social awareness that the observation of greener behaviours in the same country may have on VAG. The underlying assumption is that people change behaviours more easily when those adhere to social norms that are accepted by most of their social context and tend to conform to those behaviours that are adopted by their peers. Coherently, not only does imitation affect VAG directly, but also indirectly, by reducing the time needed to "reflect" and eventually change personal EA and PEB.

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[4] This paper proxies discretionary time through the employment status (e.g. employed full time vs. part time).

[5] It can also occur a rebound effect when people dedicate their saved free time in resource intensive activities (e.g. Nässen and Larsson, 2015).

Clearly, this can go also in the opposite direction, in countries characterized by low environmental awareness and limited observable best environmental practices.

Our first research hypothesis is thus that being more exposed to pro-environmental actions within the country, allows abating the VAG.

Previously discussed literature attributes also a crucial role to the opportunity costs of time: environmental actions require dedicated time (e.g. to recycle, to source for information on more sustainable products etc.), but also indirectly, time and the timing of decisions have to be carefully considered, as those are central parameters to solve environmental problems (Bretschger & Smulders, 2018). Also, as Chai et al. (2015) evidence, time is needed to think about and change an attitude and, subsequently, a behaviour.

We thus test for the role of time in explaining VAG empirically, conceiving time according to a different perspective, that it is not related as early works on the objective amount of leisure time available and good work-life balance, rather on the subjective perception of time in contributing to aligning owns environmental attitudes and actions. We follow a similar perspective as in Melo et al. (2018), by using a subjective work life balance measure, and testing whether the perception of working time pressure (subjectively) impacts on VAG. So far, this constitutes an element of originality of the work.

Our second hypothesis is thus that time, and in particular the subjective perception of time availability helps explaining individual VAG (once controlling directly for time availability and remaining confounding factors).

In particular, we approximate the perception of time wealth through different measures of attitude towards job, that may impact and contextually be a proxy for own's perception of time availability. We argue, consistently with revised literature, that the influence of work-life balance on VAG cannot be determined only by the number of hours devoted to job and leisure time but also by the subjective perception of time. Our hypothesis is that not only the objective lack of time affects VAG, but also the feeling of busyness and increasing time pressure caused by own's job attitude would affect VAG indirectly, as it shapes the subjective perception of time.

This hypothesised effect of job attitude has never been investigated in this environmental research context: a more "objective" point of view has been privileged so far. We therefore draw on the literature relative to job attitude, that, as evidenced by Judge and Kammeyer-Mueller (2012), can be defined as "evaluations of one's job that express one's feelings toward, beliefs about, and attachment to one's job." (p.344).

The intuition is that the way a person considers its work and the amount of effort one dedicates to it affects own's job and life satisfaction. By contrast, if one is not enough motivated in the job and feeling overwhelmed, the perception of lacking proper time to engage in environmental practices gets higher and this will impact on own's capacity to translate intentions of act pro-environmentally into actions (i.e. on VAG).

However, job attitude may affect VAG in two different ways: if one is highly concerned with his/her job, on the one side he/she can experience higher "busyness" (following Ertz et al., 2016) but, at the same time, being satisfied with own's job provides personal fulfilment which may allow to value more available time.

However, the preference for leisure time over commitment to work, can also be a signal (up to the extreme) of the propensity of an individual to be a free-rider in the job market that maximizes its utility by reducing own's job effort up to the minimum to save some extra time.

Furthermore, putting extra-effort into job, or too much effort, as perfectionist people do, can lead either to positive or negative environmental consumption choices, depending on the type of perfectionism. In the case of "self oriented perfectionism", closely related to workaholism (e.g. Stoeber et al., 2013), the effort dedicated in the workplace could be considered by the individual not completely satisfactory, thus generating anxiety and exacerbating the feeling of not having enough time and negatively impacting on the capacity to translate intention into actions, thus augmenting the VAG. Instead, the second type of perfectionism (e.g. Beheshtifar et al., 2011), can lead individuals to get favourable outcome through an ideal and optimal motivation and effort toward a certain goal, increasing job satisfaction and therefore lowering the sense of busyness and improving the capacity to translate intentions into environmental actions.

We cannot know ex ante which of these effects is prevalent, though we expect that worse job attitudes will reduce the likelihood to translate behaviours into actions, thus helping to increase the VAG. The empirical section will propose three alternative measures of job attitudes that allow capturing the different aspects of the phenomenon under consideration.

Although existing literature (e.g. Gilli et al. 2018; Cecere et al., 2014) distinguish between extrinsic and intrinsic motivations in driving certain environmental behaviours, we cannot make such explicit distinction in the paper. Both categories affect VAG but they are also strongly intertwined in our context of analysis. Job related variables mainly reflect intrinsic motivations, and, imitation in the social context, mainly pertains extrinsic motivation. However, we cannot make such distinction so clear-cut: for instance, the reason why individuals choose to adhere or not to the social context may be also strongly intrinsic, as belonging to a virtuous environmental context may strengthen and be part of individual motivations. Because of their being strictly intertwined, we thus leave this distinction unexplicit.

3 Descriptive evidence and empirical strategy

Our empirical investigation exploits the World Values Survey (WVS), endowed with individual level variables on different attitudes ranging from psychological traits, such as personal traits, to cultural variables. In this study, we exploit questions that measure both PEB and EA. The whole dataset is made up of 341,271 observations including both developed and developing countries.

Even though answers to the questionnaires are available for six waves, we focus on the 3rd wave that refers to the years 1995–1998, as it is the only one available allowing us to construct a measure that captures the presence of a value action gap,[6]

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[6] This is the only wave within the WVS project in which EA and PEB are present at the same time.

leading to a potential sample of 77,129 observations in 34 countries. Analyzing such time span, the mid '90s, can be of interest to underline how the discrepancy between attitude and behavior is not a recent phenomenon. The level of environmental awareness was not comparable to the current one, but it was emerging as a result of the progressive public discussion about increasing environmental pressures and challenges.

Our dependent variable measures the VAG, that is the distance between EA and PEB, and it is constructed, following Chai et al. (2015) and Babutsidze and Chai (2018), as the subjective difference between declared EA and PEB.

More precisely, to build EA[7] we use three dummy variables taking value 1 if consumers:

1. would agree to an increase in taxes if the extra money were used to prevent environmental damage;
2. would buy things at a 20% higher price if it helped to protect the environment;
3. believe that protecting the environment should be given priority, even if causes slower economic growth and some loss of jobs.

To measure PEB,[8] instead, we use five dummy variables signaling whether a person has performed a specific environmental action in the previous 12 months:

1. Choice of household products that are better for the environment;
2. Choice to reuse or recycle something for environmental reasons;
3. Choice to reduce water consumption for environmental reasons;
4. Participation to a meeting/ signature of a letter or petition aimed at protecting the environment;
5. Contribution to an environmental organization.[9]

Both EA and PEB are rescaled by dividing each of them by the maximum value attainable, respectively 3 and 5. In this way they are expressed in percentage terms, ranging from 0 to 1.

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[7] The second and third attitude may in principle be read as an intention, in that we have followed Binder and Blankenberg (2017) in which "pay for environmentally friendly products goods" has been listed as EA.

[8] In this respect, Ertz et al. (2016) recognize that PEB is a multidimensional construct and include in the measurement of PEB both environmental behaviour that pertain to the private sphere (e.g. reuse or recycle) and those pertaining to the public sphere or so called "environmental citizenship" (e.g. participating to a meeting). This should be considered in connection with what Fishbein and Ajzen (1975) have pointed out it can be difficult to relate global attitudes to specific behaviours. We therefore built a simple difference between attitudes and behaviours because we retain that attitudes may potentially impact on different types of behaviours in the same way. We further point out that this measure suffers from a limit as it cannot include (due to lack of data) information about other actions such as the use of public vs private means of transport or the habits about energy consumption. However, in that historical period, it was still not enough clear the impact that more environmentally friendly means of transportation and/or the savings of energy consumption could entail. A further limitation, that is common to all studies using survey data, is the self-reported nature of data (Steg and Vlek, 2009).

[9] We use all those variables that in World Values Survey that are labelled as "Environmental actions".

Table 1 Shares of environmental attitudes and behaviours

PEB	EA		
	0	1–2	3
0	7%	11%	5%
1–4	12%	41%	21%
5	0%	2%	2%
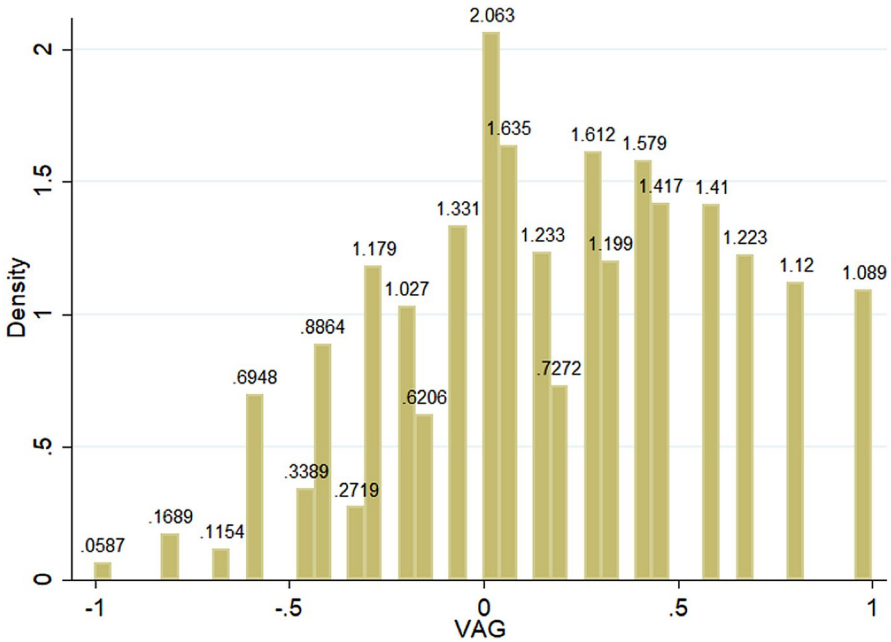
Fig. 1 Value action gap Distribution

As already done in the literature, we consider in our analysis an overall measure of PEB even though we are aware that EA can impact only a subset of PEB (Barr, 2007; Whitmarsh and O'Neill, 2010). Moreover, we cannot take a distinction among the PEB that requires more time demanding behavior than others (e.g. Melo et al., 2018) but due to the way the questions are framed we can apply the same requirement of time to all of them, giving them equal weight.

Table 1 reports the values for EA and PEB along with their shares. It can be noticed that 41% of individuals in the sample have intermediate EA and PEB: undertaking between 1 and 2 EA and experience between 1 and 4 PEB. Only 4% of them declare the maximum PEB, while the maximum possible environmental attitudes are undertaken by 28% of the sample. At the intersection between the two, we find that only 2% of individuals have both the highest environmental attitudes and the highest environmental behaviours. Interestingly enough, at the opposite we observe

Table 2 Main variables descriptive statistics

Variables	Obs	Mean	Std. Dev	Min	Max
EA					
Price for Environment	16,959	0.515243	0.499782	0	1
Tax for Environmant	16,959	0.667197	0.471231	0	1
Environment vs Growth	16,959	0.513061	0.499844	0	1
PEB					
Household	16,959	0.513061	0.499844	0	1
Recycle	16,959	0.523557	0.49946	0	1
Water	16,959	0.545492	0.497941	0	1
Attend	16,959	0.153547	0.360524	0	1
Org	16,959	0.168052	0.373924	0	1
VAG	16,959	0.184425	0.401529	− 1	1
AGE	16,959	44.61802	14.55452	17	94
HIGH_EDU	16,959	4.502211	2.25701	1	8
GENDER	16,959	0.523026	0.499484	0	1
HEALTH	16,959	2.318533	0.937651	1	5
N_CHILDREN	16,959	2.483873	1.409062	1	8
MARITAL_DUMMY	16,959	0.044755	0.206772	0	1
INCOME	16,959	4.855711	2.514165	1	10
URBAN	16,959	5.063683	2.424071	1	8
TIME_P	16,959	0.400908	0.490097	0	1
INDEX_JOB_W	16,959	0.65051	0.303066	0	1
INDEX_JOB_LEI	16,959	0.385243	0.360236	0	1
INDEX_W_MOTIV	16,959	0.776775	0.259953	0	1
IMIT_ACTIONS	16,959	1.818623	0.654214	0.901055	3.106472
IMIT_NEGATIVES	16,959	0.276015	0.109008	0.122	0.471191

that 7% of the sample have no PEB and no EA, signaling that the remaining 93% undertake at least one EA or PEB.

VAG measures how much attitudes and behaviors are distant from each other, taking the difference between the two. It is distributed as in Fig. 1 and it ranges between − 1 (when the actions overcome the intentions) to 1 (when intentions are not supported by actions) and its main descriptive statistics are obtained from the two components EA and PEB, as in Table 2. In Table 3 we show the distribution of VAG by geographical area. We note that VAG is lower in European countries than in East Asian and South Asian countries. Africa shows a VAG lower than Europe, probably due to the lack of infrastructure needed to display PEB. The same applies to South Asian countries where EA are high and PEB are low. Additionally, Anglo-Saxon countries have a mean value which is negative: PEB is higher than EA, as a proof of the higher relevance of behaviors rather than attitudes in those societies.

The best-case scenario in terms of environmental impacts arises when positive attitudes are aligned with a high number of PEB that are put into practice.

Table 3 Geographical Distribution for main variables

	Macro-regions	Obs	Mean	sd	min	max
VAG	East Asia	1265	0.313676	0.359975	− 0.8	1
	EU	3648	0.113012	0.37665	− 1	1
	East Europe	4690	0.294556	0.395881	− 1	1
	South America	3454	0.193862	0.385008	− 1	1
	Anglo Saxon	1881	− 0.04253	0.351042	− 1	1
	South Asia	1247	0.226036	0.430713	− 1	1
	Africa	774	0.084841	0.425124	− 1	1
	Total	16,959	0.184425	0.401529	− 1	1
EA	East Asia	1265	0.709091	0.293284	0	1
	EU	3648	0.536641	0.355832	0	1
	East Europe	4690	0.556645	0.36813	0	1
	South America	3454	0.588014	0.340954	0	1
	Anglo Saxon	1881	0.548113	0.348847	0	1
	South Asia	1247	0.553863	0.366123	0	1
	Africa	774	0.47373	0.348448	0	1
	Total	16,959	0.565167	0.354865	0	1
PEB	East Asia	1265	0.395415	0.249197	0	1
	EU	3648	0.423629	0.270151	0	1
	East Europe	4690	0.26209	0.242508	0	1
	South America	3454	0.394152	0.27288	0	1
	Anglo Saxon	1881	0.590643	0.248309	0	1
	South Asia	1247	0.327827	0.308031	0	1
	Africa	774	0.388889	0.293669	0	1
	Total	16,959	0.380742	0.280934	0	1

However, the gap may go in both directions: EA may be higher than PEB or PEB may be higher than EA, this explains the negative and positive signs it may take. In our empirical analysis we are interested in investigating what are the drivers of the movement along the distribution on VAG, rather than just uncovering the motivation for the presence of such a gap.

Our focal independent variables are built to assess the role of time and the social context, the first approximated by means of three alternative measures depicting three different perspectives from which the relationship between discretionary time and job attitude can be analysed.

The fist index, (INDEX_JOB_W), measures an "high" attitude towards job, and it is constructed as a simple average of three dimension that are considered as relevant (or not) by individuals with respect to their job, namely i) good pay, ii) opportunity to use initiative and iii) job in which one feels being able to achieve something. This index is high in case individuals state to prefer a job that gives a meaning to life. The expectation is that, due to high satisfaction with own's job

with respect to both the time that job occupies in life and the related satisfaction, it contributes to reduce the perceived lack of time (busyness).[10]

The second index, (INDEX_JOB_LEI), measures a "low" attitude towards work and the preference towards leisure time. This is constructed as simple average of three dimensions of job that are considered as relevant (or not) by individuals, namely (i) not too much job pressure, (ii) generous holidays and iii) good hours. This variable recognizes that life-satisfaction related achievements are not obtained directly by the job activity. When this variable is high, individuals experience more leisure time, as they act favoring spare time to job in their work-life balance. Nevertheless, the way the variable is constructed can also summarize individuals' absence of commitment in any possible action or behaviour which requires a certain amount of effort to be carried out, including environmental actions. Consequently, we cannot rule out this possible effect and we cannot make any a priori hypothesis on the sign of this effect, though we retain it can capture a relevant part of our job motivation's argument.

The third, (INDEX_W_MOTIVATION), captures the degree of perfectionism with which a person faces job motivation. It is constructed as a simple average between three dummy variables capturing whether the individual (i) would continue to work on a task until satisfied with the result, (ii) would feel disappointed when not accomplish personal goals and (iii) would stay up late to finish. When this variable is high, it would signal that the individual dedicates fully to the job, at the expenses of other activities including discretionary time. As we cannot discriminate between the positive or negative components of perfectionisms that we discussed in the literature, we cannot ex ante hypothesize a sign for this variable.

The second group of variables try to uncover the role social context plays in aligning (or not) EA and PEB. Both variables are constructed on the (strong) assumption that individuals can observe certain environmental actions if those are experienced and widespread in their social context, giving individuals the possibility to imitate peer's actions. However, being available only a country level variable, we cannot directly test for a pure peer to peer imitation effect, as we will better discuss as a limitation in the conclusive section. Notwithstanding the strong assumptions of these variables, we retain it is of interest, in this context, to approximate for the role of social context in shaping VAG. The first variable refers to the mean number of environmental actions taken by citizens of the same country (IMIT_ACTIONS). The second counts the amount of people in the country having a negative gap (IMIT_NEGATIVES), i.e., when behaviours are higher than attitude. Both indexes are built at the country level.

Table 4 displays pairwise correlation matrix between variables, while Fig. 2 displays the binned scatter plots that relate the value action gap to the 5 indexes above described. Whereas the relationship between INDEX_JOB_W, INDEX_JOB_LEI,

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[10] Through this variable we do not capture a mere monetary satisfaction given by high wage, rather the relevance of the job dimension within the domains of life. To account for a likely income effect due to being wealthier, in all regressions we control for income. In this way we are sure that we just capture a kind of job-satisfaction effect.

Table 4 Pairwise correlation matrix

|	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 VAG	1.00													
2 AGE	− 0.06	1.00												
3 HIGH EDU	− 0.02	− 0.21	1.00											
4 GENDER	− 0.01	− 0.06	− 0.03	1.00										
5 HEALTH	0.05	0.25	− 0.17	0.06	1.00									
6 N CHILDREN	− 0.06	0.24	− 0.19	− 0.04	0.03	1.00								
7 MARITAL DUMMY	0.01	− 0.19	0.04	0.02	− 0.05	− 0.08	1.00							
8 INCOME	− 0.02	− 0.11	0.35	− 0.05	− 0.18	− 0.11	− 0.02	1.00						
9 URBAN	− 0.04	0.00	0.21	0.04	− 0.07	− 0.03	0.03	0.14	1.00					
10 INDEX JOB W	− 0.03	− 0.07	0.11	− 0.05	− 0.09	0.04	0.02	0.03	0.06	1.00				
11 INDEX JOB LEI	0.01	− 0.06	− 0.04	0.05	− 0.01	0.03	0.02	− 0.08	0.03	0.30	1.00			
12 INDEX W MOTIV	0.04	− 0.01	0.02	− 0.01	0.00	0.00	− 0.03	0.00	0.00	0.12	0.01	1.00		
13 IMIT_NEGATIVES	− 0.32	0.06	0.10	0.02	− 0.21	0.14	0.07	0.12	0.08	0.04	− 0.07	− 0.03	1.00	
14 IMIT_ACTIONS	− 0.29	0.04	0.06	0.00	− 0.22	0.11	0.07	0.08	0.07	− 0.01	− 0.18	− 0.06	0.86	1.00
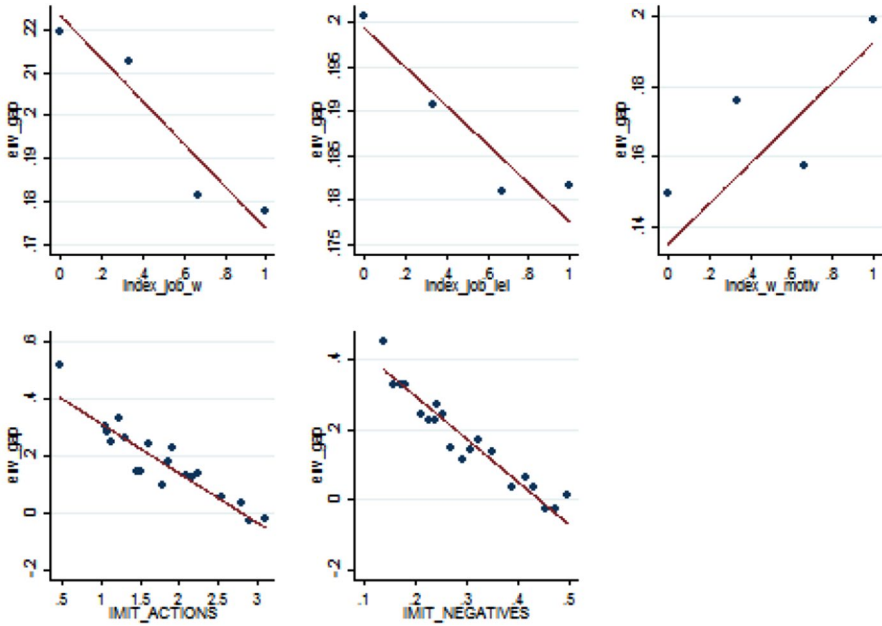
Fig. 2 Binned scatter plots on VAG and selected indexes

IMIT_ACTIONS, and IMIT_NEGATIVES is negative, signalling that these variables tend to reduce the existing gap between actions and attitudes, the opposite occurs for INDEX_W_MOTIV, which, by contrast, tends to increase the gap.

As our empirical strategy aims at understanding which factors (of the above discussed) drive the value action gap in individuals as consumers, we estimate the following baseline model, in which VAG constitutes our dependent variable:

$$VAG_i = \alpha_i + \beta_1 CONTROLS_i + \beta_2 X_{i(j)} + \delta_j + \varepsilon_i$$

where i indexes individuals and j indexes the country to which individuals belong, δ accounts for country fixed effects and ε is an idiosyncratic independently distributed error term.

The vector $X_{i(j)}$ represents the two main variables of interest that are estimated once at a time. Indeed, it accounts on one side for the role of job attitude (i) and, on the other side, for social context (j). Those variables are included separately in the model to avoid the insurgence of multicollinearity issues. In a later step, to account for the impact of the diffusion of environmental PEB, we include the IMITATION indexes: namely IMIT_ACTIONS and IMIT_NEGATIVES. As those variables are constructed at the country level, standard errors are clustered at the level of the country and country dummies are removed due to perfect multi-collinearity.

Among the explanatory variables, we account for a set of CONTROLS that capture the socio-demographic characteristics of an individual, following existing literature practices. To those set of variables belong AGE, capturing the age of the

respondent ranging from 13 to 99; GENDER, a dummy variable equal 1 if female; MARITAL STATUS, a dummy equal 1 if single and 0 if married; CHILDREN, capturing the number of children; HEALTH, an assessment of state of health (subjective) in scale from very good (1) to very poor (5); INCOME, by group of 10 income steps, and URBAN, based on the size of the town in a scale from 1 (2000 and less) to 8 (500,000 and more). In the scarce literature about VAG, it is shown that being older, having higher level of educational attainments, lower income and living in the countryside can lower VAG. However, as the literature pertains specific countries, whereas our sample is cross-country, it is difficult to set a priori expectations on those signs.

Coherently with existing literature on the direct or indirect role played by education, we also control for the educational attainments by individuals through HIGH_EDUCATION, that captures the highest level of education attained in a scale from 1 (Inadequately completed elementary education) to 8 (completed university degree). The ex-ante expectation is that the higher the educational attainment, the higher the pro-environmental behaviors, as education improves environmental awareness and sense of responsibility although not always found to be significant in empirical studies (e.g. Meyer, 2015). No ex ante expectation can be formulated with respect to the VAG. Indeed, Chankrajang and Muttarak (2017) found that more years of schooling lead to different effects depending on the environmental action considered.

Within the group of control variables, we also include a dummy variable (TIME_P), proxying directly for the time preferences. In this way we are controlling more directly for time, as it captures directly the weight people attribute to time. It is measured by the long-term orientation of parents in childrearing (e.g. Falk et al., 2018) using the question: *Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider most important?* It takes value one when people list «thrift, saving money and things», i.e. when parents contribute to form long term oriented preferences in their children.

4 Results

In Table 5 we present the benchmark results, estimates reported in column 1 only include control variables.

We note that being older reduces the gap while being married increases the gap. No significant results are found for health status, gender, and the number of children. As the income increases, the gap gets reduced. The same happens for those that live in bigger towns with respect to those living in the countryside. This is in line with what found in the literature, and it is explicable by considering that some technological constraints may be at work and prevent from acting according to specific preferences (e.g. Chai et al., 2015). The variable accounting for time preferences (TIME_P) is always negative and significant: coherently with expectations, being oriented towards the future, helps abating the gap. In other words, long term orientation characterizes individuals who are more inclined to align behaviours and attitudes. Column 2 introduces the first (out of three) job attitudes indexes (INDEX_JOB_W), that captures an "high" attitude towards job.

Table 5 Main (benchmark) results

	(1) baseline	(2) INDEX_JOB_W	(3) INDEX_JOB_LEI	(4) INDEX_W_MOTIV	(5) IMIT_ACTIONS	(6) IMIT_NEGATIVES
INDEX		−0.0185*	−0.0072	0.0489***	−0.1551***	−1.1519***
		(0.0102)	(0.0088)	(0.0113)	(0.0209)	(0.0495)
TIME_P	−0.0192***	−0.0191***	−0.0189***	−0.0190***	−0.0125	−0.0248**
	(0.0064)	(0.0064)	(0.0064)	(0.0064)	(0.0145)	(0.0091)
CONTROLS						
AGE	−0.0011***	−0.0011***	−0.0011***	−0.0011***	−0.0013**	−0.0008**
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0006)	(0.0004)
HIGH_EDU_2	−0.0127	−0.0128	−0.0128	−0.0127	−0.0204	−0.0052
	(0.0124)	(0.0124)	(0.0124)	(0.0124)	(0.0237)	(0.0189)
HIGH_EDU_3	−0.0301**	−0.0302**	−0.0302**	−0.0302**	−0.0375	−0.0099
	(0.0141)	(0.0141)	(0.0141)	(0.0141)	(0.0263)	(0.0227)
HIGH_EDU_4	−0.0143	−0.0139	−0.0145	−0.0138	−0.0268	0.0046
	(0.0127)	(0.0127)	(0.0127)	(0.0126)	(0.0337)	(0.0266)
HIGH_EDU_5	−0.0320**	−0.0317**	−0.0320**	−0.0315**	−0.0343	−0.0196
	(0.0157)	(0.0157)	(0.0157)	(0.0157)	(0.0309)	(0.0289)
HIGH_EDU_6	−0.0141	−0.0136	−0.0142	−0.0138	−0.0100	−0.0059
	(0.0139)	(0.0139)	(0.0139)	(0.0139)	(0.0320)	(0.0292)
HIGH_EDU_7	−0.0254	−0.0243	−0.0257	−0.0255	−0.0319	−0.0143
	(0.0156)	(0.0158)	(0.0158)	(0.0158)	(0.0337)	(0.0298)
HIGH_EDU_8	−0.0211	−0.0198	−0.0215	−0.0221	−0.0388	−0.0151
	(0.0137)	(0.0137)	(0.0137)	(0.0137)	(0.0348)	(0.0272)
GENDER	−0.0079	−0.0084	−0.0077	−0.0078	−0.0050	−0.0034
	(0.0060)	(0.0060)	(0.0060)	(0.0059)	(0.0071)	(0.0055)

Table 5 (continued)

	(1) baseline	(2) INDEX_JOB_W	(3) INDEX_JOB_LEI	(4) INDEX_W_MOTIV	(5) IMIT_ACTIONS	(6) IMIT_NEGATIVES
HEALTH	− 0.0012	− 0.0013	− 0.0012	− 0.0012	0.0055	0.0007
	(0.0036)	(0.0035)	(0.0035)	(0.0035)	(0.0068)	(0.0051)
N_CHILDREN	0.0004	0.0004	0.0004	0.0004	− 0.0040	− 0.0022
	(0.0024)	(0.0024)	(0.0024)	(0.0024)	(0.0050)	(0.0027)
MARITAL_DUMMY	0.0236*	0.0235	0.0237	0.0253*	0.0172	0.0434***
	(0.0143)	(0.0150)	(0.0150)	(0.0150)	(0.0197)	(0.0144)
INCOME_2	− 0.0219	− 0.0218	− 0.0219	− 0.0223*	− 0.0350	− 0.0142
	(0.0135)	(0.0134)	(0.0134)	(0.0134)	(0.0292)	(0.0301)
INCOME_3	− 0.0154	− 0.0153	− 0.0156	− 0.0160	− 0.0315	− 0.0066
	(0.0138)	(0.0135)	(0.0136)	(0.0135)	(0.0315)	(0.0324)
INCOME_4	− 0.0254*	− 0.0250*	− 0.0255*	− 0.0252*	− 0.0450	− 0.0205
	(0.0141)	(0.0138)	(0.0138)	(0.0138)	(0.0370)	(0.0366)
INCOME_5	− 0.0140	− 0.0139	− 0.0143	− 0.0146	− 0.0256	− 0.0053
	(0.0140)	(0.0137)	(0.0137)	(0.0137)	(0.0355)	(0.0345)
INCOME_6	− 0.0322**	− 0.0321**	− 0.0323**	− 0.0325**	− 0.0496	− 0.0230
	(0.0151)	(0.0147)	(0.0147)	(0.0147)	(0.0385)	(0.0361)
INCOME_7	− 0.0051	− 0.0048	− 0.0052	− 0.0055	− 0.0252	0.0058
	(0.0153)	(0.0150)	(0.0150)	(0.0149)	(0.0413)	(0.0377)
INCOME_8	0.0053	0.0058	0.0052	0.0047	− 0.0117	0.0194
	(0.0162)	(0.0158)	(0.0158)	(0.0158)	(0.0327)	(0.0311)
INCOME_9	0.0072	0.0077	0.0070	0.0060	− 0.0279	0.0126
	(0.0177)	(0.0176)	(0.0176)	(0.0176)	(0.0404)	(0.0350)

Table 5 (continued)

	(1) baseline	(2) INDEX_JOB_W	(3) INDEX_JOB_LEI	(4) INDEX_W_MOTIV	(5) IMIT_ACTIONS	(6) IMIT_NEGATIVES
INCOME_10	−0.0329*	−0.0320*	−0.0332*	−0.0336*	−0.0354	−0.0124
	(0.0187)	(0.0187)	(0.0187)	(0.0187)	(0.0384)	(0.0357)
URBAN_2	0.0154	0.0158	0.0155	0.0152	0.0274	0.0077
	(0.0128)	(0.0127)	(0.0127)	(0.0127)	(0.0284)	(0.0226)
URBAN_3	−0.0045	−0.0042	−0.0045	−0.0049	−0.0061	−0.0085
	(0.0145)	(0.0146)	(0.0146)	(0.0146)	(0.0220)	(0.0222)
URBAN_4	0.0078	0.0081	0.0077	0.0071	0.0132	0.0067
	(0.0138)	(0.0136)	(0.0136)	(0.0136)	(0.0299)	(0.0309)
URBAN_5	−0.0227*	−0.0221*	−0.0225*	−0.0233*	0.0139	−0.0257
	(0.0123)	(0.0120)	(0.0120)	(0.0120)	(0.0352)	(0.0300)
URBAN_6	0.0055	0.0056	0.0054	0.0051	0.0226	−0.0011
	(0.0135)	(0.0133)	(0.0133)	(0.0133)	(0.0298)	(0.0319)
URBAN_7	−0.0135	−0.0129	−0.0133	−0.0134	0.0177	−0.0154
	(0.0115)	(0.0115)	(0.0115)	(0.0115)	(0.0265)	(0.0251)
URBAN_8	−0.0271**	−0.0265**	−0.0269**	−0.0271**	−0.0029	−0.0202
	(0.0120)	(0.0118)	(0.0118)	(0.0118)	(0.0279)	(0.0260)
Constant	0.1657***	0.1781***	0.1696***	0.1240***	0.5730***	0.5748***
	(0.0285)	(0.0294)	(0.0290)	(0.0301)	(0.0652)	(0.0412)
N	16,959	16,959	16,959	16,959	16,959	16,959
R^2	0.115	0.115	0.115	0.116	0.073	0.102
ADJ. R^2	0.112	0.112	0.112	0.113	0.071	0.100

Standard errors in parentheses

$^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

We observe a negative coefficient associated to this index: being highly motivated in own's job contributes reducing the gap. Being motivated and focused on own job gets translated into a positive job attitude, that lowers the perceived lack of time (busyness) making individuals more prone to dedicate attention and act according to one own's EA. This in turns abates the distance between EA and PEB, lowering the VAG.

In column 3 we introduce the second index that accounts for a prominent role associated to the preference towards leisure time, that increases when there is a "low" attitude towards job (INDEX_JOB_LEI). As no significant effect is associated to this index, we may conclude that preference towards leisure time is not relevant in abating the gap and other domains have more importance in reducing it. This result may be driven by the conflicting directions its components may entail that we discussed beforehand, leading overall to a net neutral effect. Column (4) reports results for the last index (INDEX_W_MOTIV), that takes high values in case of perfectionism at work. Results show a positive coefficient: dedicating fully to own's job reduces available discretionary time (augmenting the gap) but it can also prevent individual from an alternative and pro-environment use of time, once again augmenting VAG. According to the psychological motivation depicted above, being negatively perfectionist has a negative impact on other domains of life generating further stress that contributes to the perception of being busy. It thus seems to be prevalent the negative component of perfectionism in explaining this result.

Moving to the last variables that indirectly account for the role of time savings induced by the social context, we find consistent evidence that both indexes (IMIT_ACTIONS and IMIT_NEGATIVES) abate the gap. Although with some limitations due to the way those variables have been constructed, the role of potentially imitative behaviours is confirmed: having the possibility of living inside a society (country) that carries out virtuous environmental behaviours, stimulates a reduction in the VAG.

As a final step of our analysis, similarly to Babutsidze and Chai (2018), we provide in Table 6 a robustness check with respect to the possibility that the potential effect of the social environmental awareness is different according to the number or EA and PEB available in the social context. In particular, we divided the sample into two groups according to the number of EA and PEB that are observable in society: the first group is made up of a sample in which people display the maximum of attitudes (3) and less than 3 actions, while the second group displays the absence of attitudes and more than 2 actions. The imitation potential is at its maximum in the first case while at its minimum in the second case. Results in columns 1 and 3 show a significant effect for the role of social context, while columns 2 and 4 are not significant as expected.

Furthermore, we also check whether results for the full sample are driven by the presence of positive values (versus negative) in VAG and we decompose the sample into two sub-groups one in which VAG is positive, and one in which it is negative. Table 7 confirms previous findings.

Table 6 Robustness control to imitation possibility by social context

	(1) IMIT_NEGATIVES	(2) IMIT_NEGATIVES	(3) IMIT_ACTIONS	(4) IMIT_ACTIONS
INDEX	− 0.4272***	− 0.0422	− 0.0936***	− 0.0052
	(0.0948)	(0.0605)	(0.0089)	(0.0116)
TIME_P	0.0021	0.0189**	0.0025	0.0191**
	(0.0064)	(0.0091)	(0.0072)	(0.0090)
CONTROLS:				
AGE	− 0.0001	0.0000	− 0.0002	0.0000
	(0.0005)	(0.0003)	(0.0004)	(0.0003)
HIGH_EDU_2	− 0.0098	0.0201	− 0.0168	0.0201
	(0.0140)	(0.0268)	(0.0107)	(0.0260)
HIGH_EDU_3	− 0.0084	0.0245	− 0.0236*	0.0246
	(0.0136)	(0.0252)	(0.0129)	(0.0249)
HIGH_EDU_4	− 0.0159	0.0341	− 0.0367***	0.0339
	(0.0107)	(0.0208)	(0.0107)	(0.0204)
HIGH_EDU_5	− 0.0195	0.0177	− 0.0277	0.0184
	(0.0199)	(0.0335)	(0.0181)	(0.0327)
HIGH_EDU_6	− 0.0223	0.0041	− 0.0318***	0.0047
	(0.0134)	(0.0285)	(0.0109)	(0.0281)
HIGH_EDU_7	− 0.0361*	0.0114	− 0.0422**	0.0113
	(0.0212)	(0.0272)	(0.0203)	(0.0258)
HIGH_EDU_8	− 0.0224*	0.0136	− 0.0402***	0.0135
	(0.0119)	(0.0239)	(0.0108)	(0.0239)
GENDER	− 0.0156**	0.0156	− 0.0176***	0.0156
	(0.0066)	(0.0122)	(0.0062)	(0.0121)
HEALTH	0.0101*	0.0067	0.0072	0.0068
	(0.0052)	(0.0049)	(0.0057)	(0.0048)
N_CHILDREN	0.0057**	− 0.0064	0.0073***	− 0.0066
	(0.0026)	(0.0043)	(0.0020)	(0.0043)
MARITAL_ DUMMY	0.0231	0.0435***	0.0205	0.0432***
	(0.0179)	(0.0141)	(0.0160)	(0.0142)
INCOME_2	− 0.0240	0.0027	− 0.0252	0.0023
	(0.0240)	(0.0173)	(0.0183)	(0.0176)
INCOME_3	− 0.0103	− 0.0176	− 0.0148	− 0.0182
	(0.0235)	(0.0166)	(0.0207)	(0.0168)
INCOME_4	− 0.0340	− 0.0166	− 0.0327*	− 0.0174
	(0.0210)	(0.0147)	(0.0164)	(0.0148)
INCOME_5	− 0.0298	− 0.0333**	− 0.0317	− 0.0337**
	(0.0235)	(0.0148)	(0.0198)	(0.0147)
INCOME_6	− 0.0271	− 0.0152	− 0.0260	− 0.0166
	(0.0224)	(0.0134)	(0.0174)	(0.0141)
INCOME_7	0.0023	− 0.0236	0.0004	− 0.0251
	(0.0300)	(0.0183)	(0.0305)	(0.0187)

Table 6 (continued)

	(1) IMIT_NEGATIVES	(2) IMIT_NEGATIVES	(3) IMIT_ACTIONS	(4) IMIT_ACTIONS
INCOME_8	− 0.0139	− 0.0443*	− 0.0188	− 0.0454*
	(0.0240)	(0.0249)	(0.0198)	(0.0244)
INCOME_9	− 0.0223	− 0.0118	− 0.0274	− 0.0138
	(0.0285)	(0.0422)	(0.0238)	(0.0417)
INCOME_10	− 0.0082	− 0.0013	− 0.0081	− 0.0022
	(0.0297)	(0.0145)	(0.0224)	(0.0140)
URBAN_2	− 0.0212	0.0024	− 0.0020	0.0027
	(0.0208)	(0.0290)	(0.0232)	(0.0288)
URBAN_3	− 0.0195	− 0.0338	− 0.0104	− 0.0347
	(0.0238)	(0.0237)	(0.0239)	(0.0229)
URBAN_4	− 0.0278	0.0123	− 0.0208	0.0113
	(0.0217)	(0.0186)	(0.0187)	(0.0187)
URBAN_5	− 0.0520**	− 0.0101	− 0.0211	− 0.0101
	(0.0227)	(0.0162)	(0.0213)	(0.0162)
URBAN_6	− 0.0367	− 0.0279	− 0.0233	− 0.0282
	(0.0230)	(0.0182)	(0.0217)	(0.0181)
URBAN_7	− 0.0473**	− 0.0153	− 0.0288	− 0.0143
	(0.0183)	(0.0288)	(0.0176)	(0.0284)
URBAN_8	− 0.0339	− 0.0182	− 0.0215	− 0.0186
	(0.0227)	(0.0166)	(0.0230)	(0.0169)
Constant	0.9145***	− 0.6624***	0.9747***	− 0.6646***
	(0.0397)	(0.0513)	(0.0363)	(0.0556)
N	2604	652	2604	652
R^2	0.085	0.059	0.116	0.059
ADJ. R^2	0.074	0.014	0.105	0.013
	3 attitudes and less than 3 actions	0 attitudes and more than 2 actions	3 attitudes and less than 3 actions	0 attitudes and more than 2 actions

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

5 Conclusive remarks

In this paper we make a step forward in the understanding of the complex linkage between EA and PEB and the so-called "value action gap", analysing determinants and leverages of this gap in individuals. Although certain drivers have been considered and empirically analysed in the literature, such as those pertaining to demographical factors, environmental knowledge and social context, in this work we propose an analysis on a specific period of time, that is in the mid '90s, generalizable across countries and with novel measures under scrutiny with respect to time and

Table 7 Robustness control VAG dichotomized

	(1) INDEX_JOB_W	(2) INDEX_JOB_LEI	(3) INDEX_W_MOTIV	(4) IMIT_ACTIONS	(5) IMIT_NEGATIVES
INDEX	−0.0753**	−0.0236	0.2311***	−0.2415***	−2.5498***
	(0.0329)	(0.0276)	(0.0378)	(0.0659)	(0.1965)
TIME_P	0.0078	0.0089	0.0087	−0.0245	−0.0656***
	(0.0206)	(0.0206)	(0.0206)	(0.0405)	(0.0244)
CONTROLS:					
AGE	−0.0040***	−0.0039***	−0.0038***	−0.0028	−0.0015
	(0.0008)	(0.0008)	(0.0008)	(0.0019)	(0.0014)
HIGH_EDU_2	−0.0520	−0.0522	−0.0534	−0.0310	0.0099
	(0.0414)	(0.0414)	(0.0415)	(0.0772)	(0.0673)
HIGH_EDU_3	−0.0983**	−0.0988**	−0.0989**	−0.0605	0.0124
	(0.0459)	(0.0459)	(0.0459)	(0.0785)	(0.0637)
HIGH_EDU_4	−0.0134	−0.0151	−0.0131	−0.0088	0.0609
	(0.0410)	(0.0410)	(0.0410)	(0.1039)	(0.0891)
HIGH_EDU_5	−0.1217**	−0.1226**	−0.1179**	−0.0396	0.0231
	(0.0506)	(0.0506)	(0.0506)	(0.0931)	(0.0929)
HIGH_EDU_6	0.0467	0.0443	0.0449	0.0473	0.0545
	(0.0454)	(0.0454)	(0.0454)	(0.1020)	(0.0948)
HIGH_EDU_7	−0.1187**	−0.1252**	−0.1241**	−0.0244	0.0524
	(0.0507)	(0.0507)	(0.0507)	(0.0946)	(0.0839)
HIGH_EDU_8	−0.0291	−0.0361	−0.0418	−0.0143	0.0437
	(0.0445)	(0.0444)	(0.0444)	(0.1005)	(0.0825)
GENDER	0.0158	0.0187	0.0186	0.0317	0.0412**
	(0.0200)	(0.0199)	(0.0199)	(0.0214)	(0.0196)

Table 7 (continued)

	(1) INDEX_JOB_W	(2) INDEX_JOB_LEI	(3) INDEX_W_MOTIV	(4) IMIT_ACTIONS	(5) IMIT_NEGATIVES
HEALTH	0.0297***	0.0310***	0.0307***	0.0008	−0.0229
	(0.0112)	(0.0112)	(0.0112)	(0.0178)	(0.0143)
N_CHILDREN	−0.0288***	−0.0295***	−0.0302***	−0.0175	−0.0085
	(0.0074)	(0.0073)	(0.0073)	(0.0142)	(0.0073)
MARITAL_DUMMY	−0.0190	−0.0195	−0.0100	0.0312	0.1104*
	(0.0491)	(0.0491)	(0.0490)	(0.0636)	(0.0590)
INCOME_2	−0.1354***	−0.1350***	−0.1355***	−0.1067	−0.0477
	(0.0447)	(0.0447)	(0.0447)	(0.0758)	(0.0785)
INCOME_3	−0.1054**	−0.1054**	−0.1056**	−0.0954	−0.0348
	(0.0447)	(0.0447)	(0.0448)	(0.0814)	(0.0840)
INCOME_4	−0.1118**	−0.1123**	−0.1076**	−0.0930	−0.0297
	(0.0450)	(0.0451)	(0.0451)	(0.0936)	(0.0958)
INCOME_5	−0.0540	−0.0540	−0.0516	−0.0470	0.0052
	(0.0449)	(0.0450)	(0.0450)	(0.0982)	(0.0978)
INCOME_6	−0.1314***	−0.1302***	−0.1272***	−0.1173	−0.0509
	(0.0480)	(0.0480)	(0.0480)	(0.0957)	(0.0919)
INCOME_7	−0.0761	−0.0760	−0.0728	−0.0518	0.0307
	(0.0486)	(0.0487)	(0.0487)	(0.1024)	(0.0949)
INCOME_8	−0.0406	−0.0410	−0.0382	−0.0183	0.0647
	(0.0514)	(0.0515)	(0.0515)	(0.0907)	(0.0835)
INCOME_9	−0.1340**	−0.1336**	−0.1325**	−0.0999	0.0047
	(0.0564)	(0.0564)	(0.0564)	(0.1135)	(0.0999)

Table 7 (continued)

	(1) INDEX_JOB_W	(2) INDEX_JOB_LEI	(3) INDEX_W_MOTIV	(4) IMIT_ACTIONS	(5) IMIT_NEGATIVES
INCOME_10	−0.1373**	−0.1390**	−0.1351**	−0.1034	−0.0346
	(0.0605)	(0.0605)	(0.0606)	(0.1022)	(0.0881)
URBAN_2	0.0814**	0.0792*	0.0802*	0.1203	0.0968
	(0.0415)	(0.0415)	(0.0415)	(0.0757)	(0.0639)
URBAN_3	0.0321	0.0301	0.0274	0.0812	0.0982*
	(0.0484)	(0.0484)	(0.0484)	(0.0588)	(0.0568)
URBAN_4	0.0223	0.0208	0.0201	0.0893	0.1038
	(0.0447)	(0.0447)	(0.0447)	(0.0780)	(0.0773)
URBAN_5	0.0921**	0.0897**	0.0893**	0.1633*	0.1091
	(0.0386)	(0.0386)	(0.0386)	(0.0866)	(0.0739)
URBAN_6	0.0986**	0.0964**	0.0945**	0.1502**	0.1199
	(0.0431)	(0.0430)	(0.0431)	(0.0756)	(0.0738)
URBAN_7	0.0846**	0.0831**	0.0829**	0.1327*	0.0810
	(0.0360)	(0.0360)	(0.0360)	(0.0738)	(0.0599)
URBAN_8	0.0488	0.0465	0.0465	0.0939	0.0788
	(0.0366)	(0.0366)	(0.0366)	(0.0714)	(0.0623)
Constant	0.6220***	0.5807***	0.3870***	0.9205***	1.0825***
	(0.0770)	(0.0747)	(0.0792)	(0.2094)	(0.1399)
N	16,959	16,959	16,959	16,959	16,959
PSEUDO R^2	0.0060	0.0058	0.0074	0.0157	0.0359

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

job attitudes. Even tough results pertain to a period in which environmental awareness was starting to be part of the public debate we retain the paper offers an interesting contribution, as it helps highlighting that the elements driving the mismatch between consumers attitude towards the environment into consistent PEB was a relevant phenomenon also in the mid '90s. As witnessed by the Eurobarometer surveys (e.g. the 2017 one) people environmental awareness is increasing over time, while environmental actions do not follow the same trend. This makes the contribution very actual in its relevance.

Moving from the recognition of the central role resources have in determining environmental (or non-environmental) attitudes and actions, we accounted for the role of time, hereby considered as a scarce resource and thus treated as an opportunity cost, concluding that it directly and indirectly affects VAG. Drawing on existing evidence on the linkages between job attitude, subjective perception of time availability and life satisfaction, we have tested the role different attitude toward jobs have in affecting the alignment or misalignment between behaviours and attitudes. In other words, we have found a role for job attitudes in explaining the discrepancy between individuals' intentions and actions in undertaking consumption choices.

Our findings suggest that it is not the objective amount of discretionary time available to impact on VAG, rather the subjective perception of it: the lack of excessive job pressure, along with job satisfaction, facilitates individuals' capacity to match environmental actions and behaviours.

Secondly, we accounted for the role of the social context and norms by exploring the role of imitation as driver of gap reduction. The role of the environmental social awareness, with respect to the possibility of observing certain virtuous behaviours, is confirmed to be a channel through which the gap can be reduced, as being exposed to favourable social contexts allows to save time in gathering information on cleaner consumption choices and to conform to what people living in the same context are doing.

The current analysis may be useful from a policy perspective point of view, as it adds to existing literature aimed at understanding what drives the value action gap. Once the drivers of the gap are clear, policies can be tailored to allow minimizing the discrepancy between pro-environmental attitudes that individuals are not capable of translating into real and actual pro-environmental behaviours. Not only policies are needed to stimulate environmental awareness in consumers, but also dedicated campaigns. As a matter of fact, the current (and existing) paper signals that increasing environmental awareness is not enough and those policies may be ineffective when individuals are not able to translate their intentions into real environmental actions, but it is precisely by actions that sustainable consumption choices may improve environmental footprint and not only through intentions. In particular, the current study suggests for a crucial role of time, and its subjective perception (mediated by job attitude), in letting consumers adhere to their environmental behaviours with their actions.

There are certain limitations the current study has to acknowledge and could not solve with the data at hand. The first is that it is not possible to observe the same individual across time in the World Values Survey. Consequently, no clear claim of causality can be derived from this study.

Secondly, all information is self-reported, and we cannot control the match between a declared habit or action and its realization. Thirdly, we are not sure results can be generalizable in time, as they refer to two decades ago, a period in which substantial pressure towards the environment has arisen. By contrast, we are more confident that, in the selected period, given the historical weakest lobbying and pressure towards pro-environmental actions, the bias due to self-reported information gets minimized, as the social acceptance of non environmental behaviours was high. Still, updated analysis would allow including new environmental actions to the basket and test how individuals respond to these combining environmental challenges.

Lastly, when controlling for the role of the social context, we had to resort to country-level variables. The assumption is quite strong and it is that individuals enter into contact with people living in their own country no matter the social nor the geographical distance. Being one of the first study dealing with this issue we decided to opt for a general testing and to accept these strong assumptions. It is therefore left to future investigations the possibility to relax these assumptions, to allow individuals imitate only individuals they are actually connected to, for instance as they are geographically co-located to their peers or to those that are in their social network and ties. We could not solve this puzzle in the absence of data on the existing networks each individual is embedded into.

Declarations

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